WSR 22-02-016
PROPOSED RULES
DEPARTMENT OF HEALTH
[Filed December 27, 2021, 1:42 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 18-18-073.

Title of Rule and Other Identifying Information: Chapter 246-453 WAC, Hospital charity care. The department of health (department) is proposing revisions to this chapter to implement SHB [SSB] 6273 (chapter 263, Laws of 2018) by updating definitions, delineating charity care, and revising notice requirements without restricting charity care.

Hearing Location(s): On February 9, 2022, at 9:00 a.m. In response to the coronavirus disease 2019 (COVID-19), the department will not provide a physical location for this hearing to promote social distancing and the safety of the citizens of Washington state. A virtual public hearing, without a physical meeting space, will be held instead.

Register in advance for this webinar https://us02web.zoom.us/webinar/register/WN_vpEa8YA4T5Crt8XzgWLR1A. After registering, you will receive a confirmation email containing information about joining the webinar.

Date of Intended Adoption: February 16, 2022.

Submit Written Comments to: Carrie Baranowski, P.O. Box 47852, Olympia, WA 98504-7853 [7852], email https://fortress.wa.gov/doh/policyreview, fax 360-236-2830, by February 9, 2022.

Assistance for Persons with Disabilities: Contact Sarah Studebaker, phone 360-236-2802, fax 360-236-2830, TTY 711, email sarah.studebaker@doh.wa.gov, by February 2, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The proposed rules revise chapter 246-453 WAC, Hospital charity care, to comply with SHB [SSB] 6273 enacted by the 2018 Washington state legislature. SHB [SSB] 6273 adds several definitions to RCW 70.170.020 that modify or replace definitions currently in chapter 246-453 WAC. SHB [SSB] 6273 also amends RCW 70.170.060 to create new opportunities for patients to apply for charity care that are not currently addressed in chapter 246-453 WAC.

Reasons Supporting Proposal: Revisions to chapter 246-453 WAC are needed to comply with SHB [SSB] 6273. In 2018, the legislature passed SHB [SSB] 6273, which modified the definition of charity care; added a definition of "third-party coverage"; created new requirements for hospitals to notify patients of the availability of financial assistance and train their staff on charity care and interpreter services; and added new language to allow hospitals to reevaluate patients' need for financial assistance based on newer financial information in certain circumstances. These additions to the statute cause the definitions and procedures in chapter 246-453 WAC to be out of alignment with the underlying statute. Rule making is necessary to realign content and ensure that the rules properly reflect the changes made by SHB [SSB] 6273.

Statutory Authority for Adoption: SHB [SSB] 6273 (chapter 263, Laws of 2018).

Statute Being Implemented: SHB [SSB] 6273 (chapter 263, Laws of 2018).

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of health, governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Carrie Baranowski, 111 Israel Road S.E., Tumwater, WA 98501, 360-236-4210.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Carrie Baranowski, P.O. Box 47852, Olympia, WA 98504-7853 [7852], phone 360-236-4210, fax 360-236-2830, TTY 711, email carrie.baranowski@doh.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4). The proposed rule only impacts businesses with more than 50 employees.

Explanation of exemptions: The proposed rule only impacts hospitals, all of which employee [employ] more than 50 employees.

December 27, 2021
Kristin Peterson, JD
Deputy Secretary
Policy and Planning
for Umair A. Shah, MD, MPH
Secretary

OTS-2469.2

AMENDATORY SECTION (Amending WSR 94-12-089, filed 6/1/94, effective 7/2/94)

WAC 246-453-010 Definitions. ((~~As used in this chapter, unless the context requires otherwise,~~

~~(1)~~)) The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Bad debts" means uncollectible amounts, excluding contractual adjustments, arising from failure to pay by patients whose care has not been classified as charity care.

(2) "Charity care" has the same meaning as in RCW 70.170.020.

(3) "Department" means the Washington state department of health ((~~created by chapter 43.70 RCW;~~

~~(2)~~)).

(4) "Emergency care or emergency services" means services provided for care related to an emergency medical or mental condition.

(5) "Emergency department" and "emergency room" means that portion of the hospital facility organized for the purpose of providing emergency care or emergency services.

(6) "Emergency medical condition" means a medical condition manifesting itself by acute symptoms of sufficient severity, including severe pain, such that the absence of immediate medical attention could reasonably be expected to result in:

(a) Placing the health of the individual or, with respect to a pregnant woman, the health of the woman or her unborn child, in serious jeopardy;

(b) Serious impairment of bodily functions;

(c) Serious dysfunction of any bodily organ or part.

(d) With respect to a pregnant woman who is having contractions the term means:

(i) That there is inadequate time to effect a safe transfer to another hospital before delivery; or

(ii) That transfer may pose a threat to the health or safety of the woman or the unborn child.

(7) "Family" means a group of two or more persons related by birth, marriage, or adoption who live together; all such related persons are considered as members of one family.

(8) "Final determination of sponsorship status" means the verification of third-party coverage or lack of third-party coverage, as evidenced by payment received from the third-party sponsor or denial of payment by the alleged third-party sponsor, and verification of the responsible party's qualification for classification as an indigent person, subsequent to the completion of any appeals to which the responsible party may be entitled and which on their merits have a reasonable chance of achieving third-party coverage in full or in part.

(9) "Hospital" means any health care institution which is required to qualify for a license under ((~~RCW 70.41.020(2)~~)) chapter 70.41 RCW; or as a psychiatric hospital under chapter 71.12 RCW((~~;~~ ~~(3)~~)).

(10) "Income" means total cash receipts before taxes derived from wages and salaries, welfare payments, Social Security payments, strike benefits, unemployment or disability benefits, child support, alimony, and net earnings from business and investment activities paid to the individual.

(11) "Indigent persons" means those patients who have exhausted any third-party sources, including medicare and medicaid, and whose income is equal to or below 200 percent of the federal poverty standards, adjusted for family size or is otherwise not sufficient to enable them to pay for the care or to pay deductibles or coinsurance amounts required by a third-party payor.

(12) "Initial determination of sponsorship status" means an indication, pending verification, that the services provided by the hospital may or may not be covered by third-party sponsorship, or an indication from the responsible party, pending verification, that he or she may meet the criteria for designation as an indigent person qualifying for charity care.

(13) "Limited medical resources" means the nonavailability of services or medical expertise which are required or are expected to be required for the appropriate diagnosis, treatment, or stabilization per federal requirements of an individual's medical or mental situation.

(14) "Manual" means the *Washington State Department of Health Accounting and Reporting Manual for Hospitals*, adopted under WAC 246-454-020((~~;~~

~~(4) "Indigent persons" means those patients who have exhausted any third-party sources, including medicare and medicaid, and whose income is equal to or below 200% of the federal poverty standards, adjusted for family size or is otherwise not sufficient to enable them to pay for the care or to pay deductibles or coinsurance amounts required by a third-party payor;~~

~~(5) "Charity care" means appropriate hospital-based medical services provided to indigent persons, as defined in this section;~~

~~(6) "Bad debts" means uncollectible amounts, excluding contractual adjustments, arising from failure to pay by patients whose care has not been classified as charity care;~~

~~(7) "Appropriate hospital-based medical services" means those hospital services which are reasonably calculated to diagnose, correct, cure, alleviate, or prevent the worsening of conditions that endanger life, or cause suffering or pain, or result in illness or infirmity, or threaten to cause or aggravate a handicap, or cause physical deformity or malfunction, and there is no other equally effective more conservative or substantially less costly course of treatment available or suitable for the person requesting the service. For purpose of this section, "course of treatment" may include mere observation or, where appropriate, no treatment at all;~~

~~(8) "Medical staff" means physicians, dentists, nurses, and other professional individuals who have admitting privileges to the hospital, and may also participate as members of the medical staff committees, serve as officers of the medical staff, and serve as directors or chiefs of hospital departments;~~

~~(9) "Third-party coverage" and "third-party sponsorship" means an obligation on the part of an insurance company or governmental program which contracts with hospitals and patients to pay for the care of covered patients and services, and may include settlements, judgments, or awards actually received related to the negligent acts of others which have resulted in the medical condition for which the patient has received hospital services;~~

~~(10) "Unusually costly or prolonged treatment" means those services or combinations of services which exceed two standard deviations above the average charge, and/or three standard deviations above the average length of stay, as determined by the department's discharge database;~~

~~(11) "Emergency care or emergency services" means services provided for care related to an emergency medical or mental condition;~~

~~(12) "Emergency department" and "emergency room" means that portion of the hospital facility organized for the purpose of providing emergency care or emergency services;~~

~~(13) "Emergency medical condition" means a medical condition manifesting itself by acute symptoms of sufficient severity, including severe pain, such that the absence of immediate medical attention could reasonably be expected to result in:~~

~~(a) Placing the health of the individual (or, with respect to a pregnant woman, the health of the woman or her unborn child) in serious jeopardy;~~

~~(b) Serious impairment of bodily functions;~~

~~(c) Serious dysfunction of any bodily organ or part.~~

~~With respect to a pregnant woman who is having contractions the term shall mean:~~

~~(d) That there is inadequate time to effect a safe transfer to another hospital before delivery; or~~

~~(e) That transfer may pose a threat to the health or safety of the woman or the unborn child;~~

~~(14) "Responsible party" means that individual who is responsible for the payment of any hospital charges which are not subject to third-party sponsorship;~~

~~(15) "Limited medical resources" means the nonavailability of services or medical expertise which are required or are expected to be required for the appropriate diagnosis, treatment, or stabilization~~

~~per federal requirements of an individual's medical or mental situation;~~

~~(16) "Publicly available" means posted or prominently displayed within public areas of the hospital, and provided to the individual in writing and explained, at the time that the hospital requests information from the responsible party with regard to the availability of any third-party coverage, in any language spoken by more than ten percent of the population in the hospital's service area, and interpreted for other non-English speaking or limited-English speaking or other patients who can not read or understand the writing and explanation;~~

~~(17) "Income" means total cash receipts before taxes derived from wages and salaries, welfare payments, Social Security payments, strike benefits, unemployment or disability benefits, child support, alimony, and net earnings from business and investment activities paid to the individual;~~

~~(18) "Family" means a group of two or more persons related by birth, marriage, or adoption who live together; all such related persons are considered as members of one family;~~

~~(19) "Initial determination of sponsorship status" means an indication, pending verification, that the services provided by the hospital may or may not be covered by third party sponsorship, or an indication from the responsible party, pending verification, that he or she may meet the criteria for designation as an indigent person qualifying for charity care; and~~

~~(20) "Final determination of sponsorship status" means the verification of third party coverage or lack of third party coverage, as evidenced by payment received from the third party sponsor or denial of payment by the alleged third party sponsor, and verification of the responsible party's qualification for classification as an indigent person, subsequent to the completion of any appeals to which the responsible party may be entitled and which on their merits have a reasonable chance of achieving third-party sponsorship in full or in part.~~))

(15) "Medical staff" means physicians, dentists, nurses, and other professional individuals who have admitting privileges to the hospital, and may also participate as members of the medical staff committees, serve as officers of the medical staff, and serve as directors or chiefs of hospital departments.

(16) "Medically necessary hospital health care" means those hospital services which are reasonably calculated to diagnose, correct, cure, alleviate, or prevent the worsening of conditions that endanger life, or cause suffering or pain, or result in illness or infirmity, or threaten to cause or aggravate a handicap, or cause physical deformity or malfunction, and there is no other equally effective more conservative or substantially less costly course of treatment available or suitable for the person requesting the service. For purpose of this section, "course of treatment" may include mere observation or, where appropriate, no treatment at all.

(17) "Publicly available" means all of the following:

(a) Posted or prominently displayed within public areas of the hospital, including:

(i) Areas where patients are admitted or registered;

(ii) Emergency departments; and

(iii) Financial service or billing areas accessible to patients.

(b) Provided to the individual in writing and explained, at the time that the hospital requests information from the responsible party with regard to the availability of any third-party coverage;

(c) Posted to the hospital's website, if any, in the form of the hospital's approved charity care policy, a plain language summary of the hospital's charity care policy, the hospital's sliding fee scale, and the hospital's charity care application form;

(d) On all written estimates of the cost of care, hospital billing statements, and communications intended to solicit payment of a hospital bill in accordance with chapter 70.170 RCW; and

(e) All written notifications are available in any language spoken by more than 10 percent of the population in the hospital's service area, and verbal explanations are interpreted for non-English speaking or limited-English speaking or other patients who cannot read or understand the writing and explanation.

(18) "Responsible party" means that individual who is responsible for the payment of any hospital charges which are not subject to third-party coverage.

(19) "Third-party coverage" means an obligation on the part of an insurance company, health service contractor, health maintenance organization, group health plan, governmental program, tribal health benefits, or health care sharing ministry as defined in 26 U.S.C. Sec. 5000A to pay for the care of covered patients and services, and may include settlements, judgments, or awards actually received related to the negligent acts of others which have resulted in the medical condition for which the patient has received hospital services. The pendency of such settlements, judgments, or awards must not stay hospital obligations to consider an eligible patient for charity care.

(20) "Unusually costly or prolonged treatment" means those services or combinations of services which exceed two standard deviations above the average charge, or three standard deviations above the average length of stay, as determined by the department's discharge database.

[Statutory Authority: Chapters 43.070 [43.70] and 70.170 RCW. WSR 94-12-089, § 246-453-010, filed 6/1/94, effective 7/2/94. Statutory Authority: RCW 70.170.060. WSR 91-05-048 (Order 142), § 246-453-010, filed 2/14/91, effective 3/17/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-453-010, filed 12/27/90, effective 1/31/91. Statutory Authority: Chapter 70.39 RCW. WSR 85-01-007 (Order 84-07, Resolution No. 84-07), § 261-14-020, filed 12/7/84.]

AMENDATORY SECTION (Amending WSR 91-05-048, filed 2/14/91, effective 3/17/91)

WAC 246-453-020 Uniform procedures for the identification of indigent persons. For the purpose of identifying those patients that will be classified as indigent persons, all hospitals shall adopt and implement the following procedures:

(1) The initiation of collection efforts directed at the responsible party shall be precluded pending an initial determination of sponsorship status, provided that the responsible party is cooperative with the hospital's efforts to reach an initial determination of sponsorship status((~~,~~)).

(a) Collection efforts shall include any demand for payment or transmission of account documents or information which is not clearly

identified as being intended solely for the purpose of transmitting information to the responsible party((~~:~~)).

(b) The initial determination of sponsorship status shall be completed at the time of admission or as soon as possible following the initiation of services to the patient((~~:~~)).

(c) If the initial determination of sponsorship status indicates that the responsible party may meet the criteria for classification as an indigent person, as described in WAC 246-453-040, collection efforts directed at the responsible party will be precluded pending a final determination of that classification, provided that the responsible party is cooperative with the hospital's reasonable efforts to reach a final determination of sponsorship status((~~:~~)).

(d) During the pendency of the initial determination of sponsorship status and/or the final determination of the applicability of indigent person criteria, hospitals may pursue reimbursement from any third-party coverage that may be identified to the hospital((~~:~~)).

(e) The requirements of this subsection shall not apply to clinics operated by disproportionate share hospitals, as defined and identified by the department of social and health services, medical assistance services, provided that patients are advised of the availability of charity care at the time that services are provided and when presented with a request for payment.

(2) Notice shall be made publicly available that charges for services provided to those persons meeting the criteria established within WAC 246-453-040 may be waived or reduced.

(3) Any responsible party who has been initially determined to meet the criteria identified within WAC 246-453-040 shall be provided with at least ((~~fourteen~~)) 14 calendar days or such time as the person's medical condition may require, or such time as may reasonably be necessary to secure and to present documentation as described within WAC 246-453-030 prior to receiving a final determination of sponsorship status.

(4) Hospitals must make every reasonable effort to determine the existence or nonexistence of third-party sponsorship that might cover in full or in part the charges for services provided to each patient.

(5) Hospitals may require potential indigent persons to use an application process attesting to the accuracy of the information provided to the hospital for purposes of determining the person's qualification for charity care sponsorship. Hospitals may not impose application procedures for charity care sponsorship which place an unreasonable burden upon the responsible party, taking into account any physical, mental, intellectual, or sensory deficiencies or language barriers which may hinder the responsible party's capability of complying with the application procedures. The failure of a responsible party to reasonably complete appropriate application procedures shall be sufficient grounds for the hospital to initiate collection efforts directed at the patient.

(6) Hospitals may not require deposits from those responsible parties meeting the criteria identified within WAC 246-453-040 (1) or (2), as indicated through an initial determination of sponsorship status.

(7) Hospitals must notify persons applying for charity care sponsorship of their final determination of sponsorship status within ((~~fourteen~~)) 14 calendar days of receiving information in accordance with WAC 246-453-030; such notification must include a determination of the amount for which the responsible party will be held financially accountable.

(8) In the event that the hospital denies the responsible party's application for charity care sponsorship, the hospital must notify the responsible party of the denial and the basis for that denial.

(9) All responsible parties denied charity care sponsorship under WAC 246-453-040 (1) or (2) shall be provided with, and notified of, an appeals procedure that enables them to correct any deficiencies in documentation or request review of the denial and results in review of the determination by the hospital's chief financial officer or equivalent.

(a) Responsible parties shall be notified that they have ((~~thirty~~)) 30 calendar days within which to request an appeal of the final determination of sponsorship status. Within the first ((~~fourteen~~)) 14 days of this period, the hospital may not refer the account at issue to an external collection agency. After the ((~~fourteen day~~)) 14-day period, if no appeal has been filed, the hospital may initiate collection activities.

(b) If the hospital has initiated collection activities and discovers an appeal has been filed, they shall cease collection efforts until the appeal is finalized.

(c) In the event that the hospital's final decision upon appeal affirms the previous denial of charity care designation under the criteria described in WAC 246-453-040 (1) or (2), the responsible party and the department of health shall be notified in writing of the decision and the basis for the decision, and the department of health shall be provided with copies of documentation upon which the decision was based.

(d) The department will review the instances of denials of charity care. In the event of an inappropriate denial of charity care, the department may seek penalties as provided in chapter 70.170 RCW ((~~70.170.070~~)).

(10) Hospitals should make every reasonable effort to reach initial and final determinations of charity care designation in a timely manner; however, hospitals shall make those designations at any time upon learning of facts or receiving documentation, as described in WAC 246-453-030, indicating that the responsible party's income is equal to or below ((~~two hundred~~)) 200 percent of the federal poverty standard as adjusted for family size. The timing of reaching a final determination of charity care status shall have no bearing on the identification of charity care deductions from revenue as distinct from bad debts.

(11) In the event that a responsible party pays a portion or all of the charges related to ((~~appropriate hospital-based medical~~)) medically necessary hospital health care services, and is subsequently found to have met the charity care criteria at the time that services were provided, any payments in excess of the amount determined to be appropriate in accordance with WAC 246-453-040 shall be refunded to the patient within ((~~thirty~~)) 30 days of achieving the charity care designation.

(12) The hospital may, at its discretion, and at the request of the responsible party, make a final determination of eligibility using the responsible party's annual family income as of the time of the application at any time there is a change in the responsible party's financial circumstances, even if a previous application was denied or approved in part, regardless of whether the criteria in WAC 246-453-045(2) are met.

[Statutory Authority: RCW 70.170.060. WSR 91-05-048 (Order 142), § 246-453-020, filed 2/14/91, effective 3/17/91.]

AMENDATORY SECTION (Amending WSR 91-05-048, filed 2/14/91, effective 3/17/91)

WAC 246-453-040 Uniform criteria for the identification of indigent persons. For the purpose of identifying indigent persons, all hospitals shall use the following criteria:

(1) All responsible parties with family income equal to or below ((~~one hundred~~)) 100 percent of the federal poverty standard, adjusted for family size, shall be determined to be indigent persons qualifying for charity sponsorship for the full amount of hospital charges related to ((~~appropriate hospital-based medical~~)) medically necessary hospital health care services that are not covered by private or public third-party ((~~sponsorship~~)) coverage;

(2) All responsible parties with family income between ((~~one hundred one and two hundred~~)) 101 and 200 percent of the federal poverty standard, adjusted for family size, shall be determined to be indigent persons qualifying for discounts from charges related to ((~~appropriate hospital-based medical~~)) medically necessary hospital health care services in accordance with the hospital's sliding fee schedule and policies regarding individual financial circumstances;

(3) Hospitals may classify any individual responsible party whose income exceeds ((~~two hundred~~)) 200 percent of the federal poverty standard, adjusted for family size, as an indigent person eligible for a discount from charges based upon that responsible party's individual financial circumstances.

[Statutory Authority: RCW 70.170.060. WSR 91-05-048 (Order 142), § 246-453-040, filed 2/14/91, effective 3/17/91.]

NEW SECTION

WAC 246-453-045 Income to be used for the identification of indigent persons. (1) Except as provided in this section, a final determination must be made using the responsible party's annual family income as of the time the health care services were provided.

(2) A final determination of eligibility must be made using the responsible party's annual family income at the time the responsible party applies for charity care sponsorship if:

(a) Application is made within two years of the time the health care services were provided; and

(b) The responsible party has been making good faith efforts toward payment of health care services provided.

(3) If the responsible party was previously denied sponsorship or granted less than a full discount of the charges, and meets criteria in subsection (2)(a) and (b) of this section, the responsible party may apply using family income as of the time of the new application.

[]

AMENDATORY SECTION (Amending WSR 94-12-089, filed 6/1/94, effective 7/2/94)

WAC 246-453-050 Guidelines for the development of sliding fee schedules. All hospitals shall((~~, within ninety days of the adoption of these rules,~~)) implement a sliding fee schedule for determination of discounts from billed charges for responsible parties meeting the criteria in WAC 246-453-040(2). ((~~These~~)) Sliding fee schedules must be made publicly available ((~~upon request~~)).

(1) In developing these sliding fee schedules, hospitals shall consider the following guidelines:

(a) The sliding fee schedule shall consider the level of charges that are not covered by any public or private sponsorship in relation to or as a percentage of the responsible party's family income;

(b) The sliding fee schedule shall determine the maximum amount of charges for which the responsible party will be expected to provide payment, with flexibility for hospital management to hold the responsible party accountable for a lesser amount after taking into account the specific financial situation of the responsible party;

(c) The sliding fee schedule shall take into account the potential necessity for allowing the responsible party to satisfy the maximum amount of charges for which the responsible party will be expected to provide payment over a reasonable period of time, without interest or late fees; and

(d) Hospital policies and procedures regarding the sliding fee schedule shall specify the individual financial circumstances which may be considered by appropriate hospital personnel for purposes of adjusting the amount resulting from the application of the sliding fee schedule, such as:

(i) Extraordinary nondiscretionary expenses relative to the amount of the responsible party's medical care expenses;

(ii) The existence and availability of family assets, which may only be considered with regard to the applicability of the sliding fee schedule;

(iii) The responsible party's future income earning capacity, especially where his or her ability to work in the future may be limited as a result of illness; and

(iv) The responsible party's ability to make payments over an extended period of time.

(2) Examples of sliding fee schedules which address the guidelines in the previous subsection are:

(a) A person whose annual family income is between ((~~one hundred one and two hundred~~)) 101 and 200 percent of the federal poverty standard, adjusted for family size, shall have his/her hospital charges that are not covered by public or private sponsorship limited to ((~~forty~~)) 40 percent of the excess of that person's annual family income over ((~~one hundred~~)) 100 percent of the federal poverty standard, adjusted for family size. This responsibility may be adjusted by appropriate hospital personnel after taking into consideration the individual financial circumstances of the responsible party. The responsible party's financial obligation which remains after the application of this sliding fee schedule may be payable in monthly installments over a reasonable period of time, without interest or late fees, as negotiated between the hospital and the responsible party.

(b) A person whose family income is between ((~~one hundred one and two hundred~~)) 101 and 200 percent of the federal poverty standard, adjusted for family size, shall have his/her hospital charges that are

not covered by public or private sponsorship reduced according to the schedule below. The resulting responsibility may be adjusted by appropriate hospital personnel after taking into consideration the individual financial circumstances of the responsible party. The responsible party's financial obligation which remains after the application of this sliding fee schedule may be payable in monthly installments over a reasonable period of time, without interest or late fees, as negotiated between the hospital and the responsible party. The schedule is as follows:

INCOME AS A PERCENTAGE OF FEDERAL POVERTY LEVEL	PERCENTAGE DISCOUNT
One hundred one to one hundred thirty-three	Seventy-five percent
One hundred thirty-four to one hundred sixty-six	Fifty percent
One hundred sixty-seven to two hundred	Twenty-five percent

(3) The provisions of this section and RCW 70.170.060(5) shall not apply to the professional services of the hospital's medical staff, provided that the charges for such services are either submitted by the individual medical staff or are separately identified within the hospital's billing system.

[Statutory Authority: Chapters 43.070 [43.70] and 70.170 RCW. WSR 94-12-089, § 246-453-050, filed 6/1/94, effective 7/2/94. Statutory Authority: RCW 70.170.060. WSR 91-05-048 (Order 142), § 246-453-050, filed 2/14/91, effective 3/17/91.]

AMENDATORY SECTION (Amending WSR 91-05-048, filed 2/14/91, effective 3/17/91)

WAC 246-453-060 Denial of access to emergency care based upon ability to pay and transfer of patients with emergency medical conditions or active labor. (1) No hospital or its medical staff shall adopt or maintain admission practices or policies which result in:

(a) A significant reduction in the proportion of patients who have no third-party coverage and who are unable to pay for hospital services;

(b) A significant reduction in the proportion of individuals admitted for inpatient hospital services for which payment is, or is likely to be, less than the anticipated charges for or costs of such services; or

(c) The refusal to admit patients who would be expected to require unusually costly or prolonged treatment for reasons other than those related to the appropriateness of the care available at the hospital.

(2) No hospital shall adopt or maintain practices or policies which would deny access to emergency care based on ability to pay. No hospital which maintains an emergency department shall transfer a patient with an emergency medical condition or who is in active labor unless the transfer is performed at the request of the patient or is due to the limited medical resources of the transferring hospital. Hospitals must follow reasonable procedures in making transfers to

other hospitals including confirmation of acceptance of the transfer by the receiving hospital.

(3) The department shall monitor hospital compliance with subsections (1) and (2) of this section. The department shall report to the legislature and the governor on hospital compliance with these requirements and shall report individual instances of possible noncompliance to the state attorney general or the appropriate federal agency. For purposes of monitoring compliance with subsection (2) of this section, the department is to follow all definitions and requirements of federal law.

(4) Except as required by federal law and subsection (2) of this section, nothing in this section shall be interpreted to indicate that hospitals and their medical staff are required to provide ((~~appropriate hospital-based medical~~)) medically necessary hospital health care services, including experimental services, to any individual.

[Statutory Authority: RCW 70.170.060. WSR 91-05-048 (Order 142), § 246-453-060, filed 2/14/91, effective 3/17/91.]

WSR 22-02-027
PROPOSED RULES
HEALTH CARE AUTHORITY
[Filed December 28, 2021, 3:16 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-16-061.

Title of Rule and Other Identifying Information: WAC 182-115-0100 Certified peer counselor—General, and 182-115-0200 Certified peer counselor—Application, training, examination, and authority approval.

Hearing Location(s): On February 8, 2022, at 10:00 a.m. The health care authority (HCA) remains closed in response to the coronavirus disease 2019 (COVID-19) public health emergency. Until further notice, HCA continues to hold public hearings virtually without a physical meeting place. This promotes social distancing and the safety of the residents of Washington state. To attend the virtual public hearing, you must register in advance https://zoom.us/webinar/register/WN_1xrodxXpRxCFb9iBSr0GHw. After registering, you will receive a confirmation email containing information about joining the public hearing.

Date of Intended Adoption: Not sooner than February 9, 2022.

Submit Written Comments to: HCA Rules Coordinator, P.O. Box 42716, Olympia, WA 98504-2716, email arc@hca.wa.gov, fax 360-586-9727, by February 8, 2022.

Assistance for Persons with Disabilities: Contact HCA rules coordinator, phone 360-725-1306, fax 360-586-9727, telecommunication[s] relay service 711, email arc@hca.wa.gov, by January 21, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The authority intends to adopt rules to define the process of becoming a behavioral health certified peer counselor.

Reasons Supporting Proposal: See purpose.

Statutory Authority for Adoption: RCW 41.05.021, 41.05.160.

Statute Being Implemented: RCW 41.05.021, 41.05.160.

Rule is not necessitated by federal law, federal or state court decision.

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: Not applicable.

Name of Proponent: HCA, governmental.

Name of Agency Personnel Responsible for Drafting: Valerie Freudenstein, P.O. Box 42716, Olympia, WA 98504-2716, 360-725-1344; Implementation and Enforcement: Maureen Bailey, P.O. Box 55534, Olympia, WA 98504-5534, 360-725-9997.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 does not apply to HCA rules unless requested by the joint administrative rules review committee or applied voluntarily.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. The proposed rule does not impose any costs on businesses.

December 28, 2021
Wendy Barcus
Rules Coordinator

OTS-3227.3

Chapter 182-115 WAC
CERTIFIED PEER COUNSELOR

NEW SECTION

WAC 182-115-0100 Certified peer counselor—General. (1) The authority recognizes a person as a certified peer counselor who can provide medicaid-reimbursable peer counseling services when the person meets the requirements in WAC 182-115-0200.

(2) Certified peer counselors who provide services to people enrolled in medicaid must be under the clinical supervision of a mental health professional and/or substance use disorder professional who understands rehabilitation and recovery. The clinical supervisor's expertise should be aligned with the needs of the populations served by the certified peer counselor.

(3) Certified peer counselors must provide services to people enrolled in medicaid under a licensed community behavioral health agency as defined in WAC 246-341-0200 and certified under WAC 246-341-0724.

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NEW SECTION

WAC 182-115-0200 Certified peer counselor—Application, training, examination, and authority approval. (1) Applicants applying to become a certified peer counselor with the authority must meet all of the following:

(a) Self-identify as a person with lived experience in behavioral health recovery or as a parent or legal guardian of a child under the age of 18 who experienced behavioral health challenges;

(b) Demonstrate they have been well-grounded in their own recovery for at least one year and be willing to tell their recovery story;

(c) Demonstrate basic reading and writing comprehension;

(d) Meet the minimum education requirements of a high school diploma or GED. The authority may grant a waiver of this requirement;

(e) Be 18 years of age or older;

(f) Be credentialed as an agency affiliated counselor under chapter 18.19 RCW;

(g) Complete specialized training provided by or contracted through the authority. If the person was trained by trainers approved by the department of social and health services before October 1, 2004, and has met the requirements in (a), (b), and (f) of this subsection by January 31, 2005, the person is exempt from completing this specialized training; and

(h) Successfully pass the authority's examination.

(2) In order to take the authority's examination to become a certified peer counselor who can provide medicaid-reimbursable peer counseling services, applicants must:

(a) Successfully complete an approved certified peer counselor training course administered by the authority's approved training entity with approved trainers; and

(b) Pass the Washington state certified peer counseling examination with a score of 80 percent or higher.

(3) Upon successful completion of the authority's examination, the authority issues a letter stating the authority recognizes the person as a "certified peer counselor."

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WSR 22-02-040
PROPOSED RULES
BUILDING CODE COUNCIL
[Filed December 30, 2021, 10:05 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-07-134.

Title of Rule and Other Identifying Information: Chapter 51-50 WAC, Adoption and amendment of the 2021 International Building Code (IBC).

Hearing Location(s): On February 11, 2022, at 10:00 [a.m.], and March 11, 2022, at 10:00 [a.m.] virtual meeting - Zoom. In response to the governor's emergency proclamation there will not be a physical location. Please access the meeting via Zoom or conference phone provided in the agenda.

Date of Intended Adoption: April 15, 2022.

Submit Written Comments to: State Building Code Council (SBCC), 1500 Jefferson Street S.E., Olympia, WA 98504, email sbcc@des.wa.gov, by March 4, 2022.

Assistance for Persons with Disabilities: Contact Annette Haworth, phone 360-407-3255, email sbcc@des.wa.gov, by February 4, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The proposed rule adopts the 2021 edition of IBC, published by the International Code Council (ICC), with state amendments to incorporate proposed changes as adopted by SBCC. The rules will provide increased clarity and life safety measures for building construction in Washington state.

ATTACHMENT A: SUMMARY OF PROPOSED CHANGES

2021 IBC Amendments to Chapter 51-50 WAC

WAC	Section	Changes in 2021	Rationale/Discussion
WAC 51-50-003	003	Change 2018 to 2021.	Editorial change
WAC 51-50-005	005	Change reference from 2009 A117.1 to 2017.	ICC A117.1-2017 is the most current version.
WAC 51-50-007	007	Change 2015 to 2021.	2021 IEBC is the most current code.
WAC 51-50-008	008	Replaces February 1, 2021, with July 1, 2023.	July 1, 2023, is the effective date for all 2021 codes.
WAC 51-50-009	009	Remove existing language and reserve WAC 51-50-009.	The existing language is relocated in Chapters 2 and 4 (Section 430); there is no change in regulatory effect.
WAC 51-50-0110	110.3.5 through 110.3.12.1	Remove the state amendment and reserve WAC 51-50-0110.	The existing amendment is no longer needed; it is addressed in the model code.

WAC 51-50-0202	Definitions	AUTOMATIC LOAD MANAGEMENT SYSTEM (ALMS). New definition.	The term is used in the new proposal in Section 429.
		COMPOST. Relocated from WAC 51-50-009.	The existing language is relocated in Chapters 2 and 4 (Section 430); there is no change in regulatory effect.
		ELECTRIC VEHICLE (EV) CAPABLE PARKING SPACE. New definition.	The term is used in the new proposal in Section 429.
		ELECTRIC VEHICLE (EV) CHARGER.	The term is used in the new proposal in Section 429.
		ELECTRIC VEHICLE (EV) READY PARKING SPACE. New definition.	The term is used in the new proposal in Section 429.
		ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). New definition.	The term is used in the new proposal in Section 429.
		HIGH-RISE BUILDING. New definition.	Corrects a previous ambiguity by adding an occupied roof with an occupant load of 50 or more.
		LOFT. New definition.	The term is used in the new proposal in Sections 420.14, 505.1, 907.2.11.1, 907.2.11.2, 1011.15, 1011.16, 1015.2, 1015.3.
		MASS TIMBER. Remove existing definition.	Addressed in the model code.
		NIGHTCLUB. Modifying the existing definition. The reference to 2006 IBC regarding Group A-2 is proposed for remove [removal].	The A-2 occupancy is addressed in the 2021 IBC (as well as in all other codes after 2006); there is no need for a reference to an old code to be maintained.
		NONCOMBUSTABLE PROTECTION (For MASS TIMBER). Remove existing definition.	The existing definition is no longer needed; it is addressed in the model code.
		RECYCLED MATERIALS. Relocated from WAC 51-50-009.	The existing language is relocated in Chapters 2 and 4 (Section 430); there is no change in regulatory effect.
		WALL, LOAD BEARING. Remove existing definition.	The existing definition is no longer needed; it is addressed in the model code.
WAC 51-50-0306	306.2	Add: Energy storage systems (ESS) in dedicated use buildings. Add: Water/sewer treatment facilities.	Incorporates changes in the model code.
WAC 51-50-0308	308.1.1	Remove defined terms.	Intended to match the model code format.
	308.2	Modify existing amendment.	Incorporates changes in the model code.
WAC 51-50-0309	309.1	Modify existing amendment.	Incorporates changes in the model code.
WAC 51-50-0310	310.3	Reformat existing language.	Intended to match the format in the model code. There is no intended change in regulatory effect.
WAC 51-50-0403	403.3.2	Remove existing amendment.	Addressed in the model code.
	403.5.4	Referenced sections renumbering.	Incorporates renumbering in the model code.
WAC 51-50-0405	405.7.2	• New WAC number for existing amendment. • Referenced section renumbering.	WAC number and section title were previously omitted. The proposal also incorporates renumbering in the model code.
WAC 51-50-0407	407.4.4.3	Remove the state amendment and save WAC 51-50-0407 as reserved.	The existing amendment (deletes the exception allowing 125 feet travel distance) was intended to avoid conflicts with the federal requirements. The model code is modified to reflect recent changes in the federal rules; there is no longer need for the existing amendment.
WAC 51-50-0412	412.7.3	Modify existing amendment.	Incorporates changes in the model code.
WAC 51-50-0420	420	• Sections 420.11, 420.11.1, 420.11.2, 420.11.3, 420.11.4, 420.11.5, 420.11.6, and 420.12 are renumbered. • Section references in Section 420.14 (as renumbered), Item 9, are renumbered.	Modifications are intended to incorporate section renumbering in the model code.
	420.14	Add new Section 420.14 (Lofts) with subsequent subsections (420.14.1, 420.14.2, 420.14.3, 420.14.4, 420.14.4.1, 420.14.5).	Introduces "lofts" into the IBC as WA amendment. The concept is taken from Section R327 of the IRC, as amended. Lofts have been used in jurisdictions for years to put "extra" space to use. However, there is nothing in the code that regulates them. This proposal is intended to provide a reasonable balance between flexibility and safety for lofts.
WAC 51-50-0429	429	Replace the existing requirements for EV infrastructure with a new proposal.	Statutory mandate pursuant to HB 1287.
New WAC 51-50-0430	430	Relocation.	The existing language in WAC 51-50-009 is relocated in Chapters 2 and 4; no change in regulatory effect.

WAC 51-50-0503	503.1.4	Remove existing amendment.	Addressed in the model code.
	503.1.4.1	New section addressing enclosures of occupied roof areas. The new amendment adds Exception 2 - addressing the high-rise buildings.	The current limit on the guard height was based on fire department access to the roof. Once the roof deck is higher than fire ladder access, there is no longer justification for this limitation. There have been concerns that higher guards are needed on higher roofs to prevent people from jumping off the roof and/or to allow for wind breaks to limit items blowing off the roof deck and falling on people below. This proposal addresses both concerns.
	503.1.4.2	New section.	See Section 1015.2.
WAC 51-50-0504	504.4.1	Referenced section renumbering.	Incorporates changes in the model code (renumbering).
WAC 51-50-0505	505.1	New section.	Adds "lofts" as an exception reference section for correlation. See rationale for Section 420.14.
WAC 51-50-0506	Table 506.2	Remove existing amendment and reserve WAC 51-50-0506.	The existing amendment is no longer needed; it is addressed in the model code.
WAC 51-50-0508	508.4.4.1	Remove existing amendment.	Addressed in the model code.
	508.5.1	New section. Delete Item 4 from the model code language.	Removes an unenforceable limitation. Once the building permit is issued, the code official does not have the ability to restrict the number of people in a private residential dwelling unit.
WAC 51-50-0509	509.4.1.1	Remove existing amendment.	Addressed in the model code.
WAC 51-50-0510	510.2	• Incorporates changes in the model code. • Corrects errors in the existing amendment (Exception 4 is Item 4 in the model code). • Amends Items 5 and 7.	Eliminates the Group A 299 occupant load limitation in its entirety and let the overall provisions found in the IBC dictate the design of Group A buildings or buildings with Group A occupancy constructed over horizontal assembly.
	510.5	Remove existing amendment.	Addressed in the model code.
WAC 51-50-0601	Table 601	Remove existing amendment and reserve WAC 51-50-0601.	The existing amendment is no longer needed; it is addressed in the model code.
WAC 51-50-0602	Table 602 602.4	Remove existing amendments in Table 602 and Sections 602.4, 602.4.1, 602.4.1.1, 602.4.1.2, 602.4.1.2.1, 602.4.1.3, 602.4.1.4, 602.4.1.5, 602.4.1.6, 602.4.2, 602.4.2.1, 602.4.2.2, 602.4.2.2.1, 602.4.2.2.3, 602.4.2.2.4, 602.4.2.5, 602.4.2.6, 602.4.3, 602.4.3.1, 602.4.3.2, 602.4.3.3, 602.4.3.4, 602.4.3.5, 602.4.3.6, 602.4.4, 602.4.4.1, and 602.4.4.2.	The existing amendments are no longer needed; all are addressed in the model code.
	602.4.2.2.2 602.4.2.2.4	Modify existing amendments. The proposed increase of allowable unprotected area on the ceiling from 20 percent to 100 percent is consistent with the recently completed research conducted at the Research Institute of Sweden (RISE).	The RISE fire tests demonstrate that the proposed amounts of unprotected areas on the ceiling and walls, as a function of floor area, can be safely implemented while still achieving the performance objectives specified by the ICC Tall Wood Building Ad-Hoc Committee in the development of the tall building mass timber provisions in the 2021 I-codes. (See proposal # 21-GP1-87 for detailed rationale.)
	602.4.2.3	Modify existing amendment.	Intended to address a conflict. For Type IV-B construction, the current code requires the underside of mass timber floor assemblies to be protected in accordance with the provisions for Type IV-A construction (the last sentence in Section 602.4.2.3 points to Section 602.4.1.2). However, Section 602.4.1.2 does not permit exposed mass timber. This conflicts with Section 602.4.2.2.2, which allows some limited exposed mass timber. This proposal eliminates the conflict by clarifying the reference to Type IV-A construction does not apply to the unprotected portions of mass timber permitted for Type IV-B construction.
	602.4.4.3	New section; the amendment is in Item 3.	Adequately conveys the intent of the third protection alternative. Only combustible surfaces in concealed spaces need to be protected. If a concealed space is created by furring out with steel studs, for instance, only the heavy timber surfaces would need to be sheathed with 5/8-inch Type X gypsum board, not the steel studs.
WAC 51-50-0603	603.1	Remove existing amendment and reserve WAC 51-50-0603.	Technical advisory group (TAG) recommended remove [removal] of the existing amendment; the reference to Section 2304.10.5 is unnecessary.
WAC 51-50-0703	703.8 703.9	Remove existing amendments and reserve WAC 51-50-0703.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-0704	704.6.1	Replace the existing amendment with a new amendment. The proposed amendment modifies the new model code language in Section 704.6.1.	Intended to clarify the application of the new code section that was approved for 2021 IBC. As currently written, secondary steel attachment is not a defined term in the code and may be confused with the definition of secondary structural members in IBC Chapter 2. The proposed language is consistent with FS11-21 (attached to the proposal), which was approved by the ICC Fire Safety Committee for inclusion in the 2024 IBC.

WAC 51-50-0705	705	Modify the title by deleting "and projections."	Title is corrected to align with the model code.
	705.1	Remove existing amendment.	Addressed in the model code.
	705.2.4	Renumbered to 705.2.5.	Incorporates renumbering in the model code.
	705.2.5	Remove existing amendment.	Addressed in the model code.
WAC 51-50-0706	706.3	New section.	Type III and IV buildings are required to have fire walls made of approved non-combustible materials. Limiting the make-up of fire walls to non-combustible materials can result in problems for taller III and IV buildings. Material shrinkage and differential vertical shrinkage between dissimilar non-combustible fire wall materials and the combustible building bearing wall, may cause long term damage to the fire wall. Testing supporting the mass timber provisions recently approved for IBC suggest a different approach to these fire walls.
	706.4	New section.	
	Table 706.4	New table.	
	706.6.1	Remove existing amendment.	Addressed in the model code.
WAC 51-50-0707	707.4 707.5	Remove existing amendments and reserve WAC 51-50-0707.	The model code addresses all existing amendments.
WAC 51-50-0713	713.13.4	Remove existing amendment.	Addressed in the model code.
WAC 51-50-0717	717 717.5.2 717.5.4	Remove existing amendments and reserve WAC 51-50-0717.	The model code addresses all existing amendments.
WAC 51-50-0718	718.2.1	Remove existing amendment and reserve WAC 51-50-0718.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-0722	722.7 722.7.1	Remove existing amendments.	The model code addresses all existing amendments.
	Tables 722.7.1(1) 722.7.1(2)		
	722.7.2		
	722.7.2.1		
WAC 51-50-0803	803.3	Remove existing amendment and reserve WAC 51-50-0803.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-0902		Delete Section 902.	Editorial modification to match WAC format.
WAC 51-50-0903	903.2.1.3	New section. Adds an exception to the model code pertaining to fixed guideway transit and passenger rail system stations.	Intended to correlate the IBC/International fire code (IFC) requirements for fire protection to NFPA 130 requirements. The primary purpose is to clarify the requirements for fire protection at open stations. (See proposal 21-GP1-67 for detailed rationale.)
	903.2.1.6	New section.	This is an existing amendment, currently in IFC. The amendment is proposed for inclusion into IBC for consistency with IFC.
	903.2.3	Renumbering of referenced section.	Incorporates renumbering in the model code.
	903.2.6.1	Renumbering of referenced section.	Incorporates renumbering in the model code.
	903.2.7	Remove existing amendment.	Addressed in the model code.
	903.2.9.3	Remove existing amendment.	Addressed in the model code.
	903.2.11.1.3	New section.	This is an existing amendment, currently in the IFC. The amendment is proposed for inclusion into the IBC for consistency with the IFC.
	903.3.1.2	New section.	Undoes a change that was made to the 2021 IFC and IBC (FS117-18), returning the language in the section to the 2018 text, and aligns the code with the scoping provisions of NFPA 13R. The 2021 change limits the applicability of NFPA 13R systems for podium buildings, triggering a requirement for a full NFPA 13 system in more buildings. If adopted by SBCC, the 2021 IFC/IBC requirement would decrease affordability for residential construction, since a full NFPA 13 system would be required in shorter buildings.
WAC 51-50-0907	907.2.3	Modify existing amendment.	Incorporates changes in the model code.
	907.2.11.1 907.2.11.2	New sections. Modify the model code by adding a reference to Section 420.14.	See Rationale for Section 420.14.
	907.5.2.1.2	Modify existing amendment.	Incorporates changes in the model code.
WAC 51-50-0908		Delete Section 908.	Editorial modification to match WAC format.
WAC 51-50-0911	911.1.2	New section. Incorporates more restrictive requirement for the fire command center separation (two-hour instead of one-hour separation).	This is an existing amendment in the IFC, which is proposed as an amendment in the IBC. The proposal provides consistency between IFC and IBC.
WAC 51-50-0913	913.2.1	Renumbering of referenced section.	Incorporates renumbering in NFPA 20.

WAC 51-50-0915	915.1 915.2	Remove existing amendments in Sections 915.1, 915.1.2, 915.1.3, 915.1.4, 915.1.5, 915.1.6, 915.2, 915.2.1, 915.2.2.	The model code addresses all existing amendments.
WAC 51-50-0918	918.1	New WAC section. The modification to the model code revises the terms used in this section.	Intended to align the terminology being used by industry. This is also proposed code change F32-21 in Group A proposed changes to the 2024 IFC and 2024 IBC. It was approved as submitted by the committee.
WAC 51-50-1003	1003.7	New WAC section. Adds Exception 2 to the model code and refers to Section 3116 for escalators used as a means of egress for fixed transit and passenger rail systems.	See rationale for Section 3116.
	Table 1004.5	Add fixed guideway transit and passenger rail systems; platform, and concourse/ lobby.	See rationale for Section 3116.
WAC 51-50-1005	1005.1	New section adds Exception 2 to the model code; refers to Section 3116 for escalators used as means of egress for fixed transit/ passenger rail systems.	See rationale for Section 3116.
WAC 51-50-1006	1006.2.1	Modify existing amendment. Adds Exception 4 to the model code and refers to Section 3116 for common path of travel for fixed transit and passenger rail system stations.	See rationale for Section 3116.
	1006.2.1.1	New section. Adds an exception to the model code addressing the number of required exits for fixed transit and passenger rail systems.	See rationale for Section 3116.
	1006.2.2.4	Remove existing amendment.	This section is no longer in the model code; there is no need for this amendment.
	1006.2.2.7	Remove existing amendment.	The existing amendment and the new model code section 1006.2.2.4 have the same regulatory effect. New Section 1006.2.2.4 refers to NFPA 70, Articles 110.26 and 110.33 for electrical equipment rated 1,000 volts or less, and more than 1,000 volts. The existing amendment in 1006.2.2.7 provides the same requirements, but it is more specific, using language from NFPA 70, Articles 110.26 and 110.33.
	1006.3.3	Renumbered to 1006.3.4; renumbering of referenced sections.	Incorporates renumbering in the model code.
	Tables 1006.3.3(1) 1006.3.3(2)	Remove existing amendment.	Addressed in the model code.
WAC 51-50-1009	1009.1	Renumber referenced section.	Incorporates renumbering in the model code.
	1009.2.1	Remove existing amendment.	Addressed in the model code.
	1009.8.1	Modify existing amendment.	Modified to incorporate the model code new language.
WAC 51-50-10100	1010.1.9.4	Delete existing amendment.	Relocated to Section 1010.2.4 to align with the model code renumbering. (See rationale for Section 1010.2.4.)
	1010.1.9.7	Delete existing amendment.	Relocated to Section 1010.2.14 to align with the model code renumbering. (See rationale for 1010.2.14.)
	1010.1.10	Remove existing amendment.	Addressed in the model code Section 1010.2.9.
	1010.1.10.3	Remove existing amendment.	Addressed in the new model code section 1010.2.9.2.
	1010.2.4	Relocate existing amendment, as modified. The existing amendment is currently in Section 1010.1.9.4.	The existing amendment is formally removed. The model code is adopted without Item 2; Item 2 is replaced with the existing amendment currently in Section 1010.1.9.4, Item 7. The existing amendment in Section 1010.1.9.4, Item 8, is not needed because it is addressed by the model code.
	1010.2.14	Relocate existing amendment, as modified. The existing amendment is currently in Section 1010.1.9.7.	The existing amendment is formally removed. The model code is adopted as amended, with the existing amendments in Item 6 and Exception 1. The existing amendments in the first paragraph and Items 1, 2, and 4 are no longer needed; addressed by the model code.
	1010.3.4.1	Adds a new section to the model code addressing fixed transit and passenger rail systems.	See rationale for Section 3116.
WAC 51-50-1011	1011.7	Remove existing amendment.	Addressed in the model code.
	1011.1	New section. The amendment adds an exception to the model code addressing lofts.	See rationale for Section 420.14.
	1011.17	Remove existing amendment.	Existing amendment is replaced with Section 1011.1. (See Rationale for Section 420.14.)
WAC 51-50-1012	1012.1	Modify existing amendment.	Incorporates model code changes.

WAC 51-50-1014	1014.2	New section in WAC; new section in the model code.	The code does not currently regulate the lateral distance that a handrail can be located away from the edge of the walking surface of a stair, ramp or aisle. If a designer wanted to locate a handrail 24 inches away from the walking surface, there is currently no code provision to prevent that. Most building officials would not permit that design, but there is no code to support them. The data provided as part of this proposal helps justifications for limiting the lateral distance of the handrail to be not more than six inches from the edge of the walking surface. This code change is needed to ensure handrails will be located close enough to the edge of the walking surface to provide adequate support for pedestrians with limited reach capabilities.
	1014.2.1	New section in WAC; renumbers Section 1014.2 to 1014.2.1.	
	1014.2.2	New section in WAC; new section in the model code.	
	1014.8	New section in WAC; modifies the model code.	
	1014.3	New section in WAC; new section in model code.	The same as 1014.2.2; research.
WAC 51-50-1015	1015.2	New section. The new amendment requires guards to be provided at the perimeter of the occupied portions of an occupied roof, and provides two Exceptions (Exception 9 and exception 10). In addition, the new amendment provides a reference to Section 420.14 pertaining to lofts.	There are many cases where the design of an occupied roof includes only a portion of the entire roof area. Occupied portions of roofs are typically elevated 18 inches or less above the adjacent unoccupied areas of the roof; therefore, no guard is currently required for these areas. This issue is regularly debated due to the lack of regulatory authority to require the guard in this design scenario. This proposal will eliminate or drastically reduce the potential for kids or adults who may be inebriated, from falling over the edge of a roof even if the occupied portion of the roof is some distance away from the roof edge. (See also Rationale for Section 420.14.)
	1015.3	New section. Adds Exception 4 to the model code pertaining to lofts.	See Rationale for Section 420.1.4.
WAC 51-50-10170	Table 1017.2	New amendment adds Section 3116 to footnote (a).	See rationale for Section 3116.
WAC 51-50-1019	1019.3	Modify existing amendment.	Incorporates new model code language.
WAC 51-50-1020	1020.4	Remove existing amendment.	Addressed in the model code.
	1020.5	Modify existing amendment.	Incorporates new model code language.
WAC 51-50-1023	1023.2 1023.5	Remove existing amendment.	The existing amendment is not needed; it is addressed in the model code.
	1023.12	Section 21023.11 is renumbered to 1023.12.	Incorporates changes in the model code.
WAC 51-50-1024	1024.9	Remove existing amendment and reserve WAC 51-50-1024.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-1030	1030.6	Remove existing amendment and reserve WAC 51-50-1030.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-1101	1101.2.1	Remove existing amendment.	The requirement for clear width of accessible routes in 2009 American National Standards Institute (ANSI) A117.1 and 2010 ADA Standards is 36 inches. The existing WA amendment requires 44 inches, and it is [a] more stringent requirement for exterior routes of travel. In 2017 ANSI, the language in Section 403.5 is modified; the requirements are 36 inches for interior accessible routes and 48 inches for exterior accessible route. IBC TAG recommended remove [removal] of the existing amendment.
	1101.2.2	Modify existing amendment.	The modifications incorporate changes in 2017 ANSI. In addition, the existing exception is proposed for remove [removal]. ANSI Section 404.2 is titled "Manual doors, doorways and manual gates" and does not address automatic doors. There is no need for the existing exception because Section 404.3 is specific to automatic doors.
	1101.2.3	Remove existing amendment.	Addressed in 2017 ANSI.
	1101.2.4	Modify referenced section from 606.7 to 603.6.	Keep the existing amendment as modified to provide the correct reference.
WAC 51-50-1105	1105.1.8 Table 1105.1.8	Remove existing amendment and reserve WAC 51-50-1105.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-1106	1106.7	Renumber Section 1106.6 to 1106.7.	Incorporates renumbering in the model code.

WAC 51-50-1107	1107	Add new Section 1107 Motor-vehicle related facilities. The existing Section 1107 Dwelling units and sleeping units is renumbered to 1108; Sections 1107.5, 1107.5.1, 1107.5.1.1, 1107.5.1.2, 1107.5.1.3, 1107.5.2, 1107.5.2.1, 1107.5.4, 1107.6.2.2.1, 1107.6.2.3 are removed.	Incorporates new model code section.
	1107.2	New section. Modifies the model code exception by deleting R-2 and R-4 occupancy groups.	The exception conflicts with an existing amendment in IBC Section 429.5, which requires at least one accessible parking space to be served by EV charging infrastructure if the infrastructure is required (including for R-2 occupancies). R-4 occupancy group is deleted because it is not adopted in Washington.
	1107.2.1	Add a reference to IBC Section 429.4.	Provisions for EV charging are located in Section 429; Section 429.4 addresses accessible EV charging spaces.
	1107.5	Remove existing amendments in Sections 1107.5, 1107.5.1, 1107.5.1.1, 1107.5.1.2, 1107.5.1.3, 1107.5.2, 1107.5.2.1, 1107.5.4.	The existing amendments are not needed; they are addressed in the model code.
	1107.6.2.2.1	Relocated/renumbered to 1108.6.2.2.1.	
	1107.6.2.3	Remove existing amendment.	Addressed in the model code.
WAC 51-50-1108	1108	New WAC section with existing title. Dwelling units and sleeping units are currently in Section 1107.	WAC renumbering to align with renumbering in the model code.
	1108.6.2.2.1	Renumber existing amendment currently in Section 1107.6.2.2.1; renumber a section reference in the text.	The renumbering is necessary due to renumbering in the model code.
WAC 51-50-1109	1109.2	Remove existing amendments and reserve WAC 51-50-1109 (1109.2.4, 1109.2.4.1, 1109.2.4.2, 1109.4.2.2.1 [1109.2.4.2.1], 1109.2.4.2.2, 1109.2.4.2.3, 1109.2.4.3, 1109.2.4.4, 1109.2.4.5, 1109.2.4.6, 1109.2.5, 1109.2.5.1, 1109.2.5.2, 1109.2.5.3, 1109.2.5.3.1, 1109.2.5.3.2, 1109.2.5.4, 1109.2.5.5, 1109.2.5.6, 1109.2.5.7, 1109.2.5.8, 1109.2.5.9).	Section 1109.2 is renumbered to 1110.2 to align with model code renumbering.
	1109.5.1		Section 1109.5.1 is renumbered to 1110.5.1 to align with model code renumbering.
WAC 51-50-1110	1110.2 1110.5.1	New WAC section with existing title. "Other features and facilities" is currently in WAC 51-50-1109. Sections 1110.2 and 1110.5.1 are renumbered (currently 1109.2 and 1109.5.1). Modify the existing amendment in Item 3.	The renumbering is necessary due to renumbering in the model code. The current amendment and the proposed modification will ensure that the number of accessible toilet or bathing fixtures is not reduced when the required toilet and bathing facilities are designed and constructed as gender-neutral.
WAC 51-50-1202	1202.2 1202.2.1	Section 1202.2 Attic spaces is renumbered to 1202.2.1 and retitled to Ventilated attics and rafter spaces.	Incorporates changes in the model code.
	1202.7.1	Renumber section references.	Editorial corrections due to errors.
	1202.7.1.1		
	1202.7.1.2		
	1202.7.2.2		
	1202.7.2.3		
	1202.7.3.1		
WAC 51-50-1204	1204.1	Remove existing amendments and reserve WAC 51-50-1204.	The existing amendments are not needed; duplicate existing amendments in Section 1203.
	1204.2.1		
	1204.2.2		
	1204.2.3		
WAC 51-50-1206	1206.1	Remove existing amendment and reserve WAC 51-50-1206.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-1207	1207.4	Remove existing amendment and reserve WAC 51-50-1207.	The existing amendment is not needed; it is addressed in the model code.
WAC 51-50-1208	1208.3	New section; adds requirements for dwelling unit size.	The code, as currently written, can be interpreted to allow a one-bedroom unit to be smaller than an efficiency dwelling unit. This change makes it clear that a dwelling unit and efficiency dwelling unit are subject to the same size limitations. It also clarifies that sleeping units are subject to the same minimum size requirements as habitable rooms in dwelling units.
	1208.4	New section; modifies the requirements for room area.	
	1208.5	New section; modifies the requirements for efficiency dwelling units.	

WAC 51-50-1209	1209.3.1	Remove existing amendments and reserve WAC 51-50-1209.	The existing amendments are relocated to WAC 51-50-1210.
	1209.3.2		
	1210.3.1	Relocated from WAC 51-50-1209.	
	1210.3.2		
WAC 51-50-1402	1402.2	New WAC with new section.	Relocated from WAC 51-50-1403.
WAC 51-50-1403	1403.2	Remove existing amendments and reserve WAC 51-50-1403.	Relocated to WAC 51-50-1402.
WAC 51-50-1405		Delete Section 1405.	Editorial to match the WAC format.
WAC 51-50-2900		Delete "Chapter 29 Plumbing systems" and reserve WAC 51-50-2900.	Editorial; assign WAC numbers to all sections instead of one WAC number for Chapter 29.
WAC 51-50-2901		New WAC number.	
	2901.1	Modify the existing amendment.	The existing amendment was adopted in 2012 and it was consistent with the model code at that time. The model code was modified in 2015 and 2018, but the state amendment was never modified. This modification is for consistency with the new model code.
	2901.3	Renumber section reference.	Incorporates renumbering in the model code Chapter 31.
WAC 51-50-2902		New WAC number.	
	2902.1.4	Remove existing amendment.	No longer needed; the model code addresses (and expands) the state language in Section 2902.1.2.
	2902.2	Modify existing amendment.	The existing amendment is modified to align with the model code language. Exception 4 was added in 2018 IBC but was never added to the existing state amendment. This modification corrects this oversight. Exception 7, as shown, is new in 2021 IBC and is added to the existing amendment.
	2902.2.1	Remove existing amendment.	Addressed in the model code.
	2902.3	Modify existing amendment.	The first paragraph is language from 2015 IBC; it was never updated to align with the 2018 IBC. The modification corrects this oversight. Exception 1 is also modified for consistency with the model code.
	2902.3.3	Modify existing amendment.	Exception 1 is an existing amendment that matches the new Exception 2. The modification incorporates the model code language.
	2902.6	New section; the text clarifies Section 2902.6 addressing small appliances is not adopted.	To eliminate confusion between Washington State Amendment 2902.5.1 and IBC Section 2902.6. IBC Section 2902.6 requires drinking fountains for occupant loads greater than 15. It relies on IBC Table 2902.1 for the scoping of the number of required drinking fountains.
	2902.7	Renumber to 2902.8.	Incorporates section renumbering in the model code.
	2902.8	Renumber to 2902.9.	
WAC 51-50-3004		Delete Section 3004.	Editorial to match the WAC format.
WAC 51-50-3101	3101.1	Modify existing amendment.	Align with the model code formatting.
WAC 51-50-3102	3102.3 3102.6.1.1	Remove existing amendments and reserve WAC 51-50-3102.	Existing amendments are addressed in the model code.
WAC 51-50-3103	3103.1	Modify existing amendment.	Incorporates language from the model code (adds the phrase "special event and umbrella structures"). For clarity, the existing amendment is shown with strikeout and the modified version is underlined.
WAC 51-50-3114	3114 3114.1	Remove existing amendments and reserve WAC 51-50-3114.	Section 3114 is relocated to WAC 51-50-3116 (new WAC number); Section 3114.1 is proposed for remove [removal].
WAC 51-50-3116	3116 3116.1 3116.2	Section 3116 is relocated from WAC 51-50-3114; the code language currently in 3114 is given a section number (3116.1) and a title (Construction). New Section 3116.2 is proposed to summarize modifications to NFPA 130. The existing Section 3114.1 is removed.	Renumbering is necessary because new sections were added to the model code. NFPA 130 is modified to align with the most current version. The new proposal in Section 3116.2 is drawn from NFPA 130 amendments by the City of Bellevue and the City of Seattle for means of egress for light rail stations. The intent is to provide clarity for more consistent application of the IBC and NFPA 130 in the future as light rail service expands and extends into new jurisdictions. Confusion on how the codes correlate can result in schedule delay and additional work for the agency and the authority having jurisdiction. (See proposal # 21-GP1-66 for rationale.)
WAC 51-50-3304	3304.2	Remove existing amendments and reserve WAC 51-50-3304.	Relocated to WAC 51-50-3314. (New WAC number.)
WAC 51-50-3314	3314 3314.1	New WAC number; Section 3304 Site work is renumbered to 3314 and retitled to "Fire watch during construction."	Reorganization and retitling is necessary due to the model code changes.
WAC 51-50-3401		Delete Section 3401.	Editorial to match WAC format.
WAC 51-50-3404		Delete Section 3404.	Editorial to match WAC format.

WAC 51-50-3410		Delete Section 3410.	Editorial to match WAC format.
WAC 51-50-3411		Delete Section 3411.	Editorial to match WAC format.
WAC 51-50-3500	Chapter 35	Delete ANSI/APA PRG-320-18. Change NFPA 130-17 to NFPA 130-20.	No longer needed; addressed in the model code. Updated to the most current standard.
WAC 51-50-4700	Appendix D	Remove existing amendments, use WAC 51-50-4700 for proposed Appendix P.	The existing amendment is no longer needed; it is addressed in the model code.
WAC 51-50-4700	Appendix P	New appendix addressing construction and demolition material management. The appendix will be effective only if adopted by a local ordinance.	The optional appendix is intended to reduce the amount of construction and demolition waste that goes to a landfill after leaving a construction site. For jurisdictions where material management is a priority, this language helps to increase the amount of material that is salvaged for reuse or recycled [recycling]. In partnership with this proposed appendix are two forms, a Salvage Assessment and Waste Diversion Report. (See proposal # 21-GP1-116 for detailed rationale.)

Note: Those not listed on the table above remain as adopted in 2018 IBC.

Reasons Supporting Proposal: RCW 19.27.031, 19.27.074, and 19.27.540.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074, and 19.27.540.

Statute Being Implemented: RCW 19.27.031, 19.27.074, and 19.27.540.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: SBCC, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Stoyan Bumbalov, 1500 Jefferson Street S.E., Olympia, WA 98504, 360-407-9277; and Enforcement: Local jurisdictions having authority.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Stoyan Bumbalov, 1500 Jefferson Street S.E., Olympia, WA 98504, phone 360-407-9277, email sbcc@des.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule; and rule content is explicitly and specifically dictated by statute.

The proposed rule does impose more-than-minor costs on businesses. There are costs imposed by the proposed rule, but the costs do not fall disproportionately on small businesses. The rule will not affect the distribution of impacted work, whether by small businesses or not, doing the work. The rule does not affect employment, reporting or record keeping.

Small Business Economic Impact Statement

Description: SBCC is filing a proposed rule to adopt the 2021 edition of the International Building Code (IBC), nonstructural provisions (chapter 51-50 WAC). Since 1985, SBCC has been responsible to update to new editions of the building code per RCW 19.27.074. IBC is

updated every three years by the ICC. The code development process conducted by the model code organization is open to all interest groups within the design and construction industry and from governmental organizations. See www.iccsafe.org for more information about the model code development process.

The administrative compliance requirements are under the authority of the local governments (RCW 19.27.050). Enforcement activities, including permit issuance, plan review/approval, and inspections occur at the local level. Requirements for construction documents submittal and other reporting mandates are determined by the local jurisdiction and are consistent with previously established policies. The proposed amendments to chapter 51-50 WAC include specific technical requirements for building construction to be consistent with national standards.

Professional Services: Washington has had a statewide building code in effect since 1974. The local enforcement authority having jurisdiction administers the codes through the building and/or fire departments. Administrative procedures for state building code compliance are established and will not be changed by the adoption of the 2021 building codes. Small businesses will employ the same types of professional services for the design and construction of buildings and systems to comply with the state building code. The proposed rule updates the state building code and does not require additional equipment, supplies, labor, or other services. Services needed to comply with the building code are existing within the construction industry as required by the local authority having jurisdiction.

Exemptions: There are 26 significant changes to the model code with economic impact. However, the model code changes are exempt under RCW 19.85.025(3) and 34.05.310 (4)(c), and are not part of this report.

Section 429 related to electric vehicle charging infrastructure is a statutory mandate pursuant to HB 1287 (2021). This section is exempt under RCW 19.85.025(3) and 34.05.310 (4)(e), and is not part of this report.

Costs of Compliance for Businesses: SBCC is required to adopt and maintain the state building code, as provided in chapters 19.27, 19.27A, and 70.92 RCW, and the state legislature. The primary objective of SBCC is to encourage consistency in the building code throughout the state of Washington and to maintain the building code consistent with the state's interest as provided in RCW 19.27.020. An objective of statewide adoption is to minimize state amendments to the model codes. SBCC accepts statewide code amendment proposal from stakeholders to amend IBC to meet the legislative goals. The statewide code adoption process is defined in chapter 51-04 WAC and SBCC bylaws. All proposals must be submitted in writing on the appropriate form with the indicated supporting documentation. Each proponent must identify where a proposed amendment has an economic impact, and estimate the costs and savings of the proposal on construction practices, users and/or the public, the enforcement community, and operation and maintenance.

The cost of compliance incurred by Washington businesses includes training and educational materials. The new 2021 IBC, 2021 IBC Significant changes and 2021 IBC Study pack cost $215 + tax, shipping, and handling. 2021 IBC is also available online at https://shop.iccsafe.org.

For the 2021 code adoption cycle, SBCC received 33 proposals. IBC TAG recommended approval of 28 proposals as submitted or as modified.

Nine proposals were identified by TAG as having a cost (increase or decrease) for compliance on businesses. SBCC recommended filing the proposed rule to allow input through the public hearing process.

1. **Section 903.3.1.2 (21-GP1-021):** Undoes a change that was made to the 2021 IFC and IBC (FS117-18), returning the language in the section to the 2018 text, and aligns the code with the scoping provisions of NFPA 13R. The 2021 change unnecessarily limits the applicability of NFPA 13R systems, particularly for podium buildings, triggering a requirement for a full NFPA 13 system in more buildings. If adopted by SBCC, the 2021 IFC/IBC requirement would decrease affordability for residential construction, since a full NFPA 13 system would be required in shorter buildings. The new proposal will **decrease** construction cost.

According to a November 2020 article on the National Fire Sprinkler Association website:

• The National Multifamily Housing Council members estimate a NFPA 13 system costs "an average of $1 to $2 more per square foot than NFPA 13R."

• "NFPA Journal notes that installing an NFPA 13 system can cost four to six times more than an NFPA 13R system and include a four to six times greater construction turnaround time."

2. **Section 202, new definition for high-rise building (21-GP1-036):** This change will address a lack of clarity in the code where it is difficult to determine if an occupied roof is considered a floor. Adding **an occupied roof with an occupant load of 50** or more to the definition removes ambiguity. This definition will place some buildings into the high-rise category, which will require additional life-safety systems to be installed that otherwise would not have been required. The proponent establishes that additional costs for these systems could be anywhere between $100,000 to $1,000,000 per project, depending on the size of the project.

Nevertheless, SBCC staff research determined that this cost will not be applicable to all projects. Determining what qualifies as a high-rise building is a fairly unique measurement of height that is not based on the definition of "building height." The critical measurement is from the lowest ground location where a fire department will be able to set its firefighting equipment to a floor level of occupied floors. The term "occupied floor" is not defined in IBC, and as it is stated in this proposal, the requirements for high-rise buildings are enforced differently throughout the state. Some jurisdictions are considering an occupied roof equivalent to an occupied floor; others do not include it into the height measurement. Therefore, SBCC staff considers this proposal clarifies the application of the code, and is needed for consistency with enforcement. There is no statewide direct cost associated with its adoption.

3. **Sections IBC 903.2.1.3, Chapter 10 (various sections) and 3116 (21-GP1-66; 21-GP1-67):** The code proposals are addressing fixed guideway and passenger rail systems. Proposal #21-GP1-67 is intended to correlate IBC/IFC requirements for fire protection to NFPA 130 requirements. The primary purpose is to clarify the requirements for fire protection at open stations. IBC Chapter 9 requires fire protection in Group A3 occupancies and levels from the Group A3 occupancy to the level of exit discharge. However, for open stations, NFPA 130 only requires fire protection in areas with combustible loading. The code and standard are in conflict, but pursuant to Chapter 1 of IBC, the code language prevails. Some jurisdictions have required fire protection at the platform level and at the plaza level while others have

not. This code clarification would bring consistency across all jurisdictions and will result in **significant decrease** in building cost. For justification, the proponent uses an estimate for elevated station in design in North Seattle, which shows a **significant decrease** in building costs of $225,348. Proposal # 21-GP1-66 is drawn from NFPA 130 amendments by the City of Bellevue and the City of Seattle for means of egress for light rail stations. The intent is to provide clarity for more consistent application of IBC and NFPA 130 in the future as light rail service expands and extends into new jurisdictions. The proposal clarifies conflicts between IBC and NFPA 130; there is no associated cost with the adoption.

4. **Sections 420.14 (new), 202, 505.1, 907.2.11.1, 907.2.11.2, 1011.14, 1015.2, 1015.3 (21-GP1-74):** Introduces "lofts" into IBC as WA amendment. The concept is taken from Section R327 of IRC, as amended. Lofts have been proposed and used in several jurisdictions for many years in order to put "extra" space to use. However, there is nothing in the code that regulates them. This proposal is intended to provide a reasonable balance between flexibility and safety for these types of spaces. The proponent determined that there will be an **increase** in construction costs including the cost for one extra smoke alarm and guards for each loft. The additional costs will depend on the size and number of lofts in the dwelling unit. Smoke alarms cost less than $20 each. Based on the price of deck guard systems, the materials for a premanufactured loft guard system will cost between $15 and $40 a linear foot. Installation costs will be in addition to the material costs. Nevertheless, SBCC staff research determined that there will be no additional cost for businesses if this proposal is adopted. Provisions for lofts are already adopted in IRC (Section R327) and used, on occasions, for projects constructed under IBC. Adopting the same or similar requirements in IBC will provide clarity and consistency for enforcement. The provisions originate from the IRC Appendix Q (Tiny Houses), which contains some provisions for "recreational park vehicles" governed by ANSI A119.5. The adoption of Appendix Q was intended to reduce the cost and allow construction of tiny homes, not to create more restrictive (and expensive) requirements. This includes the provisions for lofts, which lessens the incentive to misrepresent an intended use and enables building departments to regulate the health and safety of loft spaces based on their actual intended use, ensuring health and safety with minimum loft dimensions, requirements for access and egress, and proper emergency escape and rescue openings. SBCC staff considers this proposal is needed to provide more affordable housing, to clarify the application of the code, and for consistency with enforcement. There is no direct cost associated with its adoption if applied to the cost of construction as a whole, and not to the lofts only.

5. **Section 706.3 and 703.4 (21-GP1-80):** Type III and IV buildings are required to have fire walls made of approved noncombustible materials. Limiting the makeup of fire walls to noncombustible materials can result in problems for taller III and IV buildings. According to the proponent, this change would do away with differential settlement issues making damage to the noncombustible fire wall due to shrinkage of the wood bearing walls less of a factor. The costs associated with this change, as presented by the proponent, would **decrease** building costs depending on material prices.

6. **Section 510.2 (21-GP1-82):** This proposal eliminates the Group A 299 occupant load limitation to allow overall provisions found in IBC to dictate the design of the Group A building or building with a

Group A occupancy constructed over the horizontal assembly. If accepted, this code change will **reduce the cost** of construction as buildings above a podium building will have a broader choice of types of construction. The cost will depend on the size/type of projects.

7. **Sections 1208.3 (new), 1208.4, 1208.5 (21-GP1-84):** Standardizes the minimum size requirements for all dwelling units. The code, as currently written, can be interpreted to allow a one-bedroom unit to be smaller than an efficiency dwelling unit (EDU). The proposal makes it clear that a dwelling unit and efficiency dwelling unit are subject to the same size limitations. It also clarifies that sleeping units are subject to the same minimum size requirements as habitable rooms in dwelling units. This proposal, if adopted, would **decrease** the cost of developing a one-bedroom unit because it will not be treated differently from an EDU with respect to size. Since the cost depends on the type, size, and location of the project, no cost values are provided by the proponent.

8. **Sections 602.4.2.2.2, 602.4.2.2.4 (21-GP1-87):** The proposed increase of allowable unprotected area on the ceiling from 20 percent to 100 percent is consistent with the recently completed research conducted at RISE. These fire tests demonstrated that the proposed amounts of unprotected areas on the ceiling and walls, as a function of floor area, can be safely implemented while still achieving the performance objectives specified by ICC Tall Wood Building Ad-Hoc Committee in the development of the tall building mass timber provisions in the 2021 I-codes. The proposal, if adopted, would **decrease** the cost of construction because it reduces the required amount of noncombustible protection on walls and ceilings in Type IV-B Construction. Since the cost depends on the type, size, and location of the project, no cost values are provided by the proponent.

9. **Sections 503.1.4.2, 1015.2 (21-GP1-145):** The new amendment requires guards to be provided at the perimeter of the occupied portions of an occupied roof and provides two exceptions (Exception 9 and Exception 10). In addition, the new amendment provides a reference to Section 420.14 pertaining to lofts. Pursuant to the proponent, there are many cases where the design of an occupied roof includes only a portion of the entire roof area. The occupied portions of the roof are typically elevated 18 inches or less above the adjacent unoccupied areas of the roof; therefore, no guard is currently required for these areas. This issue is regularly debated due to the lack of regulatory authority to require the guard in this design scenario. The proposed code change eliminates or drastically reduces the potential for kids and adults who may be inebriated, from falling over the edge of a roof. There will be an **increase** in cost because more guards will need to be installed for occupied roofs where only a portion of the roof area is occupied. The proponent estimates the cost to be approximately $1/SF of the occupied area of the roof.

Loss of Sales or Revenue: The proposed rules make the state code for building construction consistent with national standards. Businesses with new products or updated test or design standards are recognized in the updated building code. The update will result in some cost outlay for some small businesses for specific building projects, for a transition period. Other small businesses would see an increase in revenue. The amendments to the building codes affect over 25,000 small businesses in the state, where construction activity occurs. The primary intent of the amendments is to improve the safety features in buildings and provide consistency and fairness across the state, for a

predictable business environment. The amendments should result in enhanced safety and value in buildings.

Cost of Compliance for Small Businesses: (Determine whether the proposed rule will have a disproportionate cost impact on small businesses, compare the cost of compliance for small business with the cost of compliance for the 10 percent of businesses that are the largest businesses.) Most businesses affected by the updates to the building codes are small businesses; over 95 percent of those listed in the construction and related industries have under 50 employees. The costs per employee are comparable between the largest businesses and the majority of small businesses. The cost to comply with the updated codes is not a disproportionate impact on small businesses. Where SBCC found the cost of compliance for small businesses to be disproportionate, the proposed rule mitigates the cost. The proposed rules include a definition of small business and provide exceptions for compliance with the updated rule.

Small Businesses Involved in the Development of the Rule: For IBC, SBCC conducted 23 open public meetings of the building code technical advisory group, available via telephone conference bridge and over the internet, and allowed comment on every item on every agenda. SBCC appointed over 100 representatives of all segments of the business and construction community to serve on the technical advisory groups.

List of Industries: Below is a list of industries required to comply with the building code:

2017 Industry NAICS Code	NAICS Code Title	Minor Cost Estimate	1% of Avg Annual Payroll	0.3% of Avg Annual Gross Business Income
236115	New Single-Family Housing Construction (except For-Sale Builders)	$2,508.04	$1,919.03 2020 Dataset pulled from USBLS	$2,508.04 2020 Dataset pulled from DOR
236116	New Multifamily Housing Construction (except For-Sale Builders)	$32,067.43	$17,160.94 2020 Dataset pulled from USBLS	$32,067.43 2020 Dataset pulled from DOR
236118	Residential Remodelers	$1,457.74	$1,457.74 2020 Dataset pulled from USBLS	$901.20 2020 Dataset pulled from DOR
236210	Industrial Building Construction	$59,169.45	$59,169.45 2020 Dataset pulled from ESD	$53,925.71 2020 Dataset pulled from DOR
236220	Commercial and Institutional Building Construction	$41,552.81	$18,126.81 2020 Dataset pulled from ESD	$41,552.81 2020 Dataset pulled from DOR
238110	Poured Concrete Foundation and Structure Contractors	$3,442.28	$5,027.07 2019 Dataset pulled from CBP	$3,442.28 2020 Dataset pulled from DOR
238120	Structural Steel and Precast Concrete Contractors	$15,401.97	$20,212.19 2019 Dataset pulled from CBP	$15,401.97 2020 Dataset pulled from DOR
238130	Framing Contractors	$2,234.30	$3,139.71 2019 Dataset pulled from CBP	$2,234.30 2020 Dataset pulled from DOR
238140	Masonry Contractors	$1,900.60	$3,582.13 2019 Dataset pulled from CBP	$1,900.60 2020 Dataset pulled from DOR
238150	Glass and Glazing Contractors	$5,255.36	$9,574.95 2019 Dataset pulled from CBP	$5,255.36 2020 Dataset pulled from DOR
238160	Roofing Contractors	$3,589.99	$5,007.86 2019 Dataset pulled from CBP	$3,589.99 2020 Dataset pulled from DOR
238170	Siding Contractors	$1,905.61	$2,485.86 2019 Dataset pulled from CBP	$1,905.61 2020 Dataset pulled from DOR
238190	Other Foundation; Structure; and Building Exterior Contractors	$4,622.07	$4,141.38 2019 Dataset pulled from CBP	$4,622.07 2020 Dataset pulled from DOR
238210	Electrical Contractors and Other Wiring Installation Contractors	$5,941.60	$9,599.33 2019 Dataset pulled from CBP	$5,941.60 2020 Dataset pulled from DOR
238220	Plumbing; Heating; and Air-Conditioning Contractors	$5,353.76	$11,047.00 2019 Dataset pulled from CBP	$5,353.76 2020 Dataset pulled from DOR
238290	Other Building Equipment Contractors	$4,335.21	$16,142.07 2019 Dataset pulled from CBP	$4,335.21 2020 Dataset pulled from DOR

2017 Industry NAICS Code	NAICS Code Title	Minor Cost Estimate	1% of Avg Annual Payroll	0.3% of Avg Annual Gross Business Income
238310	Drywall and Insulation Contractors	$3,725.66	$9,461.67 2019 Dataset pulled from CBP	$3,725.66 2020 Dataset pulled from DOR
238990	All Other Specialty Trade Contractors	$3,585.74	$3,677.28 2019 Dataset pulled from CBP	$3,585.74 2020 Dataset pulled from DOR
321213	Engineered Wood Member (except Truss) Manufacturing	$44,480.76	$44,480.76 2020 Dataset pulled from ESD	$41,772.84 2020 Dataset pulled from DOR
321214	Truss Manufacturing	$28,620.35	$23,341.04 2020 Dataset pulled from ESD	$28,620.35 2020 Dataset pulled from DOR
321219	Reconstituted Wood Product Manufacturing	$30,305.17	$10,139.90 2020 Dataset pulled from USBLS	$30,305.17 2020 Dataset pulled from DOR
321911	Wood Window and Door Manufacturing	$45,151.12	$18,811.08 2020 Dataset pulled from ESD	$45,151.12 2020 Dataset pulled from DOR
321992	Prefabricated Wood Building Manufacturing	$5,391.09	$5,391.09 2020 Dataset pulled from ESD	$4,888.53 2020 Dataset pulled from DOR
327310	Cement Manufacturing	$50,878.29	$44,741.20 2020 Dataset pulled from ESD	$50,878.29 2020 Dataset pulled from DOR
327320	Ready-Mix Concrete Manufacturing	$64,317.30	$46,126.21 2020 Dataset pulled from ESD	$64,317.30 2020 Dataset pulled from DOR
327331	Concrete Block and Brick Manufacturing	$15,030.60	$15,030.60 2020 Dataset pulled from ESD	$10,431.02 2020 Dataset pulled from DOR
332312	Fabricated Structural Metal Manufacturing	$22,220.31	$16,337.10 2020 Dataset pulled from USBLS	$22,220.31 2020 Dataset pulled from DOR
332321	Metal Window and Door Manufacturing	$26,369.28	$14,505.40 2020 Dataset pulled from ESD	$26,369.28 2020 Dataset pulled from DOR
332322	Sheet Metal Work Manufacturing	$23,337.23	$23,337.23 2020 Dataset pulled from ESD	$16,556.52 2020 Dataset pulled from DOR
335121	Residential Electric Lighting Fixture Manufacturing	$2,011.37	$2,011.37 2020 Dataset pulled from USBLS	$1,502.01 2020 Dataset pulled from DOR
335122	Commercial; Industrial; and Institutional Electric Lighting Fixture Manufacturing	$6,357.34	Redacted 2020 Dataset pulled from USBLS	$6,357.34 2020 Dataset pulled from DOR
335129	Other Lighting Equipment Manufacturing	$6,281.32	$6,281.32 2020 Dataset pulled from ESD	$2,494.40 2020 Dataset pulled from DOR
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	$24,486.53	$16,589.10 2020 Dataset pulled from ESD	$24,486.53 2020 Dataset pulled from DOR
541310	Architectural Services	$9,221.65	$9,221.65 2020 Dataset pulled from ESD	$3,738.99 2020 Dataset pulled from DOR
541330	Engineering Services	$14,801.92	$14,801.92 2020 Dataset pulled from USBLS	$7,177.43 2020 Dataset pulled from DOR
541350	Building Inspection Services	$1,868.52	$1,868.52 2020 Dataset pulled from ESD	$475.93 2020 Dataset pulled from DOR
561621	Security Systems Services (except Locksmiths)	$9,759.28	$9,759.28 2020 Dataset pulled from ESD	$6,117.04 2020 Dataset pulled from DOR

Estimate of the Number of Jobs That Will Be Created or Lost: The adoption of the latest code edition is not expected to significantly impact the number of jobs in the construction industry. These rules are likely to be job neutral overall; i.e., they will not result in any job gains or losses. The scheduled effective date of the new edition is July 1, 2021. Building permits issued prior to that date will be vested under the 2018 building code. Permits issued for projects under the 2021 code edition will generally start with the 2024 construction season.

A copy of the statement may be obtained by contacting Stoyan Bumbalov, 1500 Jefferson Street S.E., Olympia, WA 98504, phone 360-407-9277, email stoyan.bumbalov@des.wa.gov.

December 30, 2021
Andrew S. Klein
Council Chair

OTS-3404.3

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-003 International Building Code. The ((~~2018~~)) 2021 edition of the *International Building Code*, including Appendix E, published by the International Code Council is hereby adopted by reference with the exceptions noted in this chapter of the Washington Administrative Code.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-003, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-003, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-003, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-003, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-003, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-014, § 51-50-003, filed 12/2/04, effective 7/1/05. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 04-18-033, § 51-50-003, filed 8/25/04, effective 9/25/04. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-003, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-005 International Building Code requirements for barrier-free accessibility. Chapter 11 and other International Building Code requirements for barrier-free access, including ICC ((~~A117.1-2009~~)) A117.1-2017 and Appendix E, are adopted pursuant to chapters 70.92 and 19.27 RCW.

Pursuant to RCW 19.27.040, Chapter 11 and requirements affecting barrier-free access shall not be amended by local governments.

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-005, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-005, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-014, § 51-50-005, filed 12/2/04, effective 7/1/05. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 04-18-033, § 51-50-005, filed 8/25/04, effective 9/25/04. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-005, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-007 Exceptions. The exceptions and amendments to the *International Building Code* contained in the provisions of chapter 19.27 RCW shall apply in case of conflict with any of the provisions of these rules.

The provisions of this code do not apply to temporary growing structures used solely for the commercial production of horticultural plants including ornamental plants, flowers, vegetables, and fruits. "Temporary growing structure" means a structure that has the sides and roof covered with polyethylene, polyvinyl, or similar flexible synthetic material and is used to provide plants with either frost protection or increased heat retention. A temporary growing structure is not considered a building for purposes of this code.

The provisions of this code do not apply to the construction, alteration, or repair of temporary worker housing except as provided by rule adopted under chapter 70.114A RCW or chapter 37, Laws of 1998 (SB 6168). "Temporary worker housing" means a place, area, or piece of land where sleeping places or housing sites are provided by an employer for his or her employees or by another person, including a temporary worker housing operator, who is providing such accommodations for employees, for temporary, seasonal occupancy, and includes "labor camps" under RCW 70.54.110.

Codes referenced which are not adopted through RCW 19.27.031 or chapter 19.27A RCW shall not apply unless specifically adopted by the authority having jurisdiction. The ((~~2015~~)) 2021 International Existing Building Code is included in the adoption of this code in Section 101.4.7 and amended in WAC 51-50-480000.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-007, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-007, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-007, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-007, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-007, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 21-11-066, filed 5/14/21, effective 6/14/21)

WAC 51-50-008 Implementation. The *International Building Code* adopted under chapter 51-50 WAC shall become effective in all counties and cities of this state on ((~~February 1, 2021~~)) July 1, 2023.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-11-066, § 51-50-008, filed 5/14/21, effective 6/14/21; WSR 20-01-090, § 51-50-008, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-008, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-008, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-008, filed 1/20/10,

effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-008, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-008, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-009 ((~~Recyclable materials, compost, and solid waste storage.~~)) Reserved. ((~~For the purposes of this section, the following definitions shall apply:~~

~~**COMPOST** means biodegradable solid wastes that are separated for composting such as food waste, food soiled paper and yard waste.~~

~~**RECYCLED MATERIALS** means those solid wastes that are separated for recycling or reuse, such as papers, metals and glass.~~

~~All local jurisdictions shall require that space be provided for the storage of recycled materials, compost, and solid waste for all new buildings.~~

~~EXCEPTION: Group R-3 and Group U Occupancies.~~

~~The storage area shall be designed to meet the needs of the occupancy, efficiency of pickup, and shall be available to occupants and haulers.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-009, filed 1/19/16, effective 7/1/16; WSR 04-01-108, § 51-50-009, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-0110 ((~~Section inspections.~~)) Reserved.

((~~**110.3.5 Type IV-A, IV-B, and IV-C connection protection inspection.** In buildings of Type IV-A, IV-B, and IV-C construction, where connection fire-resistance ratings are provided by wood cover calculated to meet the requirements of Section 2304.10.1, inspection of the wood cover shall be made after the cover is installed, but before any other coverings or finishes are installed.~~

~~**110.3.6 Lath, gypsum board and gypsum panel product inspection.** Lath, gypsum board and gypsum panel product inspections shall be made after lathing, gypsum board and gypsum panel products, interior and exterior, are in place, but before any plastering is applied or gypsum board and gypsum panel product joints and fasteners are taped and finished.~~

~~EXCEPTION: Gypsum board and gypsum panel products that are not part of a fire-resistance-rated assembly or a shear assembly.~~

~~**110.3.7 Weather-exposed balcony and walking surface waterproofing.** Where balconies or other elevated walking surfaces are exposed to water from direct or blowing rain, snow or irrigation, and the structural framing is protected by an impervious moisture barrier, all ele-~~

~~ments of the impervious moisture barrier system shall not be concealed until inspected and *approved*.~~

~~EXCEPTION: Where special inspections are provided in accordance with Section 1705.1.1, Item 3.~~

~~**110.3.8 Fire- and smoke-resistant penetrations.** Protection of joints and penetrations in *fire-resistance-rated* assemblies, *smoke barriers* and smoke partitions shall not be concealed from view until inspected and *approved*.~~

~~**110.3.9 Energy efficiency inspections.** Inspections shall be made to determine compliance with Chapter 13 and shall include, but not be limited to, inspections for: Envelope insulation *R*- and *U*-values, fenestration *U*-value, duct system *R*-value, and HVAC and water-heating equipment efficiency.~~

~~**110.3.10 Other inspections.** In addition to the inspections specified in Sections 110.3.1 through 110.3.8, the *building official* is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced by the department of building safety.~~

~~**110.3.11 Special inspections.** For *special inspections*, see Chapter 17.~~

~~**110.3.12 Final inspection.** The final inspection shall be made after all work required by the building *permit* is completed.~~

~~**110.3.12.1 Flood hazard documentation.** If located in a *flood hazard area*, documentation of the elevation of the lowest floor as required in Section 1612.4 shall be submitted to the *building official* prior to the final inspection.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-0110, filed 10/9/20, effective 11/9/20.]

AMENDATORY SECTION (Amending WSR 21-12-103, filed 6/2/21, effective 7/3/21)

WAC 51-50-0200 Chapter 2—Definitions.

SECTION 202—DEFINITIONS.

ADULT FAMILY HOME. A dwelling, licensed by the state of Washington department of social and health services, in which a person or persons provide personal care, special care, room and board to more than one but not more than six adults who are not related by blood or marriage to the person or persons providing the services. An existing adult family home may provide services to up to eight adults upon approval from the department of social and health services in accordance with RCW 70.128.066.

ASSISTED LIVING FACILITY. A home or other institution, licensed by the state of Washington, providing housing, basic services and assuming general responsibility for the safety and well-being of residents under chapters 18.20 RCW and 388-78A WAC. These facilities may provide care to residents with symptoms consistent with dementia requiring additional security measures.

AUTOMATIC LOAD MANAGEMENT SYSTEM (ALMS). A system designed to manage electrical load across one or more EV Ready parking spaces.

BOTTLE FILLING STATION. A plumbing fixture connected to the potable water distribution system and sanitary drainage system that is designed and intended for filling personal use drinking water bottles or containers not less than 10 inches (254 mm) in height. Such fixtures can be separate from or integral to a drinking fountain and can incorporate a water filter and a cooling system for chilling the drinking water.

CHILD CARE. The care of children during any period of a 24-hour day.

CHILD CARE, FAMILY HOME. A child care facility, licensed by Washington state, located in the dwelling of the person or persons under whose direct care and supervision the child is placed, for the care of twelve or fewer children, including children who reside at the home.

CLIMATE ZONE. A geographical region that has been assigned climatic criteria as specified in the Washington State Energy Code.

CLUSTER. Clusters are multiple *portable school classrooms* separated by less than the requirements of the building code for separate buildings.

COMPOST. Biodegradable solid wastes that are separated for composting such as food waste, food soiled paper, and yard waste.

EFFICIENCY DWELLING UNIT. A dwelling unit where all permanent provisions for living, sleeping, eating and cooking are contained in a single room.

ELECTRIC VEHICLE (EV) CAPABLE PARKING SPACE. A parking space provided with a conduit, electrical panel and load capacity to support future installation of EV charging equipment.

ELECTRIC VEHICLE (EV) CHARGER. Off-board charging equipment used to charge electric vehicles.

ELECTRIC VEHICLE (EV) CHARGING STATION. EV Ready parking space with installed EV charger.

ELECTRIC VEHICLE (EV) READY PARKING SPACE. A parking space provided with a receptacle outlet allowing charging of electric vehicles.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, personnel protection system, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

HIGH-RISE BUILDING. A building with an occupied floor, located more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access. For the purposes of this definition, an occupied roof with an occupant load of 50 or more is considered to be an occupied floor.

HOSPICE CARE CENTER. A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

((**MASS TIMBER.** Structural elements of Type IV construction primarily of solid, built-up, panelized or engineered wood products that meet minimum cross section dimensions of Type IV construction.))

LOFT. A space on an intermediate level or levels between the floor and ceiling of a Group R occupancy dwelling or sleeping unit, open on one or more sides to the room in which the loft is located, and in accordance with Section 420.13.

NIGHTCLUB. An A-2 Occupancy ((~~use under the 2006 *International Building Code*~~)) in which the aggregate area of concentrated use of unfixed chairs and standing space that is specifically designated and primarily used for dancing or viewing performers exceeds three hundred fifty square feet, excluding adjacent lobby areas. "Nightclub" does not include theaters with fixed seating, banquet halls, or lodge halls.

((~~**NONCOMBUSTIBLE PROTECTION (For MASS TIMBER)**. Noncombustible material, in accordance with Section 703.5, designed to increase the fire-resistance rating and delay the combustion of mass timber.~~))

PORTABLE SCHOOL CLASSROOM. A prefabricated structure consisting of one or more rooms with direct exterior egress from the classroom(s). The structure is transportable in one or more sections and is designed to be used as an educational space with or without a permanent foundation. The structure shall be capable of being demounted and relocated to other locations as needs arise.

RECYCLED MATERIALS. Those solid wastes that are separated for recycling or reuse, such as papers, metals, and glass.

RESIDENTIAL SLEEPING SUITES. A unit that provides multiple rooms or spaces for up to five residents, includes provisions for sleeping and can include provisions for living, eating, sanitation, and kitchen facilities.

SMALL BUSINESS. Any business entity (including a sole proprietorship, corporation, partnership or other legal entity) which is owned and operated independently from all other businesses, which has the purpose of making a profit, and which has fifty or fewer employees.

STAGED EVACUATION. A method of emergency response, that engages building components and trained staff to provide occupant safety during an emergency. Emergency response involves moving or holding certain occupants at temporary locations for a brief period of time before evacuating the building. This response is used by ambulatory surgery facility and assisted living facilities to protect the health and safety of fragile occupants and residents.

((~~**WALL, LOAD-BEARING**. Any wall meeting either of the following classifications:~~

~~1. Any metal or wood stud wall that supports more than 100 pounds per linear foot (1459 N/m) of vertical load in addition to its own weight.~~

~~2. Any masonry or concrete, or mass timber wall that supports more than 200 pounds per linear foot (2919 N/m) of vertical load in addition to its own weight.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-12-103, § 51-50-0200, filed 6/2/21, effective 7/3/21; WSR 20-01-090, § 51-50-0200, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-0200, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-0200, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-089, § 51-50-0200, filed 12/1/14, effective 5/1/15. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0200, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0200, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-110, § 51-50-0200, filed 12/18/07, effective 4/1/08. Statutory Authority: RCW 19.27.074, 19.27.020, and

chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-0200, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074, and chapters 19.27 and 34.05 RCW. WSR 05-24-070, § 51-50-0200, filed 12/5/05, effective 7/1/06. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-0200, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-0306 Section 306—Factory Group F.

306.2 Moderate-hazard factory industrial, Group F-1. Factory industrial uses that are not classified as factory industrial F-2 low hazard shall be classified as F-1 moderate hazard and shall include, but not be limited to, the following:

Aircraft (manufacturing, not to include repair)
Appliances
Athletic equipment
Automobiles and other motor vehicles
Bakeries
Beverages: Over 16 percent alcohol content
Bicycles
Boats
Brooms or brushes
Business machines
Cameras and photo equipment
Canvas or similar fabric
Carpets and rugs (includes cleaning)
Clothing
Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Energy storage systems (ESS) in dedicated use buildings
Engines (including rebuilding)
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232m^2) in area
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Marijuana processing
Metals
Millwork (sash and door)
Motion pictures and television filming (without spectators)
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products

Printing or publishing
Recreational vehicles
Refuse incineration
Shoes
Soaps and detergents
Textiles
Tobacco
Trailers
Upholstering
Water/sewer treatment facilities
Wood; distillation
Woodworking (cabinet)

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-0306, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-0308 Section 308—Institutional Group I.

((**308.1.1 Definitions.** The following terms are defined in Chapter 2:

24-HOUR CARE.
Custodial Care.
Detoxification Facilities.
Foster Care Facilities.
HOSPICE CARE CENTER.
Hospitals and psychiatric hospitals.
Incapable of self-preservation.
Medical care.
Nursing homes.))

308.2 Institutional Group I-1. Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than sixteen persons, excluding staff, who reside on a twenty-four-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.2.1 or 308.2.2 and shall comply with Section 420. This group shall include, but not be limited to, the following:

Alcohol and drug centers;

Assisted living facilities as licensed by Washington state under chapter 388-78A WAC;

Congregate care facilities;

Group homes;

Halfway houses;

Residential board and care facilities;

Social rehabilitation facilities;

Residential treatment facilities as licensed by Washington state under chapter 246-337 WAC.

308.2.5 Adult family homes. Adult family homes licensed by Washington state shall be classified as Group R-3 or shall comply with the *International Residential Code*.

308.2.6 Licensed care facilities. Assisted living facilities as licensed by Washington state under chapter 388-78A WAC shall be classified as Group I-1, Condition 2.

Residential treatment facilities licensed by Washington state under chapter 246-337 WAC shall be classified as one or more occupancy types in accordance with chapter 246-337 WAC.

308.3 Institutional Group I-2. Institutional Group I-2 occupancy shall include buildings and structures used for *medical care* on a 24-hour basis for more than five persons who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

Foster care facilities.
Detoxification facilities.
Hospice care centers.
Hospitals.
Nursing homes.
Psychiatric hospitals.

308.5.5 Family home child care. Family home child care licensed by Washington state for the care of twelve or fewer children shall be classified as Group R-3 or shall comply with the *International Residential Code*.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-0308, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-0308, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0308, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0308, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0308, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-0308, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-0308, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0309 Section 309—Mercantile Group M.

309.1 Mercantile Group M. Mercantile Group M occupancy includes, among others, the use of a building or structure or a portion thereof for the display and sale of merchandise, and involves stocks of goods, wares or merchandise incidental to such purposes and ((~~accessible to~~)) where the public has access. Mercantile occupancies shall include, but not be limited to, the following:

- Art galleries 3,000 square feet or less;
- Department stores;
- Drug stores;
- Markets;
- Greenhouses for display and sale of plants that provide public access;
- Motor fuel-dispensing facilities;
- Retail or wholesale stores;

• Sales rooms.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0309, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-0310 Section 310—Residential Group R.

310.3 Residential Group R-2. Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses

((~~*Boarding houses* (nontransient) with more than 16 occupants~~))

Congregate living facilities (nontransient) with more than 16 occupants

Boarding houses (nontransient)

Convents

Dormitories

Fraternities and sororities

Monasteries

Hotels (nontransient)

Live/work units

((~~Monasteries~~))

Motels (nontransient)

Vacation timeshare properties

310.4.3 Adult family homes, family home child care. Adult family homes and family home child care facilities that are within a single-family home are permitted to comply with the *International Residential Code*.

310.4.4 Foster family care homes. Foster family care homes licensed by Washington state are permitted to comply with the *International Residential Code*, as an accessory use to a dwelling, for six or fewer children including those of the resident family.

310.5 Residential Group R-4. R-4 classification is not adopted. Any reference in this code to R-4 does not apply.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, § 51-50-0310, filed 2/23/21, effective 3/26/21; WSR 16-03-064, § 51-50-0310, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0310, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0310, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-110, § 51-50-0310, filed 12/18/07, effective 4/1/08. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-0310, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-0310, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0403 Section 403—High-rise buildings.

((**~~403.3.2 Water supply to required fire pumps.~~** ~~In all buildings that are more than 420 feet (128 m) in *building height*, and buildings of Type IV-A and IV-B that are more than 120 feet in *building height*, required fire pumps shall be supplied by connections to not fewer than two water mains located in different streets. Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate.~~

~~EXCEPTION: Two connections to the same main shall be permitted provided that the main is valved such that an interruption can be isolated so that the water supply will continue without interruption through not fewer than one of the connections.~~))

403.5.4 Smokeproof enclosures. Every required *interior exit stairway* serving floors more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access shall be a *smokeproof enclosure* in accordance with Sections 909.20 and ((~~1023.11~~)) 1023.12. Where interior exit stairways and ramps are pressurized in accordance with Section 909.20.5, the smoke control pressurization system shall comply with the requirements specified in Section 909.6.3.

403.4.8.3 Standby power loads. The following are classified as standby power loads:

1. Ventilation and automatic fire detection equipment for smokeproof enclosures.
2. Elevators.
3. Where elevators are provided in a high-rise building for accessible means of egress, fire service access or occupant self-evacuation, the standby power system shall also comply with Sections 1009.4, 3007 or 3008, as applicable.
4. Sump pumps required by ASME A17.1 serving pit drains at the bottom of elevator hoistways of fire service access or occupant evacuation elevators.

((**~~405.7.2 Smokeproof enclosure.~~** ~~Every required stairway serving floor levels more than 30 feet (9144 mm) below the finished floor of its level of exit discharge shall comply with the requirements for a smokeproof enclosure as provided in Sections 909.20 and 1023.11. Where interior exit stairways and ramps are pressurized in accordance with Section 909.20.5, the smoke control pressurization system shall comply with the requirements specified in Section 909.6.3.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0403, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-0403, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-0403, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0403, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0403, filed 1/20/10, effective 7/1/10.]

NEW SECTION

WAC 51-50-0405 Section 405—Underground buildings.

405.7.2 Smokeproof enclosure. Every required stairway serving floor levels more than 30 feet (9144 mm) below the finished floor of its level of exit discharge shall comply with the requirements for a smokeproof enclosure as provided in Sections 909.20 and 1023.12. Where interior exit stairways and ramps are pressurized in accordance with Section 909.20.5, the smoke control pressurization system shall comply with the requirements specified in Section 909.6.3.

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AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0407 ((~~Section 407—Group I-2.~~)) Reserved.

((~~**407.4.4.3 Access to corridor.** Movement from habitable rooms shall not require passage through more than three doors and 100 feet (30,480 mm) distance of travel within the suite.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0407, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0407, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0407, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0407, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-0407, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-014, § 51-50-0407, filed 12/2/04, effective 7/1/05.]

AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-0412 Section 412—Aircraft-related occupancies.

412.2.2.1 Stairways. Stairways in airport traffic control towers shall be in accordance with Section 1011. Exit stairways shall be smokeproof enclosures complying with one of the alternatives provided in Section 909.20. Where interior exit stairways and ramps are pressurized in accordance with Section 909.20.5, the smoke control pressurization system shall comply with the requirements specified in Section 909.6.3.

[F] 412.7.3 Means of egress. The means of egress from heliports, helipads and helistops shall comply with the provisions of Chapter 10. Landing areas located on buildings or structures shall have two or more ((~~means of egress~~)) exits or access to exits. For landing areas less than 60 feet in length or less than 2,000 square feet (186 m^2) in area, the second means of egress is permitted to be a fire escape, alternating tread device or ladder leading to the floor below. On Group

I-2 roofs with heliports or helipads and helistops, rooftop structures enclosing exit stair enclosures or elevator shafts shall be enclosed with fire barriers and opening protectives that match the rating of their respective shaft enclosures below.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, § 51-50-0412, filed 2/23/21, effective 3/26/21; WSR 20-01-090, § 51-50-0412, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0412, filed 1/19/16, effective 7/1/16.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0420 Section 420—Groups I-1, R-1, R-2, R-3.

420.2 Separation walls. Walls separating dwelling units in the same building, walls separating sleeping units in the same building and walls separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708. Buildings containing multiple sleeping units with common use or central kitchens shall not be classified as a single dwelling.

EXCEPTIONS:
1. Where sleeping units include private bathrooms, walls between bedrooms and the associated private bathrooms are not required to be constructed as fire partitions.
2. Where sleeping units are constructed as suites, walls between bedrooms within the sleeping unit and the walls between the bedrooms and associated living spaces are not required to be constructed as fire partitions.
3. In Groups R-3 facilities, walls within the dwelling units or sleeping units are not required to be constructed as fire partitions.
4. Groups R-2 and I-1 arranged into residential sleeping suites containing a maximum of five sleeping residents. Separation between bedrooms, living areas and toilet rooms within these residential sleeping suites shall not be required.
5. Group I-1 sleeping areas arranged so that a dedicated staff member has direct observation over a multiple resident sleeping room, without intervening full height walls, shall not be required to provide fire partitions within the resident sleeping area.

((~~420.11~~)) 420.12 Adult family homes. This section shall apply to all newly constructed adult family homes and all existing single-family homes being converted to adult family homes. This section shall not apply to those adult family homes licensed by the state of Washington department of social and health services prior to July 1, 2001.

((~~420.11.1~~)) 420.12.1 Sleeping room classification. Each sleeping room in an adult family home shall be classified as one of the following:

1. Type S - Where the means of egress contains stairs, elevators or platform lifts.

2. Type NS1 - Where one means of egress is at grade level or a ramp constructed in accordance with Section ((~~420.7.8~~)) 1012 is provided.

3. Type NS2 - Where two means of egress are at grade level or ramps constructed in accordance with Section ((~~420.7.8~~)) 1012 are provided.

((~~420.11.2~~)) 420.12.2 Types of locking devices and door activation. All bedrooms and bathroom doors shall be openable from the outside when locked.

Every closet door shall be readily openable from the inside.

Operable parts of door handles, pulls, latches, locks and other devices installed in adult family homes shall be operable with one hand and shall not require tight grasping, pinching, or twisting of

the wrist. Pocket doors shall have graspable hardware available when in the closed or open position.

The force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum. Required exit door(s) shall have no additional locking devices. Required exit door hardware shall unlock inside and outside mechanisms when exiting the building allowing reentry into the adult family home without the use of a key, tool or special knowledge.

((~~420.11.3~~)) 420.12.3 Smoke and carbon monoxide alarm requirements. Alarms shall be installed in such a manner so that the detection device warning is audible from all areas of the dwelling upon activation of a single alarm.

((~~420.11.4~~)) 420.12.4 Escape windows and doors. Every sleeping room shall be provided with emergency escape and rescue windows as required by Section 1030. No alternatives to the sill height such as steps, raised platforms or other devices placed by the openings will be approved as meeting this requirement.

((~~420.11.5~~)) 420.12.5 Grab bar general requirements. Where facilities are designated for use by adult family home clients, grab bars for water closets, bathtubs and shower stalls shall be installed according to ICC A117.1.

((~~420.11.6~~)) 420.12.6 Shower stalls. Where provided to meet the requirements for bathing facilities, the minimum size of shower stalls for an adult family home shall be 30 inches deep by 48 inches long.

((~~420.12~~)) 420.13 Licensed care cooking facilities. In Group I-1, Condition 2 assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC, rooms or spaces that contain a cooking facility with domestic cooking appliances shall be permitted to be open to the corridor where all of the following criteria are met:

1. The number of care recipients housed in the smoke compartment is not greater than 30.

2. The number of care recipients served by the cooking facility is not greater than 30.

3. Only one cooking facility area is permitted in a smoke compartment.

4. The types of domestic cooking appliances permitted are limited to ovens, cooktops, ranges, warmers and microwaves.

5. The corridor is a clearly identified space delineated by construction or floor pattern, material or color.

6. The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.

7. A domestic cooking hood installed and constructed in accordance with Section 505 of the *International Mechanical Code* is provided over the cooktop or range.

8. The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and *listed* and *labeled* for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.

9. A manual actuation device for the hood suppression system shall be installed in accordance with Sections ((~~904.12.1 and 904.12.2~~)) 904.13.1 and 904.13.2.

10. An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.

11. A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.

12. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.

13. A portable fire extinguisher shall be installed in accordance with Section 906 of the *International Fire Code*.

420.14 Lofts. Where provided in Group R occupancies, *lofts* shall comply with this code as modified by Sections 420.14.1 through 420.14.5. *Lofts* constructed in compliance with this section shall be considered a portion of the story below. Such *lofts* shall not contribute to either the building area or number of stories as regulated by Section 503.1. The loft floor area shall be included in determining the *fire area*.

EXCEPTION: *Lofts* need not comply with Section 420.13 where they meet any of the following conditions:
1. The *loft* has a maximum depth of less than 3 feet (914 mm).
2. The *loft* has a floor area of less than 35 square feet (3.3 m^2).
3. The *loft* is not provided with a permanent means of egress.

420.14.1 Loft limitations. *Lofts* shall comply with the following conditions:

1. The *loft* floor area shall be less than 70 square feet (6.5 m^2).

2. The *loft* ceiling height shall not exceed 7 feet (2134 mm) for more than one-half of the *loft* floor area.

The provisions of Sections 420.14.2 through 420.14.5 shall not apply to *lofts* that do not comply with Items 1 and 2.

420.14.2 Loft ceiling height. The ceiling height below a *loft* shall not be less than 7 feet (2134 mm). The ceiling height above the finished floor of the *loft* shall not be less than 3 feet (914 mm). Portions of the *loft* with a sloped ceiling measuring less than 3 feet (914 mm) from the finished floor to the finished ceiling shall not contribute to the *loft* floor area.

420.14.3 Loft area. The aggregate area of all *lofts* and *mezzanines* within a room shall comply with Section 505.2.1.

EXCEPTION: The area of a single *loft* shall not be greater than two-thirds of the area of the room in which it is located, provided that no other *lofts* or *mezzanines* are open to the room in which the *loft* is located.

420.14.4 Permanent egress for lofts. Where a permanent means of egress is provided for *lofts*, the means of egress shall comply with Chapter 10 as modified by Section 420.14.4.1.

420.14.4.1 Ceiling height at loft means of egress. A minimum ceiling height of 3 feet shall be provided for the entire width of the means of egress from the *loft*.

420.14.5 Smoke alarms. Single- or multiple-station smoke alarms shall be installed in all *lofts* in accordance with Section 907.2.11.1 or 907.2.11.2.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0420, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0420, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, §

51-50-0420, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0420, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 21-16-063, filed 7/29/21, effective 8/29/21)

WAC 51-50-0429 Section 429—Electric vehicle charging infrastructure.

((**429.1 Scope.** The provisions of this section shall apply to the construction of new buildings.

EXCEPTIONS: 1. Occupancies classified as Group R-3 or Group U.
2. Group A, Group E, or Group M occupancies, except where employee parking spaces are designated. The provisions of Section 429 shall apply only to those designated employee parking spaces.

429.2 Required electric vehicle charging infrastructure. Where parking is provided, ten percent of parking spaces shall be provided with electric vehicle charging infrastructure in compliance with Sections 429.3, 429.4 and 429.5. When the calculation of percent served results in a fractional parking space, the applicant shall round up to the next whole number.

429.3 Electrical room(s). Electrical room(s) serving buildings with on-site parking spaces must be sized to accommodate the potential for electrical equipment and distribution required to serve a minimum of 20 percent of the total parking spaces with 208/240 V 40-amp, circuit or equivalent electric vehicle charging infrastructure.

429.4 Electric vehicle charging infrastructure. Electric vehicle charging infrastructure shall meet the following requirements:

1. A minimum number of 208/240 V 40-amp, circuit or equivalent electric vehicle charging stations required to serve the parking spaces specified in Section 429.2. The electric vehicle charging stations shall be located to serve spaces designated for parking and charging electric vehicles.

2. Additional service capacity, space for future meters, panel capacity or space for additional panels, and raceways for future installation of electric vehicle charging stations. The service capacity and raceway size shall be designed to accommodate the future installation of the number of 208/240 V 40-amp, circuit or equivalent electric vehicle charging stations specified in Section 429.2. The raceway shall terminate at spaces designated for parking and charging electric vehicles in the future.

Where designated electric vehicle charging locations serve exterior on-grade parking spaces that are located more than 4 feet from a building, raceways shall be extended below grade to a pull box in the vicinity of the designated future electric vehicle charging locations or stub above grade in the vicinity of the designated future electric vehicle charging locations, protected from vehicles by a curb or other device.

EXCEPTION: In lieu of surface-mounted raceway between the electrical panel and the designated electric vehicle charging locations, it is permitted to provide permanent markings indicating the pathway for future raceway, and one-inch diameter capped sleeves through each wall and floor assembly that are penetrated along that route. This pathway and the locations of capped sleeves shall also be indicated on the electrical plans. Raceway shall be installed for any portion of the pathway located below slabs, below grade, or within floor, wall or roof assemblies.

Load management infrastructure may be used to adjust the size and capacity of the required building electric service equipment and cir-

~~cuits on the customer facilities, as well as electric utility owned infrastructure, as allowed by applicable local and national electric codes.~~

~~**429.5 Electric vehicle charging infrastructure for accessible parking spaces.** When electric vehicle charging infrastructure is required, ten percent of accessible parking space, rounded to the next whole number, shall be provided with electric vehicle charging infrastructure. The electric vehicle charging infrastructure may also serve adjacent parking spaces not designated as accessible parking. A maximum of ten percent rounded to the next whole number, of the accessible parking spaces are allowed to be included in the total number of electric vehicle parking spaces required under Section 429.2.~~))

429.1 General. The provisions of this section shall apply to the construction of new buildings and accessory structures, including parking lots and parking garages.

Electric vehicle supply equipment (EVSE) shall be installed in accordance with applicable requirements of chapter 19.28 RCW and the National Electrical Code, Article 625.

EXCEPTION: Electric vehicle charging infrastructure is not required if any of the following conditions are met:
1. There is no public utility or commercial power supply.
2. Dwelling units without garages or other on-site parking.

429.2 Electric vehicle (EV) charging infrastructure. Buildings and accessory structures shall be provided with EV charging stations, EV-Ready parking spaces, and EV-capable parking spaces in accordance with Table 429.2. Calculations shall be rounded up to the nearest whole number. Where a building contains more than one occupancy, the electric vehicle charging infrastructure percentages of Table 429.2 shall be applied to the number of spaces required for each occupancy.

EXCEPTIONS: 1. Except for Group A, Group E, and Group M occupancies, on-site parking with less than 10 parking spaces shall not be required to comply with Section 429.2.
2. Group A, Group E, and Group M occupancies shall comply with one of the following, whichever is greater:
2.1. The provisions of Section 429.2 shall apply only to designated employee parking spaces.
2.2. One of each 200 parking spaces or fraction thereof shall be EV Ready. One of each 200 parking spaces or fraction thereof shall be an EV Charging Station.

Table 429.2
Electric Vehicle Charging Infrastructure

Occupancy	Number of EV Charging Stations	Number of EV-Ready Parking Spaces	Number of EV-Capable Parking Spaces
Group A, B, E, F, H, I, M, and S occupancies	10% of total parking spaces	10% of total parking spaces	10% of total parking spaces
Group R occupancies			
Buildings that do not contain more than two dwelling units	Not required	One for each dwelling unit	Not required
Dwelling units with private garages	Not required	One for each dwelling unit	Not required
All other Group R occupancies	10% of total parking spaces	25% of total parking spaces	10% of total parking spaces

429.2.1 EV charging stations and EV-Ready parking spaces. A minimum of 40-ampere dedicated 208/240-volt branch circuit shall be installed for each EV Ready parking space and each EV Charging Station. The branch circuits shall terminate at a receptacle outlet or EV charger in close proximity to the proposed location of the EV Ready parking space or the EV Charging Station.

429.2.2 EV-Capable parking spaces. A listed raceway capable of accommodating a minimum of 40-ampere dedicated 208/240-volt branch circuit shall be installed for each EV-Capable parking space. The raceway shall terminate into a cabinet, box or other enclosure in close proximity to the proposed location of the EV-Capable parking space. Raceways and related components that are planned to be installed underground, and in enclosed, inaccessible or concealed areas and spaces, shall be installed at the time of original construction.

429.3 Electrical room(s) and equipment. Electrical room(s) and/or dedicated electrical equipment shall be sized to accommodate the requirements of Section 429.

The electrical service and the electrical system, including any on-site distribution transformer(s), shall have sufficient capacity to simultaneously charge all EVs at all required EV Charging Stations, EV Ready parking spaces, and EV-Capable parking spaces at a minimum of 40-amperes each.

EXCEPTION: Automatic Load Management System (ALMS) may be used to adjust the maximum electrical capacity required for the EV-Ready and EV-Capable parking spaces. The ALMS must be designed to allocate charging capacity among multiple future EV Charging Stations at a minimum of 16 amperes per EV charger.

429.4 Electric vehicle charging infrastructure for accessible parking spaces. Ten percent of the accessible parking spaces, rounded to the next whole number, shall be EV Charging Stations. Additional ten percent of the accessible parking spaces, rounded to the next whole number, shall be EV Ready.

The electric vehicle charging infrastructure may also serve adjacent parking spaces not designated as accessible parking. A maximum of ten percent of the accessible parking spaces, rounded to the next whole number, are allowed to be included in the total number of electric vehicle parking spaces required under Section 429.3.

[Statutory Authority: RCW 19.27.077, 19.27.031 and 19.27.074. WSR 21-16-063, § 51-50-0429, filed 7/29/21, effective 8/29/21.]

NEW SECTION

WAC 51-50-0430 Section 430—Recycled materials.

430 Recyclable materials, compost, and solid waste storage. Space shall be provided for the storage of recycled materials, compost, and solid waste for all new buildings.

EXCEPTION: Group R-3 and Group U Occupancies.

The storage area shall be designed to meet the needs of the occupancy, efficiency of pickup, and be available to occupants and haulers.

[]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0503 Section 503—General building height and area limitations.

((~~**503.1.4 Occupied roofs.** A roof level or portion thereof shall be permitted to be used as an occupied roof provided the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the story immediately below the roof. The area of the occupied roofs shall not be included in the building area as regulated by Section 506.~~

~~EXCEPTIONS: 1. The occupancy located on an occupied roof shall not be limited to the occupancies allowed on the story immediately below the roof where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and occupant notification in accordance with Sections 907.5.2.1 and 907.5.2.3 is provided in the area of the occupied roof. Emergency voice/alarm communication system notification in accordance with Section 907.5.2.2 shall also be provided in the area of the occupied roof where such system is required elsewhere in the building.~~
~~2. Assembly occupancies shall be permitted on roofs of open parking spaces of Type I or Type II construction, in accordance with the exception to Section 903.2.1.6.~~))

503.1.4.1 Enclosure of occupied roof areas. Elements or structures enclosing the occupied roof areas shall not extend more than 48 inches (1220 mm) above the surface of the occupied roof.

EXCEPTIONS: 1. Penthouses constructed in accordance with Section 1511.2 and towers, domes, spires, and cupolas constructed in accordance with Section 1511.5.
2. High rise buildings.

503.1.4.2 Guards. Occupied roofs shall have guards in accordance with Section 1015.2.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0503, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0503, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-0504 Section 504—Building height and number of stories.

Table 504.3
Allowable Building Height in Feet Above Grade Plane[a]

Occupancy Classification	See Footnotes	Type of Construction											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A, B, E, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	270	180	85	85	70	60
H-1, H-2, H-3, H-5	NS[c,d]	UL	160	65	55	65	55	120	90	65	65	50	40
	S												
H-4	NS[c,d]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	140	100	85	85	70	60
I-1 Condition 1, I-3	NS[d,e]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	180	120	85	85	70	60
I-1 Condition 2, I-2	NS[d,e,f]	UL	160	65	55	65	55	65	65	65	65	50	40
	S[i]	UL	180	85									

Occupancy Classification	See Footnotes	Type of Construction											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
I-4	NS[d,g]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	180	120	85	85	70	60
R[h]	NS[d]	UL	160	65	55	65	55	65	65	65	65	50	40
	S13D	60	60	60	60	60	60	60	60	60	60	50	40
	S13R	60	60	60	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	270	180	85	85	70	60

For SI: 1 foot = 304.8 mm.
UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

[a] See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
[b] See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
[c] New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
[d] The NS value is only for use in evaluation of existing building height in accordance with the International Existing Building Code.
[e] New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.
[f] New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.
[g] For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
[h] New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
[i] I-1, Condition 2 Assisted living facilities licensed in accordance with chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC shall be permitted to use the allowable height above grade plane for Group R-2 occupancies.

Table 504.4
Allowable Number of Stories Above Grade Plane[a,b]

Occupancy Classification	See Footnotes	Type of Construction											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A-1	NS	UL	5	3	2	3	2	3	3	3	3	2	1
	S	UL	6	4	3	4	3	9	6	4	4	3	2
A-2	NS	UL	11	3	2	3	2	3	3	3	3	2	1
	S	UL	12	4	3	4	3	18	12	6	4	3	2
A-3	NS	UL	11	3	2	3	2	3	3	3	3	2	1
	S	UL	12	4	3	4	3	18	12	6	4	3	2
A-4	NS	UL	11	3	2	3	2	3	3	3	3	2	1
	S	UL	12	4	3	4	3	18	12	6	4	3	2
A-5	NS	UL	UL	UL	UL	UL	UL	1	1	1	UL	UL	UL
	S	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	NS	UL	11	5	3	5	3	5	5	5	5	3	2
	S	UL	12	6	4	6	4	18	12	9	6	4	3
E	NS	UL	5	3	2	3	2	3	3	3	3	1	1
	S	UL	6	4	3	4	3	9	6	4	4	2	2
F-1	NS	UL	11	4	2	3	2	3	3	3	4	2	1
	S	UL	12	5	3	4	3	10	7	5	5	3	2
F-2	NS	UL	11	5	3	4	3	5	5	5	5	3	2
	S	UL	12	6	4	5	4	12	8	6	6	4	3
H-1	NS[c,d]	1	1	1	1	1	1	NP	NP	NP	1	1	NP
	S							1	1	1			
H-2	NS[c,d]	UL	3	2	1	2	1	1	1	1	2	1	1
	S							2	2	2			

Occupancy Classification	See Footnotes	Type of Construction											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
H-3	NS[c,d]	UL	6	4	2	4	2	3	3	3	4	2	1
	S							4	4	4			
H-4	NS[c,d]	UL	7	5	3	5	3	5	5	5	5	3	2
	S	UL	8	6	4	6	4	8	7	6	6	4	3
H-5	NS[c,d]	4	4	3	3	3	3	2	2	2	3	3	2
	S							3	3	3			
I-1 Condition 1	NS[d,e]	UL	9	4	3	4	3	4	4	4	4	3	2
	S	UL	10	5	4	5	4	10	7	5	5	4	3
I-1 Condition 2	NS[d,e]	UL	9	4	3	4	3	3	3	3	4	3	2
	S[i]	UL	10	5				10	6	4			
I-2	NS[d,f]	UL	4	2	1	1	NP	NP	NP	NP	1	1	NP
	S	UL	5	3				7	5	1			
I-3	NS[d,e]	UL	4	2	1	2	1	2	2	2	2	2	1
	S	UL	5	3	2	3	2	7	5	3	3	3	2
I-4	NS[d,g]	UL	5	3	2	3	2	3	3	3	3	1	1
	S	UL	6	4	3	4	3	9	6	4	4	2	2
M	NS	UL	11	4	2	4	2	4	4	4	4	3	1
	S	UL	12	5	3	5	3	12	8	6	5	4	2
R-1h	NS[d]	UL	11	4	4	4	4	4	4	4	4	3	2
	S13R	4	4									4	3
	S	UL	12	5	5	5	5	18	12	8	5	4	3
R-2h	NS[d]	UL	11	4	4	4	4	4	4	4	4	3	2
	S13R	4	4	4								4	3
	S	UL	12	5	5	5	5	18	12	8	5	4	3
R-3h	NS[d]	UL	11	4	4	4	4	4	4	4	4	3	3
	S13D	4	4									3	3
	S13R	4	4									4	4
	S	UL	12	5	5	5	5	18	12	5	5	4	4
R-4h	NS[d]	UL	11	4	4	4	4	4	4	4	4	3	2
	S13D	4	4									3	2
	S13R	4	4									4	3
	S	UL	12	5	5	5	5	18	12	5	5	4	3
S-1	NS	UL	11	4	2	3	2	4	4	4	4	3	1
	S	UL	12	5	3	4	3	10	7	5	5	4	2
S-2	NS	UL	11	5	3	4	3	4	4	4	4	4	2
	S	UL	12	6	4	5	4	12	8	5	5	5	3
U	NS	UL	5	4	2	3	2	4	4	4	4	2	1
	S	UL	6	5	3	4	3	9	6	5	5	3	2

UL = Unlimited; NP = Not permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

[a] See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

[b] See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

[c] New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

[d] The NS value is only for use in evaluation of existing building height in accordance with the International Existing Building Code.
[e] New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.
[f] New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.
[g] For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
[h] New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
[i] Group I-1, Condition 2 Assisted living facilities licensed in accordance with chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC shall be permitted to use the allowable number of stories for Group R-2 occupancies.

504.4.1 Stair enclosure pressurization increase. For Group R-1, R-2, and I-1 Condition 2 Assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC located in buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the maximum number of stories permitted in Section 504.4 may be increased by one provided the interior exit stairways and ramps are pressurized in accordance with Sections 909.6.3 and 909.20. Legally required standby power shall be provided in accordance with Sections 909.11 and ((~~2702.2.16~~)) 2702.17 for buildings constructed in compliance with this section and be connected to stairway shaft pressurization equipment, elevators and lifts used for accessible means of egress (if provided), elevator hoistway pressurization equipment (if provided) and other life safety equipment as determined by the authority having jurisdiction. For the purposes of this section, legally required standby power shall comply with 2020 NEC Section 701.12, options (C), (D), (E), (F), (H) or (J) or subsequent revised section number(s).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, § 51-50-0504, filed 2/23/21, effective 3/26/21; WSR 20-21-021, § 51-50-0504, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-0504, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-0504, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-0504, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0504, filed 2/1/13, effective 7/1/13. Statutory Authority: Chapter 19.27 RCW. WSR 10-24-059, § 51-50-0504, filed 11/29/10, effective 7/1/11.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0505 ((~~Reserved.~~)) Section 0505—Mezzanines and equipment platforms.

505.1 General. *Mezzanines* shall comply with Section 505.2. *Equipment platforms* shall comply with Section 505.3.

EXCEPTION: *Lofts* in Group R occupancy dwelling units and sleeping units shall be permitted to comply with Section 420.13, subject to the limitations in Section 420.13.1.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0505, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0505, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0506 ((Section 506—Building area.)) Reserved.

((**Table 506.2**
Allowable Area Factor (At = NS, S1, S13R, S13D or SM, as applicable) In Square Feet[a,b]

Occupancy Classification	See Footnotes	Type of Construction											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	45,000	30,000	18,750	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	180,000	120,000	75,000	60,000	46,000	22,000
	SM	UL	UL	46,500	25,500	42,000	25,500	135,000	90,000	56,250	45,000	34,500	16,500
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	45,000	30,000	18,750	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	180,000	120,000	75,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	135,000	90,000	56,250	45,000	34,500	18,000
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	45,000	30,000	18,750	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	180,000	120,000	75,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	135,000	90,000	56,250	45,000	34,500	18,000
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	45,000	30,000	18,750	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	180,000	120,000	75,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	135,000	90,000	56,250	45,000	34,500	18,000
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1												
	SM												
B	NS	UL	UL	37,500	23,000	28,500	19,000	108,000	72,000	45,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	432,000	288,000	180,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	324,000	216,000	135,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	76,500	51,000	31,875	25,500	18,500	9,500
	S1	UL	UL	106,000	58,000	94,000	58,000	306,000	204,000	127,500	102,000	74,000	38,000
	SM	UL	UL	79,500	43,500	70,500	43,500	229,500	153,000	95,625	76,500	55,500	28,500
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	100,500	67,000	41,875	33,500	14,000	8,500
	S1	UL	UL	100,000	62,000	76,000	48,000	402,000	268,000	167,500	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	301,500	201,000	125,625	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	151,500	101,000	63,125	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	606,000	404,000	252,500	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	454,500	303,000	189,375	151,500	63,000	39,000
H-1	NS[c]	21,000	16,500	11,000	7,000	9.500	7,000	10,500	10,500	10,000	10,500	7,500	NP
	S1												
H-2	NS[c]	21,000	16,500	11,000	7,000	9.500	7,000	10,500	10,500	10,000	10,500	7,500	3,000
	S1												
	SM												
H-3	NS[c]	UL	60,000	26,500	14,000	17,500	13,000	25,500	25,500	25,500	25,500	10,000	5,000
	S1												
	SM												
H-4	NS[c,d]	UL	UL	37,500	17,500	28,500	17,500	72,000	54,000	40,500	36,000	18,000	6,500
	S1	UL	UL	150,000	70,000	114,000	70,000	288,000	216,000	162,000	144,000	72,000	26,000
	SM	UL	UL	112,500	52,500	85,500	52,500	216,000	162,000	121,500	108,000	54,000	19,500
H-5	NS[c,d]	UL	UL	37,500	23,000	28,500	19,000	72,000	54,000	40,500	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	288,000	216,000	162,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	216,000	162,000	121,500	108,000	54,000	27,000

Occupancy Classification	See Footnotes	Type of Construction											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
I-1	NS[d, e]	UL	55,000	19,000	10,000	16,500	10,000	54,000	36,000	18,000	18,000	10,500	4,500
	S1	UL	220,000	76,000	40,000	66,000	40,000	216,000	144,000	72,000	72,000	42,000	18,000
	SM	UL	165,000	57,000	30,000	49,500	30,000	162,000	108,000	54,000	54,000	31,500	13,500
I-2	NS[d, f]	UL	UL	15,000	11,000	12,000	NP	36,000	24,000	12,000	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	144,000	96,000	48,000	48,000	38,000	NP
	SM	UL	UL	45,000	33,000	36,000	NP	108,000	72,000	36,000	36,000	28,500	NP
I-3	NS[d, e]	UL	UL	15,000	10,000	10,500	7,500	36,000	24,000	12,000	12,000	7,500	5,000
	S1	UL	UL	45,000	40,000	42,000	30,000	144,000	96,000	48,000	48,000	30,000	20,000
	SM	UL	UL	45,000	30,000	31,500	22,500	108,000	72,000	36,000	36,000	22,500	15,000
I-4	NS[d, g]	UL	60.500	26,500	13,000	23,500	13,000	76,500	51,000	25,500	25,500	18,500	9,000
	S1	UL	121,000	106,000	52,000	94,000	52,000	306,000	204,000	102,000	102,000	74,000	36,000
	SM	UL	181,500	79,500	39,000	70,500	39,000	229,500	153,000	76,500	76,500	55,500	27,000
M	NS	UL	UL	21,500	12,500	18,500	12,500	61,500	41,000	25,625	20,500	14,000	9,000
	S1	UL	UL	86,000	50,000	74,000	50,000	246,000	164,000	102,500	82,000	56,000	36,000
	SM	UL	UL	64,500	37,500	55,500	37,500	184,500	123,000	76,875	61,500	42,000	27,000
R-1[h]	NS[d]	UL	UL	24,000	16,000	24,000	16,000	61,500	41,000	25,625	20,500	12,000	7,000
	S13R												
	S1	UL	UL	96,000	64,000	96,000	64,000	246,000	164,000	102,500	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	184,500	123,000	76,875	61,500	36,000	21,000
R-2[h]	NS[d]	UL	UL	24,000	16,000	24,000	16,000	61,500	41,000	25.625	20,500	12,000	7,000
	S13R												
	S1	UL	UL	96,000	64,000	96,000	64,000	246,000	164,000	102,500	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	184,500	123,000	76,875	61,500	36,000	21,000
R-3[h]	NS[d]	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S13D												
	S13R												
	S1												
	SM												
R-4[h]	NS[d]	UL	UL	24,000	16,000	24,000	16,000	61,500	41,000	25,625	20,500	12,000	7,000
	S13D												
	S13R												
	S1	UL	UL	96,000	64,000	96,000	64,000	246,000	164,000	102,500	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	184,500	123,000	76,875	61,500	36,000	21,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	76,500	51,000	31,875	25,500	14,000	9,000
	S1	UL	192,000	104,000	70,000	104,000	70,000	306,000	204,000	127,500	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	229,500	153,000	95,625	76,500	42,000	27,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	115,500	77,000	48,125	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	462,000	308,000	192,500	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	346,500	231,000	144,375	115,500	63,000	40,500
U	NS[i]	UL	35,500	19,000	8,500	14,000	8,500	54,000	36,000	22,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	216,000	144,000	90,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	162,000	108,000	67,500	54,000	27,000	16,500

For SI: 1 square foot = 0.0929 m^2.

UL = Unlimited; NP = Not permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building area in accordance with the International Existing Building Code.

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.

f ~~New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.~~

g ~~For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.~~

h ~~New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.~~

i ~~The maximum allowable area for a single-story nonsprinklered Group U greenhouse is permitted to be 9,000 square feet, or the allowable area shall be permitted to comply with Table C102.1 of Appendix C.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0506, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-0506, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-0506, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0506, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0506, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-0506, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-0508 Section 508—Mixed use and occupancy.

((**~~508.4.4.1 Construction.~~** ~~Required separations shall be *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, so as to completely separate adjacent occupancies. Mass timber elements serving as fire barriers or horizontal assemblies to separate occupancies in Type IV-B or IV-C construction shall be separated from the interior of the building with an approved thermal barrier consisting of a minimum of 1/2 inch (12.7 mm) gypsum board or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.~~))

508.5.1 Limitations. The following shall apply to live/work areas:

1. The live/work unit is permitted to be not greater than 3,000 square feet (279 m) in area.

2. The nonresidential area is permitted to be not more than 50 percent of the area of each live/work unit.

3. The nonresidential area function shall be limited to the first or main floor only of the live/work unit.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-0508, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-0509 Section 509—Incidental uses.

((**~~509.4.1.1 Type IV-B and IV-C construction.~~** ~~Where Table 509 specifies a fire-resistance-rated separation, mass timber elements serving as fire barriers or a horizontal assembly in Type IV-B or IV-C construction shall be separated from the interior of the incidental use with an approved thermal barrier consisting of a minimum of 1/2 inch (12.7 mm) gypsum board or a material that is tested in accordance with and~~

~~meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.~~))

Table 509
Incidental Uses

Room or Area	Separation and/or Protection
Dry type transformers over 112.5 kVA and required to be in a fire resistant room per NEC (NFPA 70) Section 450.21 (B)[1]	1 hour or provide automatic sprinkler system

[1] Dry type transformers rated over 35,000 volts and oil-insulated transformers shall be installed in a transformer vault complying with NFPA 70.

(Remainder of table unchanged)

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-0509, filed 12/26/18, effective 7/1/19. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0509, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0509, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-0509, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-0510 Section 510—Special provisions.

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction where ((~~all of~~)) the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. Where vertical offsets are provided as part of a *horizontal* assembly, the vertical offset and the structure supporting the vertical offset shall have a *fire-resistance rating* of not less than 3 hours.
2. The building below, including the *horizontal assembly,* is of Type IA construction.
3. *Shaft, stairway, ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protective in accordance with Section 716.

EXCEPTION: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating* provided that the following conditions are met:
1. The building above the *horizontal assembly* is not required to be of Type I construction.
2. The enclosure connects fewer than four *stories;* and
3. The enclosure opening protective above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
((~~4. Interior exit stairways located within the Type IA building are permitted to be of combustible materials where both of the following requirements are met:~~
~~4.1. The building above the Type IA building is of Type III, IV, or V construction.~~
~~4.2. The stairway located in the Type IA building is enclosed by 3-hour *fire-resistance-rated* construction with opening protectives in accordance with Section 716.~~))

4. Interior exit stairways located within the Type IA building are permitted to be of combustible materials where both of the following requirements are met:

4.1. The building above the Type IA building is of Type III, IV, or V construction.

4.2. The stairway located in the Type IA building is enclosed by 3-hour fire-resistance-rated construction with opening protectives in accordance with Section 716.

5. The building or buildings above the horizontal assembly shall be permitted to have ((~~multiple~~)) Group A ((~~occupancy uses, each with an occupant load of less than 300, or Group B, Group I-1, Condition 2 licensed care facilities~~)), B, M, R, or S occupancies.

((~~5.~~)) 6. The building below the horizontal assembly shall be protected throughout by an approved automatic sprinkler system in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.

((~~6.~~)) 7. The maximum building height in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the grade plane. ((~~Group I-1, Condition 2 licensed care facilities shall be permitted to use the values for maximum height in feet for Group R-2 occupancies.~~

~~510.5 Group R-1 and R-2 buildings of Type IIIA construction.~~ ~~For buildings of Type IIIA construction in Groups R-1 and R-2, the maximum allowable height in Table 504.3 shall be increased by 10 feet and the maximum allowable number of stories in Table 504.4 shall be increased by one foot where the first floor assembly above the basement has a *fire-resistance rating* of not less than 3 hours and the floor area is subdivided by 2-hour *fire-resistance-rated* fire walls into areas of not more than 3,000 square feet (279 m^2).~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-0510, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-0510, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0510, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-0601 ((~~Section 601—General.~~)) Reserved.

((~~**Table 601**~~

~~**Fire-resistance Rating Requirements for Building Elements (hours)**~~

Building Element	Type I		Type II		Type III		Type IV				Type V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1[b]	0	3[a]	2[a]	2[a]	HT	1	0
Bearing walls												
Exterior[e, f]	3	2	1	0	2	2	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT	1	0
Nonbearing walls and partitions exterior	See Table 602											

Building Element	Type I		Type II		Type III		Type IV				Type V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Nonbearing walls and partitions interior[d]	0	0	0	0	0	0	0	0	0	See Section 602.4.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	1 1/2	1	1	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b Except in Groups F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c In all occupancies, heavy timber complying with Section 2304.11 shall be allowed where a 1-hour or less fire-resistance rating is required.

d Not less than the fire-resistance rating required by other sections of this code.

e Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f Not less than the fire-resistance rating as referenced in Section 704.10.))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-0601, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-0602 Section 602—Construction classification.

((**Table 602**

Fire-resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance[a,d,g]

Fire Separation Distance = X (feet)	Type of Construction	Occupancy Group H[e]	Occupancy Group F-1, M, S-1[f]	Occupancy Group A, B, E, F-2, I, R[i], S-2, U[h]
X < 5[b]	All	3	2	1
5 ≤ X < 10	IA, IVA	3	2	1
	Others	2	1	
10 ≤ X < 30	IA, IB, IVA, IVB	2	1	1[c]
	IIB, VB	1	0	0
	Others	1	1	1[c]
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm.

a Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b See Section 706.1.1 for party walls.

c Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

d The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

e For special requirements for Group H occupancies, see Section 415.6.

f For special requirements for Group S aircraft hangars, see Section 412.3.1.

g Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.

h For a building containing only a Group U occupancy private garage or carport, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.

i For a Group R-3 building of Type II-B or Type V-B construction, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.

602.4 Type IV. Type IV construction is that type of construction in which the building elements are mass timber or noncombustible materials and have fire-resistance ratings in accordance with Table 601. Mass timber elements shall meet the fire-resistance rating requirements of this section based on either the fire-resistance rating of the noncombustible protection, the mass timber, or a combination of both and shall be determined in accordance with Section 703.2 or 703.3. The minimum dimensions and permitted materials for building elements shall comply with the provisions of this section including Section 2304.11. Mass timber elements of Types IV-A, IV-B and IV-C construction shall be protected with noncombustible protection applied directly to the mass timber in accordance with Sections 602.4.1 through 602.4.3. The time assigned to the noncombustible protection shall be determined in accordance with Section 703.8 and comply with 722.7.

Cross-laminated timber shall be labeled as conforming to ANSI/APA PRG 320 as referenced in Section 2303.1.4.

Exterior load-bearing walls and nonload-bearing walls shall be mass timber construction, or shall be of noncombustible construction.

EXCEPTION: Exterior load-bearing walls and nonload-bearing walls of Type IV-HT Construction in accordance with Section 602.4.4.

The interior building elements, including nonload-bearing walls and partitions, shall be of mass timber construction or of noncombustible construction.

EXCEPTION: Interior building elements and nonload-bearing walls and partitions of Type IV-HT Construction in accordance with Section 602.4.4.

Combustible concealed spaces are not permitted except as otherwise indicated in Sections 602.4.1 through 602.4.4. Combustible stud spaces within light frame walls of Type IV-HT construction shall not be considered concealed spaces, but shall comply with Section 718.

In buildings of Type IV-A, IV-B, and IV-C, construction with an occupied floor located more than 75 feet above the lowest level of fire department access, up to and including 12 stories or 180 feet above grade plane, mass timber interior exit and elevator hoistway enclosures shall be protected in accordance with Section 602.4.1.2. In buildings greater than 12 stories or 180 feet above grade plane, interior exit and elevator hoistway enclosures shall be constructed of noncombustible materials.

602.4.1 Type IV-A. Building elements in Type IV-A construction shall be protected in accordance with Sections 602.4.1.1 through 602.4.1.6. The required fire-resistance rating of noncombustible elements and protected mass timber elements shall be determined in accordance with Section 703.2 or Section 703.3.

602.4.1.1 Exterior protection. The outside face of exterior walls of mass timber construction shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1. All components of the exterior wall covering, shall be of noncombustible material except water resistive barriers having a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354 and having a flame spread index of 25 or less and a smoke-developed index of 450 or less

~~as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.~~

~~**602.4.1.2 Interior protection.** Interior faces of all mass timber elements, including the inside faces of exterior mass timber walls and mass timber roofs, shall be protected with materials complying with Section 703.5.~~

~~**602.4.1.2.1 Protection time.** Noncombustible protection shall contribute a time equal to or greater than times assigned in Table 722.7.1(1), but not less than 80 minutes. The use of materials and their respective protection contributions listed in Table 722.7.1(2), shall be permitted to be used for compliance with Section 722.7.1.~~

~~**602.4.1.3 Floors.** The floor assembly shall contain a noncombustible material not less than 1 inch in thickness above the mass timber. Floor finishes in accordance with Section 804 shall be permitted on top of the noncombustible material. The underside of floor assemblies shall be protected in accordance with 602.4.1.2.~~

~~**602.4.1.4 Roofs.** The interior surfaces of roof assemblies shall be protected in accordance with Section 602.4.1.2. Roof coverings in accordance with Chapter 15 shall be permitted on the outside surface of the roof assembly.~~

~~**602.4.1.5 Concealed spaces.** Concealed spaces shall not contain combustibles other than electrical, mechanical, fire protection, or plumbing materials and equipment permitted in plenums in accordance with Section 602 of the *International Mechanical Code*, and shall comply with all applicable provisions of Section 718. Combustible construction forming concealed spaces shall be protected in accordance with Section 602.4.1.2.~~

~~**602.4.1.6 Shafts.** Shafts shall be permitted in accordance with Sections 713 and 718. Both the shaft side and room side of mass timber elements shall be protected in accordance with Section 602.4.1.2.~~

~~**602.4.2 Type IV-B.** Building elements in Type IV-B construction shall be protected in accordance with Sections 602.4.2.1 through 602.4.2.6. The required fire-resistance rating of noncombustible elements or mass timber elements shall be determined in accordance with Section 703.2 or 703.3.~~

~~**602.4.2.1 Exterior protection.** The outside face of exterior walls of mass timber construction shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1. All components of the exterior wall covering shall be of noncombustible material except water resistive barriers having a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354, and having a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.~~

~~**602.4.2.2 Interior protection.** Interior faces of all mass timber elements, including the inside face of exterior mass timber walls and mass timber roofs, shall be protected, as required by this section, with materials complying with Section 703.5.~~

~~**602.4.2.2.1 Protection time.** Noncombustible protection shall contribute a time equal to or greater than times assigned in Table 722.7.1(1), but not less than 80 minutes. The use of materials and their respective protection contributions listed in Table 722.7.1(2), shall be permitted to be used for compliance with Section 722.7.1.~~))

602.4.2.2.2 Protected area. ((~~All~~)) Interior faces of ((~~all~~)) mass timber elements, including the inside face of exterior mass timber walls and mass timber roofs, shall be protected in accordance with Section 602.4.2.2.1((~~, including the inside face of exterior mass timber walls and mass timber roofs~~)).

EXCEPTION: Unprotected portions of mass timber ceilings and walls complying with Section 602.4.2.2.4 and the following:
1. Unprotected portions of mass timber ceilings((~~, including attached beams, shall be permitted and shall be limited to an area equal to 20% of the floor area in any dwelling unit or fire area; or~~)) and walls complying with one of the following:
1.1. Unprotected portions of mass timber ceilings, including attached beams, shall be permitted and shall be limited to an area less than or equal to 100 percent of the floor area in any dwelling unit or fire area.
((~~2.~~)) 1.2. Unprotected portions of mass timber walls, including attached columns, shall be permitted and shall be limited to an area less than or equal to ((~~40%~~)) 40 percent of the floor area in any dwelling unit or fire area((~~; or~~)).
((~~3.~~)) 1.3. Unprotected portions of both walls and ceilings of mass timber, including attached columns and beams, in any dwelling unit or fire area shall be permitted in accordance with Section 602.4.2.2.3.
((~~4.~~)) 2. Mass timber columns and beams ((~~which~~)) that are not an integral portion of walls or ceilings, respectively, shall be permitted to be unprotected without restriction of either aggregate area or separation from one another.

((~~**602.4.2.2.3 Mixed unprotected areas.** In each dwelling unit or fire area, where both portions of ceilings and portions of walls are unprotected, the total allowable unprotected area shall be determined in accordance with Equation 6-1.~~

~~(Equation 6-1)~~

$$(Utc/Uac) + (Utw/Uaw) \leq 1$$

~~where:~~

~~Utc = Total unprotected mass timber ceiling areas;~~

~~Uac = Allowable unprotected mass timber ceiling area conforming to Section 602.4.2.2.2, Exception 1;~~

~~Utw = Total unprotected mass timber wall areas;~~

~~Uaw = Allowable unprotected mass timber wall area conforming to Section 602.4.2.2.2, Exception 2.~~))

602.4.2.2.4 Separation distance between unprotected mass timber elements. In each dwelling unit or fire area, unprotected portions of mass timber walls and ceilings shall be not less than 15 feet from unprotected portions of other walls ((~~and ceilings, measured horizontally along the ceiling and from other unprotected portions of walls~~)) measured horizontally along the floor.

602.4.2.3 Floors. The floor assembly shall contain a noncombustible material not less than 1 inch in thickness above the mass timber. Floor finishes in accordance with Section 804 shall be permitted on top of the noncombustible material. Except where unprotected *mass timber* ceilings are permitted in Section 602.4.2.2.2, the underside of floor assemblies shall be protected in accordance with Section 602.4.1.2.

((**602.4.2.4 Roofs.** The interior surfaces of roof assemblies shall be protected in accordance with Section 602.4.2.2 except, in nonoccupiable spaces, they shall be treated as a concealed space with no portion left unprotected. Roof coverings in accordance with Chapter 15 shall be permitted on the outside surface of the roof assembly.

602.4.2.5 Concealed spaces. Concealed spaces shall not contain combustibles other than electrical, mechanical, fire protection, or plumbing materials and equipment permitted in plenums in accordance with Section 602 of the *International Mechanical Code*, and shall comply with all applicable provisions of Section 718. Combustible construction forming concealed spaces shall be protected in accordance with Section 602.4.1.2.

602.4.2.6 Shafts. Shafts shall be permitted in accordance with Sections 713 and 718. Both the shaft side and room side of mass timber elements shall be protected in accordance with Section 602.4.1.2.

602.4.3 Type IV-C. Building elements in Type IV-C construction shall be protected in accordance with Sections 602.4.3.1 through 602.4.3.6. The required fire-resistance rating of building elements shall be determined in accordance with Sections 703.2 or 703.3.

602.4.3.1 Exterior protection. The exterior side of walls of combustible construction shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1. All components of the exterior wall covering, shall be of noncombustible material except water resistive barriers having a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354 and having a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

602.4.3.2 Interior protection. Mass timber elements are permitted to be unprotected.

602.4.3.3 Floors. Floor finishes in accordance with Section 804 shall be permitted on top of the floor construction.

602.4.3.4 Roofs. Roof coverings in accordance with Chapter 15 shall be permitted on the outside surface of the roof assembly.

602.4.3.5 Concealed spaces. Concealed spaces shall not contain combustibles other than electrical, mechanical, fire protection, or plumbing materials and equipment permitted in plenums in accordance with Section 602 of the *International Mechanical Code*, and shall comply with all applicable provisions of Section 718. Combustible construction forming concealed spaces shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1.

602.4.3.6 Shafts. Shafts shall be permitted in accordance with Sections 713 and 718. Shafts and elevator hoistway and interior exit stairway enclosures shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1, on both the inside of the shaft and the outside of the shaft.

~~**602.4.4 Type IV-HT.** Type IV-HT construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid wood, laminated heavy timber or structural composite lumber (SCL), without concealed spaces. The minimum dimensions for permitted materials including solid timber, glued-laminated timber, structural composite lumber (SCL) and cross-laminated timber (CLT) and details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.4.1 or 602.4.4.2 shall be permitted. Interior walls and partitions not less than 1 hour fire-resistance rating or heavy timber conforming with Section 2304.11.2.2 shall be permitted.~~

~~**602.4.4.1 Fire-retardant-treated wood in exterior walls.** Fire-retardant-treated wood framing and sheathing complying with Section 2303.2 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less.~~

~~**602.4.4.2 Cross-laminated timber in exterior walls.** Cross-laminated timber complying with Section 2303.1.4 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one of the following:~~

~~1. Fire-retardant-treated wood sheathing complying with Section 2303.2 and not less than 15/32 inch (12 mm) thick;~~

~~2. Gypsum board not less than 1/2 inch (12.7 mm) thick; or~~

~~3. A noncombustible material.~~))

602.4.4.3 Concealed spaces. Concealed spaces shall not contain combustible materials other than building elements and electrical, mechanical, fire protection, or plumbing materials and equipment permitted in plenums in accordance with Section 602 of the *International Mechanical Code*. Concealed spaces shall comply with applicable provisions of Section 718. Concealed spaces shall be protected in accordance with one or more of the following:

1. The building shall be sprinklered throughout in accordance with Section 903.3.1.1 and automatic sprinklers shall also be provided in the concealed space.

2. The concealed space shall be completely filled with noncombustible insulation.

3. Combustible surfaces within the concealed space shall be fully sheathed with not less than 5/8-inch Type X gypsum board.

EXCEPTION: Concealed spaces within interior walls and partitions with a 1-hour or greater fire-resistance rating complying with Section 2304.11.2.2 shall not require additional protection.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-0602, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-0602, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-0602, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-0603 ((~~Section 603—Combustible material in Types I and II construction.~~)) Reserved.

((**603.1 Allowable materials.** Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* shall be permitted in:

1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.

1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.

1.3. Roof construction, including girders, trusses, framing and decking.

EXCEPTION: In buildings of Type I-A construction exceeding two *stories above grade plane*, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

1.4. Balconies, porches, decks and exterior stairways not used as required exits on buildings three stories or less above grade plane. Approved connector shall be in accordance with Section 2304.10.5.

2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

EXCEPTIONS:
1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a flame spread index of not more than 200.
3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Section 803.
8. *Trim* installed in accordance with Section 806.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. Stages and platforms constructed in accordance with Sections 410.2 and 410.3, respectively.
13. Combustible exterior wall coverings, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.
14. Blocking such as for handrails, millwork, cabinets, and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction.
17. Exterior plastic veneer installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.15.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.3 and 705.2.3.1.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire-resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the International Mechanical Code.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-0603, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-0603, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-0603, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-0703 ((Section 703—Fire-resistance ratings and fire tests.)) Reserved.

((**703.8 Determination of noncombustible protection time contribution.** The time, in minutes, contributed to the fire-resistance rating by the

~~noncombustible protection of mass timber building elements, components, or assemblies, shall be established through a comparison of assemblies tested using procedures set forth in ASTM E119 or UL 263. The test assemblies shall be identical in construction, loading, and materials, other than the noncombustible protection. The two test assemblies shall be tested to the same criteria of structural failure.~~

~~1. Test Assembly 1 shall be without protection.~~

~~2. Test Assembly 2 shall include the representative noncombustible protection. The protection shall be fully defined in terms of configuration details, attachment details, joint sealing details, accessories and all other relevant details.~~

~~The noncombustible protection time contribution shall be determined by subtracting the fire resistance time, in minutes, of Test Assembly 1 from the fire resistance time, in minutes, of Test Assembly 2.~~

~~703.9 Sealing of adjacent mass timber elements.~~ ~~In buildings of Type IV-A, IV-B, and IV-C construction, sealant or adhesive shall be provided to resist the passage of air in the following locations:~~

~~1. At abutting edges and intersections of mass timber building elements required to be fire-resistance-rated.~~

~~2. At abutting intersections of mass timber building elements and building elements of other materials where both are required to be fire-resistance-rated.~~

~~Sealants shall meet the requirements of ASTM C920. Adhesives shall meet the requirements of ASTM D3498.~~

~~EXCEPTION: Sealants or adhesives need not be provided where a fire-resistance-rated assembly does not include them as a required component.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-0703, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0704 Section 704—Fire-resistance rating of structural members.

704.6.1 Secondary (nonstructural) attachments to structural members. Where primary and secondary structural steel members require fire protection, ((~~secondary (nonstructural) tubular steel attachments to those structural members shall be protected with the same fire resistive rating as required for the structural member. The protection shall extend from the structural member a distance of not less than 12 inches. An open tubular attachment shall be filled with an equivalent fire protection method for a distance of 12-inch length from the structural member, or the entire length of the open tube, whichever is less~~)) any additional structural steel members having direct connection to the primary structural frame or secondary structural members shall be protected with the same *fire-resistive* material and thickness as required for the structural member. The protection shall extend away from the structural member a distance of not less than 12 inches (305 mm), or shall be applied to the entire length where the attachment is less than 12 inches (305 mm) long. Where an attachment is hollow and the ends are open, the *fire-resistive* material and thickness

shall be applied to both exterior and interior of the hollow steel attachment.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0704, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-0705 Section 705—Exterior walls ((~~and projections~~)).

((~~**705.1 General.** Exterior walls and projections shall comply with this section.~~))

705.2 Projections. Cornices, roof and eave overhangs, projecting floors above, exterior balconies and similar projections extending beyond the exterior wall shall conform to the requirements of this section and Section 1405. Exterior egress balconies and exterior exit stairways and ramps shall comply with Sections 1021 and 1027, respectively. Projections shall not extend any closer to the line used to determine the fire separation distance than shown in Table 705.2.

EXCEPTIONS: 1. Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section for projections between the buildings.
2. Projecting floors complying with Section 705.2.4 are not required to comply with the projection limitations of Table 705.2.

((~~705.2.4~~)) 705.2.5 Projecting floors. Where the fire separation distance on a lower floor is greater than the fire separation distance on the floor immediately above, the projecting floor shall have not less than the *fire-resistance rating* as the exterior wall above based on Table 602. The *fire-resistant rating* of the *horizontal* portion shall be continuous to the lower *vertical* wall.

((~~**705.2.5 Bay and oriel windows.** Bay and oriel windows constructed of combustible materials shall conform to the type of construction required for the building to which they are attached.~~

~~EXCEPTION: Fire-retardant-treated wood shall be permitted on buildings three stories or less above grade plane of Type I, II, III or IV construction.~~))

Table 705.5
Fire-Resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance[a,d,g,j]

Fire Separation Distance = X (feet)	Type of Construction	Occupancy Group H[e]	Occupancy Group F-1, M, S-1[f]	Occupancy Group A, B, E, F-2, I, R[i], S-2, U[h]
X < 5[b]	All	3	2	1
5 ≤ X < 10	IA, IVA	3	2	1
	Others	2	1	
10 ≤ X < 30	IA, IB, IVA, IVB	2	1	1[c]
	IIB, VB	1	0	0
	Others	1	1	1[c]
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm.

[a] Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

[b] See Section 706.1.1 for party walls.

[c] Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

[d] The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

e For special requirements for Group H occupancies, see Section 415.6.
f For special requirements for Group S aircraft hangars, see Section 412.3.1.
g Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.
h For a building containing only a Group U occupancy private garage or carport, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.
i For a Group R-3 building of Type II-B or Type V-B construction, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.
j In a mixed occupancy building containing Group R-3 and Group U private garage, the exterior wall fire-resistance rating shall be as required for Group R-3.

Table 705.8
Maximum Area of Exterior Wall Openings Based on Fire Separation Distance and Degree of Opening Protection

Fire Separation Distance (feet)	Degree of Opening Protection	Allowable Area[a]
0 to less than 3[b,c,k]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted[k]
	Unprotected, Sprinklered (UP, S)[i]	Not Permitted[k]
	Protected (P)	Not Permitted[k]
3 to less than 5[d,e]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted[k]
	Unprotected, Sprinklered (UP, S)[i]	15%
	Protected (P)	15%
5 to less than 10[e,f,j]	Unprotected, Nonsprinklered (UP, NS)	10%[h]
	Unprotected, Sprinklered (UP, S)[i]	25%
	Protected (P)	25%
10 to less than 15[e,f,g,j]	Unprotected, Nonsprinklered (UP, NS)	15%[h]
	Unprotected, Sprinklered (UP, S)[i]	45%
	Protected (P)	45%
15 to less than 20[f,g,j]	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, Sprinklered (UP, S)[i]	75%
	Protected (P)	75%
20 to less than 25[f,g,j]	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit
25 to less than 30[f,g,j]	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit

For SI: 1 foot = 304.8 mm.
UP, NS = Unprotected openings in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
UP, S = Unprotected openings in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
P = Openings protected with an opening protective assembly in accordance with Section 705.8.2.
a Values indicated are the percentage of the area of the exterior wall, per story.
b For the requirements for fire walls of buildings with differing heights, see Section 706.6.1.
c For openings in a fire wall for buildings on the same lot, see Section 706.8.
d The maximum percentage of unprotected and protected openings shall be 25 percent for Group R-3 occupancies.
e Unprotected openings shall not be permitted for openings with a fire separation distance of less than 15 feet for Group H-2 and H-3 occupancies.
f The area of unprotected and protected openings shall not be limited for Group R-3 occupancies, with a fire separation distance of 5 feet or greater.
g The area of openings in an open parking structure with a fire separation distance of 10 feet or greater shall not be limited.
h Includes buildings accessory to Group R-3.
i Not applicable to Group H-1, H-2, and H-3 occupancies.
j The area of openings in a building containing only a Group U occupancy private garage or carport with a fire separation distance of 5 feet or greater shall not be limited.
k For openings between S-2 parking garage and Group R-2 building, see Section 705.3, Exception 2.
l In a mixed occupancy building containing Group R-3 and Group U private garage, the maximum area of exterior openings shall be as required for Group R-3.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-0705, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-0705, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0706 Section 706—Fire walls.

((~~**706.6.1 Stepped buildings.** Where a fire wall also serves as an exterior wall for a building and separates buildings having different roof levels, such wall shall terminate at a point not less than 30 inches (762 mm) above the lower roof level. Exterior walls above the fire wall extending more than 30 inches above the lower roof shall be of not less than 1-hour *fire-resistance-rated* construction from both sides with openings protected by fire assemblies having a fire protection rating of not less than 3/4 hour. Portions of the exterior walls exceeding 15 feet above the lower roof shall be permitted to be of *nonfire-resistance-rated* construction unless otherwise required by other provisions of this code.~~

~~EXEMPTION: A fire wall serving as part of an exterior wall that separates buildings having different roof levels shall be permitted to terminate at the underside of the roof sheathing, deck or slab of the lower roof, provided items 1, 2, and 3 below are met. The exterior wall above the fire wall is not required to be of *fire-resistance-rated* construction, unless required by other provisions of this code.~~
~~1. The lower roof assembly within 10 feet (3048 mm) of the *fire wall* has not less than a 1-hour *fire-resistance rating*.~~
~~2. The entire length and span of supporting elements for the rated roof assembly has a *fire-resistance rating* of not less than 1 hour.~~
~~3. Openings in the lower roof are not located within 10 feet (3048 mm) of the *fire wall*.~~))

706.3 Materials. *Fire walls* that separate a building of Type I or II construction from a building of any construction type shall be of any *approved* noncombustible materials. Other *fire walls* shall be built of materials consistent with the types permitted for the type of construction of the building.

706.4 Fire-resistance rating. *Fire walls* shall have a *fire-resistance rating* of not less than that required by Table 706.4.

Table 706.4
Fire Wall Fire-resistance Ratings

GROUP	FIRE-RESISTANCE RATING (hours)
A, B, E, H-4, I, R-1, R-2, U	3[a]
F-1, H-3[b], H-5, M, S-1	3
H-1, H-2	4[b]
F-2, S-2, R-3	2

[a] In Type II, III, IV, or V construction, walls shall be permitted to have a 2-hour fire-resistance rating.
[b] For Group H-1, H-2, or H-3 buildings, also see Sections 415.7 and 415.8.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0706, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0706, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-07070 ((~~Section 707—Fire barriers.~~)) Reserved.

((~~**707.4 Exterior walls.** Where exterior walls serve as a part of a required *fire-resistance-rated* shaft or separation or enclosure for a stairway, ramp or exit passageway, such walls shall comply with the requirements of Section 705 for exterior walls and the *fire-resistance-rated* enclosure or separation requirements shall not apply.~~

~~EXCEPTION: Exterior walls required to be *fire-resistance-rated* in accordance with Section 1021 for exterior egress balconies, Section 1023.7 for interior exit stairways and ramps, Section 1024.8 for exit passageways and Section 1027.6 for exterior exit stairways and ramp.~~

~~**707.5 Continuity.** Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with Sections 707.8 and 707.9.~~

~~EXCEPTIONS: 1. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.~~
~~2. Interior exit stairway and ramp enclosures required by Section 1023 and exit access stairway and ramp enclosures required by Section 1019 shall be permitted to terminate at a top enclosure complying with Section 713.12.~~
~~3. An exit passageway enclosure required by Section 1024.3 that does not extend to the underside of the roof sheathing, slab or deck above shall be enclosed at the top with construction of the same *fire-resistance rating* as required for the exit passageway.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-07070, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0713 Section 713—Shaft enclosures.

((~~**713.13.4 Chute discharge room.** Waste or linen chutes shall discharge into an enclosed room separated by fire barriers with a *fire-resistance rating* not less than the required *fire rating* of the shaft enclosure and constructed in accordance with Section 707 or *horizontal* assemblies constructed in accordance with Section 711, or both. Openings into the discharge room from the remainder of the building shall be protected by opening protectives having a *fire-protection rating* equal to the protection required for the shaft enclosure. Through penetrations of piping and conduit not necessary for the purpose of the chute discharge room are permitted as long as they are protected in accordance with Section 714 and do not impact the operation of the trash collection system. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.2.6.6. Waste chutes shall not terminate in an incinerator room. Waste and linen rooms that are not provided with chutes need only comply with Table 509.~~))

713.13.7 Chute venting and roof termination. The full diameter of waste and linen chutes shall extend a minimum of 3 feet (0.92 m) above the building roof and be gravity vented in accordance with *International Mechanical Code* Section 515.

EXCEPTIONS: 1. Where mechanically ventilated in accordance with *International Mechanical Code* Section 515 the full diameter of the chute shall extend through the roof a minimum of 3 feet (0.92 m) and terminate at a blast cap. The mechanical exhaust connection shall tap into the side of the blast cap extension above the roof.

2. Where the trash chute does not extend to the upper floor of the building below the roof the trash chute shall be permitted to gravity vent to a sidewall louver termination. The horizontal extension of the trash chute shall be the full diameter of the chute and shall be enclosed in rated construction equal to the rating of the shaft enclosure. Where the chute is mechanically ventilated in accordance with *International Mechanical Code* Section 515 the blast cap shall terminate behind the louver and the exhaust fan and duct connection will be enclosed in the rated shaft.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0713, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0717 ((~~Section 717 Ducts and air transfer openings.~~)) Reserved.

((~~**717.5.2 Fire barriers.** Ducts and air transfer openings of fire barriers shall be protected with listed fire dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for interior exit stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.~~

~~EXCEPTION:~~ ~~Fire dampers are not required at penetrations of fire barriers where any of the following apply:~~
~~1. Penetrations are tested in accordance with ASTM E119 or UL 263 as part of the *fire-resistance-rated* assembly.~~
~~2. Ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire damper would interfere with the operation of a smoke control system.~~
~~3. Such walls shall have a required *fire-resistance rating* of 1 hour or less, penetrated by ducted HVAC systems, in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous without openings from the air-handling appliance or equipment to the air outlet and inlet terminals, located on the opposite side of the wall assembly.~~

~~**717.5.4 Fire partitions.** Ducts and air transfer openings that penetrate fire partitions shall be protected with listed fire dampers installed in accordance with their listing.~~

~~EXCEPTION:~~ ~~In occupancies other than Group H, fire dampers are not required where any of the following apply:~~
~~1. Corridor walls in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and the duct is protected as a through penetration in accordance with Section 714.~~
~~2. Tenant partitions in covered and open mall buildings where the walls are not required by provisions elsewhere in the code to extend to the underside of the floor or roof sheathing, slab or deck above.~~
~~3. The duct system is constructed of approved materials in accordance with the *International Mechanical Code* and the duct penetrating the wall complies with all of the following requirements:~~
~~3.1. The duct shall not exceed 100 square inches (0.06 m^2).~~
~~3.2. The duct shall be constructed of steel not less than 0.0217-inch (0.55 mm) in thickness.~~
~~3.3. The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.~~
~~3.4. The duct shall be installed above a ceiling.~~
~~3.5. The duct shall not terminate at a wall register in the *fire-resistance-rated* wall.~~
~~3.6. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening. The sleeve shall be secured to both sides of the wall and all four sides of the sleeve with minimum 1.5 inch by 1.5 inch by 0.060-inch (38 mm by 38 mm by 1.52 mm) steel retaining angles. The retaining angles shall be secured to the sleeve and the wall with No. 10 (M5) screws. The annular space between the steel sleeve and the wall opening shall be filled with mineral wool batting on all sides.~~
~~4. Such walls shall have a required *fire-resistance rating* of 1 hour or less, penetrated by ducted HVAC systems in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous without openings from the air-handling appliance or equipment to the air outlet and inlet terminals located on the opposite side of the wall assembly.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0717, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-0718 ((~~Section 718—Concealed spaces.~~)) Reserved.

((~~**718.2.1 Fireblocking materials.** *Fireblocking* shall consist of the following materials:~~

~~1. Two inch (51 mm) nominal lumber.~~

~~2. Two thicknesses of 1 inch (25 mm) nominal lumber with broken lap joints.~~

~~3. One thickness of 0.719 inch (18.3 mm) wood structural panels with joints backed by 0.719 inch (18.3 mm) wood structural panels.~~

~~4. One thickness of 0.75 inch (19.1 mm) particleboard with joints backed by 0.75 inch (19 mm) particleboard.~~

~~5. One half inch (12.7 mm) gypsum board.~~

~~6. One fourth inch (6.4 mm) cement-based millboard.~~

~~7. Batts or blankets of mineral wool, mineral fiber or other approved materials installed in such a manner as to be securely retained in place.~~

~~8. Cellulose insulation installed as tested for the specific application.~~

~~9. Mass timber complying with Section 2304.11.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-0718, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-0722 Section 722—Calculated fire resistance.

((~~**722.7 Fire-resistance rating of mass timber.** The required fire resistance of mass timber elements in Section 602.4 shall be determined in accordance with Section 703.2 or 703.3. The fire-resistance rating of building elements shall be as required in Tables 601 and 602 and as specified elsewhere in this code. The fire-resistance rating of the mass timber elements shall consist of the fire resistance of the unprotected element added to the protection time of the noncombustible protection.~~

~~**722.7.1 Minimum required protection.** When required by Sections 602.4.1 through 602.4.3, noncombustible protection shall be provided for mass timber building elements in accordance with Table 722.7.1(1). The rating, in minutes, contributed by the noncombustible protection of mass timber building elements, components, or assemblies, shall be established in accordance with Section 703.8. The protection contributions indicated in Table 722.7.1(2) shall be deemed to comply with this requirement when installed and fastened in accordance with Section 722.7.2.~~

~~Table 722.7.1(1)~~
~~Protection Required from Noncombustible Covering Material~~

Required Fire-Resistance Rating of Building Element per Tables 601 and 602 (hours)	Minimum Protection Required from Noncombustible Protection (minutes)
1	40
2	80
3 or more	120

Table 722.7.1(2)
Protection Provided by Noncombustible Covering Material

Noncombustible Protection	Protection Contribution (minutes)
1/2 inch Type X Gypsum board	25
5/8 inch Type X Gypsum board	40

722.7.2 Installation of gypsum board noncombustible protection. Gypsum board complying with Table 722.7.1(2) shall be installed in accordance with this section.

722.7.2.1 Interior surfaces. Layers of Type X gypsum board serving as noncombustible protection for interior surfaces of wall and ceiling assemblies determined in accordance with Table 722.7.1(1) shall be installed in accordance with the following:

1. Each layer shall be attached with Type S drywall screws of sufficient length to penetrate the mass timber at least 1 inch when driven flush with the paper surface of the gypsum board.

EXCEPTION: The third layer, where determined necessary by Section 722.7, shall be permitted to be attached with 1 inch #6 Type S drywall screws to furring channels in accordance with ASTM C645.

2. Screws for attaching the base layer shall be 12 inches on center in both directions.

3. Screws for each layer after the base layer shall be 12 inches on center in both directions and offset from the screws of the previous layers by 4 inches in both directions.

4. All panel edges of any layer shall be offset 18 inches from those of the previous layer.

5. All panel edges shall be attached with screws sized and offset as in items 1 through 4 above and placed at least 1 inch but not more than 2 inches from the panel edge.

6. All panels installed at wall-to-ceiling intersections shall be installed such that the ceiling panel(s) is installed first and the wall panel(s) is installed after the ceiling panel has been installed and is fitted tight to the ceiling panel. Where multiple layers are required, each layer shall repeat this process.

7. All panels installed at a wall-to-wall intersection shall be installed such that the panel(s) covering an exterior wall or a wall with a greater fire-resistance rating shall be installed first and the panel(s) covering the other wall shall be fitted tight to the panel covering the first wall. Where multiple layers are required, each layer shall repeat this process.

8. Panel edges of the face layer shall be taped and finished with joint compound. Fastener heads shall be covered with joint compound.

9. Panel edges protecting mass timber elements adjacent to unprotected mass timber elements in accordance with Section 602.4.2.2 shall

~~be covered with 1 1/4 inch metal corner bead and finished with joint compound.~~))

722.7.2.2 Exterior surfaces. Layers of Type X gypsum board serving as *noncombustible* protection for the outside of the exterior heavy timber walls determined in accordance with Table 722.7.1(a) shall be fastened 12 inches on center each way and 6 inches on center at all joints or ends. All panel edges shall be attached with fasteners located at least 1 inch but not more than 2 inches from the panel edge. Fasteners shall comply with one of the following:

1. Galvanized nails of minimum 12 gage with a 7/16 inch head of sufficient length to penetrate the mass timber a minimum of 1 inch.

2. Screws that comply with ASTM C1002 (Type S, Type W, or Type G) of sufficient length to penetrate the mass timber a minimum of 1 inch.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-0722, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-0803 ((~~Section 803—Wall and ceiling finishes.~~)) Reserved.

((~~**803.3 Heavy timber exemption.** Exposed portions of building elements complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to interior finish requirements except in interior exit stairways, interior exit ramps, and exit passageways.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-0803, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0902 ((~~Section 902—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0902, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-0902, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-0903 Section 903—Automatic sprinkler systems.

903.2.1.3 Group A-3. An automatic sprinkler system shall be provided throughout stories containing Group A-3 occupancies and throughout all stories from the Group A-3 occupancy to and including the levels of

exit discharge serving that occupancy where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 m^2).

2. The *fire area* has an occupant load of 300 or more.

3. The *fire area* is located on a floor other than a level of *exit discharge* serving such *occupancies*.

EXCEPTION: For fixed guideway transit and passenger rail system stations, an automatic sprinkler system shall be provided in accordance with Section 3114.

903.2.1.6 Assembly occupancies on roofs. Where an occupied roof has an assembly occupancy with an *occupant load* exceeding 100 for Group A-2, and 300 for other Group A occupancies, the building shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

EXCEPTION: Open parking garages of Type I or Type II construction.

903.2.1.8 Nightclub. An *automatic sprinkler system* shall be provided throughout Group A-2 nightclubs as defined in this code.

903.2.3 Group E. An automatic sprinkler system shall be provided for fire areas containing Group E occupancies where the fire area has an occupant load of 51 or more, calculated in accordance with Table ((~~1004.1.2~~)) 1004.5.

EXCEPTIONS:
1. Portable school classrooms with an occupant load of 50 or less calculated in accordance with Table ((~~1004.1.2~~)) 1004.5, provided that the aggregate area of any cluster of portable school classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or
2. Portable school classrooms with an occupant load from 51 through 98, calculated in accordance with Table ((~~1004.1.2~~)) 1004.5, and provided with two means of direct independent exterior egress from each classroom in accordance with Chapter 10, and one exit from each class room shall be accessible, provided that the aggregate area of any cluster of portable classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or
3. Fire areas containing day care and preschool facilities with a total occupant load of 100 or less located at the level of exit discharge where every room in which care is provided has not fewer than one exit discharge door.

903.2.6 Group I. An *automatic sprinkler system* shall be provided throughout buildings with a Group I *fire area*.

EXCEPTIONS:
1. An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.
2. Where new construction house sixteen persons receiving care, an automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted for Group I-1, Condition 2, assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC.
3. An automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted in additions to existing buildings where both of the following situations are true:
3.1. The addition is made to a building previously approved as Group LC or Group R-2 that houses either an assisted living facility licensed under chapter 388-78A WAC or residential treatment facility licensed under chapter 246-337 WAC.
3.2. The addition contains spaces for sixteen or fewer persons receiving care.

903.2.6.1 Group I-4. An *automatic sprinkler system* shall be provided in fire areas containing Group I-4 occupancies where the *fire area* has an occupant load of 51 or more, calculated in accordance with Table ((~~1004.1.2~~)) 1004.5.

EXCEPTIONS:
1. An automatic sprinkler system is not required for Group I-4 day care facilities with a total occupant load of 100 or less, and located at the level of exit discharge and where every room where care is provided has not fewer than one exterior exit door.
2. In buildings where Group I-4 day care is provided on levels other than the level of exit discharge, an automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the level of exit discharge and all floors below the level of exit discharge other than areas classified as an open parking garage.

((~~**903.2.7 Group M.** An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy, where one of the following conditions exists:~~

~~1. A Group M fire area exceeds 12,000 square feet (1115 m^2).~~

~~2. A Group M fire area is located more than three stories above grade plane.~~

~~3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).~~

~~4. Where a Group M occupancy that is used for the display and sale of upholstered furniture or mattresses exceeds 5000 square feet (464 m^2).~~))

903.2.8 Group R. An *automatic fire sprinkler system* installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R *fire area*.

EXCEPTION: Group R-1 if all of the following conditions apply:
1. The Group R fire area is no more than 500 square feet and is used for recreational use only.
2. The Group R fire area is only one story.
3. The Group R fire area does not include a basement.
4. The Group R fire area is no closer than 30 feet from another structure.
5. Cooking is not allowed within the Group R fire area.
6. The Group R fire area has an occupant load of no more than 8.
7. A hand held (portable) fire extinguisher is in every Group R fire area.

((~~**903.2.9.3 Group S-1 upholstered furniture and mattresses.** An automatic sprinkler system shall be provided throughout a Group S-1 fire area where the area used for storage of upholstered furniture exceeds 2,500 square feet (232 m^2).~~

EXCEPTION: ~~Self-service storage facilities no greater than one story above grade plane where all storage spaces can be accessed directly from the exterior.~~))

903.2.11 Specific building areas and hazards. In all occupancies other than Group U, an *automatic sprinkler system* shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through 903.2.11.7.

903.2.11.1.3 Basements. Where any portion of a basement is located more than 75 feet (22,860 mm) from openings required by Section 903.2.11.1, or where new walls, partitions or other similar obstructions are installed that increase the *exit access* travel distance to more than 75 feet, the basement shall be equipped throughout with an approved *automatic sprinkler system*.

903.2.11.7 Relocatable buildings within buildings. Relocatable buildings or structures located within a building with an *approved* fire sprinkler system shall be provided with fire sprinkler protection within the occupiable space of the building and the space underneath the relocatable building.

EXCEPTIONS: 1. Sprinkler protection is not required underneath the building when the space is separated from the adjacent space by construction resisting the passage of smoke and heat and combustible storage will not be located there.
2. If the building or structure does not have a roof or ceiling obstructing the overhead sprinklers.
3. Construction trailers and temporary offices used during new building construction prior to occupancy.
4. Movable shopping mall kiosks with a roof or canopy dimension of less than 4 feet on the smallest side.

903.3.1.2 NFPA 13R sprinkler systems. *Automatic sprinkler systems* in Group R occupancies up to and including four stories in height in buildings not exceeding 60 feet (18,288 mm) in height above grade plane shall be *permitted* to be installed throughout in accordance with NFPA 13R.

The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 shall be measured from the horizontal assembly creating separate buildings.

903.3.5.3 Underground portions of fire protection system water supply piping. The installation or modification of an underground water main, public or private, supplying a water-based fire protection system shall be in accordance with NFPA 24 and chapter 18.160 RCW. Piping and appurtenances downstream of the first control valve on the lateral or service line from the distribution main to one-foot above finished floor shall be *approved* by the fire *code official*. Such underground piping shall be installed by a fire sprinkler system contractor li-

censed in accordance with chapter 18.160 RCW and holding either a Level U or a Level 3 license. For underground piping supplying systems installed in accordance with Section 903.3.1.2, a Level 2, 3, or U licensed contractor is acceptable.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-0903, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-0903, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-0903, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-089, § 51-50-0903, filed 12/1/14, effective 5/1/15. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0903, filed 2/1/13, effective 7/1/13. Statutory Authority: Chapter 19.27 RCW. WSR 10-24-059, § 51-50-0903, filed 11/29/10, effective 7/1/11. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0903, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-110, § 51-50-0903, filed 12/18/07, effective 4/1/08. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-0903, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074, and chapters 19.27 and 34.05 RCW. WSR 05-24-070, § 51-50-0903, filed 12/5/05, effective 7/1/06. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-0903, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0907 Section 907—Fire alarm and detection systems.

[F] 907.2.3 Group E. Group E occupancies shall be provided with a *manual fire alarm system* that initiates the occupant notification signal utilizing one of the following:

1. An emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6; or

2. A system developed as part of a safe school plan adopted in accordance with RCW 28A.320.125 or developed as part of an emergency response system consistent with the provisions of RCW 28A.320.126. The system must achieve all of the following performance standards:

2.1 The ability to broadcast voice messages or customized announcements;

2.2 Includes a feature for multiple sounds, including sounds to initiate a lock down;

2.3 The ability to deliver messages to the interior of a building, areas outside of a building as designated pursuant to the safe school plan, and to personnel;

2.4 The ability for two-way communications;

2.5 The ability for individual room calling;

2.6 The ability for a manual override;

2.7 Installation in accordance with NFPA 72;

2.8 Provide 15 minutes of battery backup for alarm and 24 hours of battery backup for standby; and

2.9 Includes a program for annual inspection and maintenance in accordance with NFPA 72.

EXCEPTIONS:
1. A manual fire alarm system ((~~is~~)) shall not be required in Group E occupancies with an occupant load of 50 or less.
2. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, such as individual portable school classroom buildings; provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.
3. Where an existing approved alarm system is in place, an emergency voice/alarm system is not required in any portion of an existing Group E building undergoing any one of the following repairs, alteration or addition:
3.1 Alteration or repair to an existing building including, without limitation, alterations to rooms and systems, and/or corridor configurations, not exceeding 35 percent of the fire area of the building (or the fire area undergoing the alteration or repair if the building is comprised of two or more fire areas); or
3.2 An addition to an existing building, not exceeding 35 percent of the fire area of the building (or the fire area to which the addition is made if the building is comprised of two or more fire areas).
4. Manual fire alarm boxes ((~~are~~)) shall not be required in Group E occupancies where all of the following apply:
4.1 Interior *corridors* are protected by smoke detectors.
4.2 Auditoriums, cafeterias, gymnasiums and similar areas are protected by *heat detectors* or other *approved* detection devices.
4.3 Shops and laboratories involving dust or vapors are protected by heat detectors or other approved detection devices.
4.4 Manual activation is provided from a normally occupied location.
5. Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:
5.1 The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
5.2 The emergency voice/alarm communication system will activate on sprinkler waterflow.
5.3 Manual activation is provided from a normally occupied location.

[F] 907.2.3.1 Sprinkler systems or detection. When *automatic sprinkler systems* or *smoke detectors* are installed, such systems or detectors shall be connected to the building *fire alarm system*.

[F] 907.2.6.4 Group I-4 occupancies. A manual *fire alarm system* that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group I-4 occupancies. When *automatic sprinkler systems* or smoke detectors are installed, such systems or detectors shall be connected to the building *fire alarm system*.

EXCEPTIONS:
1. A manual fire alarm system is not required in Group I-4 occupancies with an occupant load of 50 or less.
2. Emergency voice alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group I-4 occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

907.2.11.1 Group R-1. Single- or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:

1. In sleeping areas.
2. In each *loft* constructed in accordance with Section 420.14.
3. In every room in the path of the means of egress from the sleeping area to the door leading from the sleeping unit.
4. In each story within the sleeping unit, including basements. For sleeping units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

907.2.11.2 Groups R-2, R-3, R-4, and I-1. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4, and I-1 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.
3. In each *loft* constructed in accordance with Section 420.14.
4. In each story within a *dwelling unit*, including *basements* but not including crawl spaces and uninhabitable attics. In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

[F] 907.5.2.1.2 Maximum sound pressure. The ((~~maximum~~)) total sound pressure level ((~~for~~)) produced by combining the ambient sound pressure level with all audible ((~~alarm~~)) notification appliances operating shall ((~~be~~)) not exceed 110 dBA at the minimum hearing distance from the audible appliance. For systems operating in public mode, the maximum sound pressure level shall not exceed 30 dBA over the average ambient sound level. Where the average ambient noise is greater than 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

[F] 907.10 NICET: National Institute for Certification in Engineering Technologies.

907.10.1 Scope. This section shall apply to new and existing fire alarm systems.

907.10.2 Design review. All construction documents shall be reviewed by a NICET III in fire alarms or a licensed professional engineer (PE) in Washington prior to being submitted for permitting. The reviewing professional shall submit a stamped, signed, and dated letter; or a verification method approved by the local authority having jurisdiction indicating the system has been reviewed and meets or exceeds the design requirements of the state of Washington and the local jurisdiction. (Effective July 1, 2018.)

907.10.3 Testing/maintenance. All inspection, testing, maintenance and programing not defined as "electrical construction trade" by chapter 19.28 RCW shall be completed by a NICET II in fire alarms. (Effective July 1, 2018.)

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0907, filed 12/12/19, effective 7/1/20. Statutory Authority: RCW 19.27.074 and 19.27.550. WSR 18-01-104, § 51-50-0907, filed 12/19/17, effective 7/1/18. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-0907, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.074 and 19.27.530. WSR 12-01-099, § 51-50-0907, filed 12/20/11, effective 4/1/12. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-0907, filed 1/20/10, effective 7/1/10.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-0908 ((~~Section 908—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-0908, filed 1/19/16, effective 7/1/16. Statutory Authority: Chapters 19.27A, 19.27, and 34.05 RCW. WSR 13-23-087, § 51-50-0908, filed 11/19/13, effective 4/1/14. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-0908, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074 and 19.27.530. WSR 12-01-099, § 51-50-0908, filed 12/20/11, effective 4/1/12.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-0911 Section 911—((~~Reserved.~~)) Fire command center.

911.1.2 Separation. The *fire command center* shall be separated from the remainder of the building by not less than a one 2-hour fire barrier constructed in accordance with Section 707 or horizontal assembly constructed in accordance with Section 711, or both.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-0911, filed 1/19/16, effective 7/1/16; WSR 10-03-097, § 51-50-0911, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-0913 Section 913—Fire pumps.

913.2.1 Protection of fire pump rooms and access. Fire pumps shall be located in rooms that are separated from all other areas of the building by 2-hour fire barriers constructed in accordance with Section 707 or 2-hour *horizontal assemblies* constructed in accordance with Section 711, or both. Fire pump rooms not directly *accessible* from the outside shall be *accessible* through an enclosed passageway from an interior exit stairway or exterior exit. The enclosed passageway shall have a *fire-resistance rating* not less than the *fire-resistance rating* of the fire pump room (see NFPA 20 Section ((~~4.12.2.1.2~~)) 4.14.2.1.2).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-0913, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-0915 Section 915—Carbon monoxide detection.

((~~**915.1 General.** Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6. Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the *International Fire Code*.~~))

915.1.1 Where required. Carbon monoxide detection shall be provided in Group I and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

EXCEPTIONS: 1. R-2 occupancies, with the exception of R-2 college dormitories, are required to install carbon monoxide detectors without exception.
2. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and DSHS licensed boarding home and residential treatment facility occupancies which do not themselves contain a fuel-burning appliance, a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that they comply with the exceptions of 915.1.4.

((~~**915.1.2 Fuel-burning appliances and fuel-burning fireplaces.** Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms that contain a fuel-burning appliance or a fuel-burning fireplace.~~

~~**915.1.3 Forced-air furnaces.** Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms served by a fuel-burning, forced-air furnace.~~

~~EXCEPTION: Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in the first room or area served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.~~

~~**915.1.4 Fuel-burning appliances outside of dwelling units, sleeping units and classrooms.** Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms located in buildings that contain fuel-burning appliances or fuel-burning fireplaces.~~

~~EXCEPTIONS: 1. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where there are no communicating openings between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.~~
~~2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in one of the following locations:~~
~~2.1. In an approved location between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.~~
~~2.2. On the ceiling of the room containing the fuel-burning appliance or fuel-burning fireplace.~~

~~**915.1.5 Private garages.** Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms in buildings with attached private garages.~~

~~EXCEPTIONS: 1. Carbon monoxide detection shall not be required where there are no communicating openings between the private garage and the dwelling unit, sleeping unit or classroom.~~
~~2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms located more than one story above or below a private garage.~~
~~3. Carbon monoxide detection shall not be required where the private garage connects to the building through an open-ended corridor.~~
~~4. Where carbon monoxide detection is provided in an approved location between openings to a private garage and dwelling units, sleeping units or classrooms, carbon monoxide detection shall not be required in the dwelling units, sleeping units or classrooms.~~

~~**915.1.6 Exempt garages.** For determining compliance with Section 915.1.5, an open parking garage complying with Section 406.5 of the *International Building Code* or an enclosed parking garage complying with Section 406.6 of the *International Building Code* shall not be considered a private garage.~~

~~**915.2 Locations.** Where required by Section 915.1.1, carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.3.~~

~~**915.2.1 Dwelling units.** Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each level of the dwelling. Where a fuel-burning appliance or fuel-burning fireplace is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.~~

~~**915.2.2 Sleeping units.** Carbon monoxide detection shall be installed in sleeping units.~~

~~EXCEPTION: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a fuel-burning appliance or fuel-burning fireplace and is not served by a forced air furnace.~~))

915.2.3 Group E occupancies. When required by Section 915.1 in new buildings, or by Chapter 11 of the *International Fire Code*, carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.

EXCEPTIONS: 1. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 50 or less.
2. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies where an exception contained in Section 915.1 applies, or in Group E occupancies where signals are transmitted to an off-site service monitored by a third party, such as a service that monitors fire protection systems in the building.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-0915, filed 1/19/16, effective 7/1/16.]

NEW SECTION

WAC 51-50-0918 Section 918—Emergency responder communication coverage enhancement.

918.1 General. In-building *emergency responder communication enhancement system* shall be provided in all new buildings in accordance with Section 510 of the *International Fire Code*.

[]

NEW SECTION

WAC 51-50-1003 Section 1003—General means of egress.

1003.7 Elevators, escalators and moving walks. Elevators, escalators and moving walks shall not be used as a component of a required means of egress from any other part of the building.

EXCEPTIONS: 1. Elevators used as an accessible means of egress in accordance with Section 1009.4.
2. Escalators used as a means of egress for fixed transit and passenger rail system accordance with Section 3116.

[]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1004 Section 1004—Occupant load.

((~~**Table 1004.5, Maximum Floor Area Allowances Per Occupant**~~))

Table 1004.5
Maximum Floor Area Allowance Per Occupant

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Billiard table/game table area	50 gross
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Concentrated (chairs only - not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	
Concentrated business use areas	150 gross (See Section 1004.8)
Courtrooms - Other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Fixed guideway transit and passenger rail systems Platform Concourse/lobby	100 gross (See Section 3114)
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mall buildings - Covered and open	See Section 402.8.2
Mercantile	60 gross
Storage, stock, shipping areas	300 gross
((~~Group M art gallery~~	~~30 gross~~))
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

((~~For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.~~))

a Floor area in square feet per occupant.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1004, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-1004, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-1004, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1005 Section 1005—((~~Reserved.~~)) Means of egress sizing.

1005.1 General. All portions of the *means of egress* system shall be sized in accordance with this section.

EXCEPTIONS: 1. Aisles and aisle accessways in rooms or spaces used for assembly purposes complying with Section 1029.
2. The capacity in inches, of means of egress components for fixed guideway transit and passenger rail stations, shall meet the requirements of Section 3114.

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1005, filed 2/1/13, effective 7/1/13. Statutory Authority: Chapter 19.27 RCW. WSR 10-24-059, § 51-50-1005, filed 11/29/10, effective 7/1/11.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-1006 Section 1006—Number of exits and exit access doorways.

Table 1006.2.1

Spaces with One Exit or Exit Access Doorway

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL ≥ 30	
A[c], E[h], M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d], I-4	10	NP	NP	75[b]
I-3	10	NP	NP	100[a]
R-1	10	NP	NP	75[a]
R-2	20	NP	NP	125[a]
R-3[e]	20	NP	NP	125[a,g]
R-4[e]	20	NP	NP	125[a,g]
S[f]	29	100	75	100[a]

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL ≥ 30	
U	49	100	75	75[a]

For SI: 1 foot = 304.8 mm.
NP = Not Permitted.

[a] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
[b] Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.
[c] For a room or space used for assembly purposes having fixed seating, see Section 1029.8.
[d] For the travel distance limitations in Group I-2, see Section 407.4.
[e] The common path of egress travel distance shall only apply in a Group R-3 occupancy located in a mixed occupancy building.
[f] The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet.
[g] For the travel distance limitations in Groups R-3 and R-4 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3, see Section 1006.2.2.6.
[h] Day care facilities, rooms or spaces where care is provided for more than 10 children that are 2 1/2 years of age or less, shall have access to not less than two exits or exit access doorways.

1006.2.1 Egress based on occupant load and common path of egress travel distance. Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1. The cumulative occupant load from adjacent rooms, areas or spaces shall be determined in accordance with Section 1004.2.

EXCEPTIONS:
1. The number of exits from foyers, lobbies, vestibules or similar spaces need not be based on cumulative occupant loads for areas discharging through such spaces, but the capacity of the exits from such spaces shall be based on applicable cumulative occupant loads.
2. Care suites in Group I-2 occupancies complying with Section 407.4.
3. Unoccupied mechanical rooms and penthouses are not required to comply with the common path of egress travel distance measurement.
4. The common path of travel for fixed transit and passenger rail system stations shall be in accordance with Section 3116.

((~~**1006.2.2.4 Group I-4 means of egress.** This section is not adopted.~~

~~**1006.2.2.7 Electrical equipment rooms.** Rooms containing electrical equipment shall be provided with a second exit or exit access doorways as required by NFPA 70 Article 110 where all of the following apply:~~

~~1. The electrical equipment is rated at 1,200 amperes or more.~~
~~2. The electrical equipment is over 6 feet (1829 mm) wide.~~
~~3. The electrical equipment contains overcurrent devices, switching devices or control devices.~~

~~**1006.3.3**~~)) **1006.2.1.1 Three or more exits or exit access doorways.** Three *exits* or *exit access* doorways shall be provided from any space with an *occupant load* of 501 to 1,000. Four *exits* or *exit access* doorways shall be provided from any space with an occupant load greater than 1,000.

EXCEPTION: The number of required exits for fixed transit and passenger rail systems may be reduced by one at open stations.

1006.3.4 Single exits. A single *exit* or *access* to a single *exit* shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and *exit access* travel distance within the portion of the building served by the single *exit* do not exceed the values in Table ((~~1006.3.3(1) or 1006.3.3(2)~~)) 1006.3.4(1) or 1006.3.4(2).

2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the level of *exit discharge*, are permitted to have one *exit* or *access* to a single exit.

3. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.

4. Groups R-3 and R-4 occupancies shall be permitted to have one *exit* or *access* to a single *exit*.

5. Individual single-story or multistory dwelling units shall be permitted to have a single *exit* or *access* to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:

5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.

5.2. Either the *exit* from the *dwelling unit* discharges directly to the exterior at the level of *exit discharge*, or the *exit access* outside the dwelling unit's entrance door provides access to not less than two approved independent *exits*.

((~~**Table 1006.3.3(1)**~~

~~**Stories with One Exit or Access to One Exit for R-2 Occupancies**~~

~~Story~~	~~Occupancy~~	~~Maximum Number of Dwelling Units~~	~~Maximum Exit Access Travel Distance~~
~~Basement, first, second, or third story above grade plane~~	~~R-2[a,b]~~	~~4 dwelling units~~	~~125 feet~~
~~Fourth story above grade plane and higher~~	~~NP~~	~~NA~~	~~NA~~

~~For SI: 1 foot = 304.8 mm.~~
~~NP = Not Permitted.~~
~~NA = Not Applicable.~~
~~a Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1030.~~
~~b This table is used for R-2 occupancies consisting of dwelling units. For R-2 occupancies consisting of sleeping units, use Table 1006.3.3(2).~~

~~**Table 1006.3.3(2)**~~

~~**Stories with One Exit or Access to One Exit for Other Occupancies**~~

~~Story~~	~~Occupancy~~	~~Maximum Occupant Load per Story~~	~~Maximum Exit Access Travel Distance (feet)~~
~~First story above or below grade plane~~	~~A, B[b], E, F[b], M, U~~	~~49~~	~~75~~
	~~H-2, H-3~~	~~3~~	~~25~~
	~~H-4, H-5, I, R-1, R-2[a,c]~~	~~10~~	~~75~~
	~~S[b,d]~~	~~29~~	~~75~~
~~Second story above grade plane~~	~~B, F, M, S[d]~~	~~29~~	~~75~~
~~Third story above grade plane and higher~~	~~NP~~	~~NA~~	~~NA~~

~~For SI: 1 foot = 304.8 mm.~~
~~NP = Not Permitted.~~
~~NA = Not Applicable.~~
~~a Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1030.~~

~~b Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum exit access travel distance of 100 feet.~~
~~c This table is used for R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1006.3.3(1).~~
~~d The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-1006, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-1006, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-1006, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-1009 Section 1009—Accessible means of egress.

1009.1 Accessible means of egress required. *Accessible means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one *accessible means of egress*. Where more than one *means of egress* is required by Section 1006.2 or 1006.3 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two *accessible means of egress*.

EXCEPTIONS:
1. *Accessible means of egress* are not required to be provided in existing buildings.
2. One accessible *means of egress* is required from an *accessible mezzanine* level in accordance with Section 1009.3, 1009.4 or 1009.5.
3. In assembly areas with ramped *aisles* or stepped *aisles*, one accessible *means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section ((~~1029.8~~)) 1030.8.
4. In parking garages, accessible means of egress are not required to serve parking areas that do not contain accessible parking spaces.

((~~**1009.2.1 Elevators required.** In buildings where a required accessible floor or accessible occupied roof is four or more stories above or below a level of exit discharge, not less than one required accessible means of egress shall be an elevator complying with Section 1009.4.~~

~~EXCEPTIONS:~~
~~1. In buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a horizontal exit and located at or above the levels of exit discharge.~~
~~2. In buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a ramp conforming to the provisions of Section 1012.~~))

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each *accessible* floor that is one or more stories above or below the *level of exit discharge*.

EXCEPTIONS:
1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* that provide a direct path of egress travel to grade or the level of exit discharge conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.
6. Two-way communication systems are not required in Group I-2 or I-3 facilities.

1009.8.1 System requirements. Two-way communication systems shall provide communication between each required location and the *fire command center* or a central control point location *approved* by the fire department. Where the central control point is not a *constantly attended location*, a two-way communication system shall have a timed automatic telephone dial-out capability ((~~to a monitoring location~~)) that provides two-way communication with an approved supervising station. The two-way communication system shall include both audible and visible signals. The two-way communication system shall have a battery backup

or an approved alternate source of power that is capable of 90 minutes use upon failure of the normal power source.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-1009, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-1009, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-1009, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1009, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-1009, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1009, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-1009, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-10100 Section 1010—Doors, gates, and turnstiles.

((**1010.1.9.4 Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.

2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side, provided:

2.1. The locking device is readily distinguishable as locked;

2.2. A readily visible and durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and

2.3. The use of the key-operated locking device is revocable by the building official for due cause.

3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.

4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices are openable from the inside without the use of a key or a tool.

5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

6. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.

7. Approved, listed locks without delayed egress shall be permitted in Group I-1 condition 2 assisted living facilities licensed by the state of Washington, provided that:

7.1. The clinical needs of one or more patients require specialized security measures for their safety.

~~7.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.~~

~~7.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.~~

~~7.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.~~

~~7.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.~~

~~8. Other than egress courts, where occupants must egress from an exterior space through the building for means of egress, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:~~

~~8.1. The occupant load of the occupied exterior area shall not exceed 300 as determined by IBC Section 1004.~~

~~8.2. The maximum occupant load shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the exit access doorways.~~

~~8.3. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.~~

~~8.4. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.~~

~~8.5. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) sq. ft. in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.~~

~~8.6. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating: THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED. The letters on the sign shall be not less than 1 inch high on a contrasting background.~~

~~9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual dwelling or sleeping units.~~

~~10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet or less, serving a private office space.~~

~~1010.1.9.7 Controlled egress doors in Groups I-1 and I-2.~~ ~~Electric locking systems, including electromechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with all of the following:~~

~~1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.~~

~~2. The doors unlock upon loss of power controlling the lock or lock mechanism.~~

~~3. The door locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.~~

~~4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.~~

~~5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.~~

~~6. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.~~

~~7. Emergency lighting shall be provided at the door.~~

~~8. The door locking system units shall be listed in accordance with UL 294.~~

~~EXCEPTION: 1. Items 1 through 4 and 6 shall not apply to doors to areas where persons, which because of clinical needs, require restraint or containment as part of the function of a psychiatric treatment area provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.~~
~~2. Items 1 through 4 and 6 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.~~

~~**1010.1.10 Panic and fire exit hardware.** Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.~~

~~EXCEPTIONS: 1. A main exit of a Group A occupancy shall be permitted to have locking devices in accordance with Section 1010.1.9.4, Item 2.~~
~~2. Doors provided with panic hardware or fire exit hardware and serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9 or 1010.1.9.10.~~
~~3. Exit access doors serving occupied exterior areas shall be permitted to be locked in accordance with Section 1010.1.9.4, Item 7.~~

~~Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel.~~

~~**1010.1.10.3 Electrical rooms and working clearances.** Exit and exit access doors serving electrical rooms and working spaces shall swing in the direction of egress travel and shall be equipped with panic hardware or fire exit hardware where such rooms or working spaces contain one or more of the following:~~

~~1. Equipment operating at more than 600 volts, nominal.~~

~~2. Equipment operating at 600 volts or less, nominal and rated at 800 amperes or more, and where the equipment contains overcurrent devices, switching devices or control devices.~~

~~EXCEPTION: Panic and fire exit hardware is not required on exit and exit access doors serving electrical equipment rooms and working spaces where such doors are not less than twenty-five feet (7.6 m) from the nearest edge of the electrical equipment.~~))

1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.

2. Approved, listed locks without delayed egress shall be permitted in Group I-1 condition 2 assisted living facilities licensed by the state of Washington, provided that:

2.1. The clinical needs of one or more patients require specialized security measures for their safety.

2.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.

2.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.

2.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.

2.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

3. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side, provided:

3.1. The locking device is readily distinguishable as locked.

3.2. A readily visible and durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.

3.3. The use of the key-operated locking device is revocable by the building official for due cause.

4. Where *egress* doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.

5. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices are openable from the inside without the use of a key or a tool.

6. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.

8. Other than *egress* courts, where occupants must *egress* from an exterior space through the building for *means of egress*, *exit access* doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:

8.1. The maximum occupant load shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the exit access doorways.

8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.

8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.

8.5. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating: THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS

OCCUPIED. The letters on the sign shall be not less than 1 inch high on a contrasting background.

8.6. The *occupant load* of the occupied exterior *area* shall not exceed 300 occupants in accordance with Section 1004.

9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual dwelling or sleeping units.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet or less, serving a private office space.

1010.2.14 Controlled egress doors in Groups I-1 and I-2. Electric locking systems, including electromechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an approved automatic smoke detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with all of the following:

1. The door locks shall unlock on actuation of the *automatic sprinkler system* or automatic smoke detection system.

2. The doors locks shall unlock on loss of power controlling the lock or lock mechanism.

3. The door locking system shall be installed to have the capability of being unlocked by a switch located at the *fire command center*, a nursing station or other approved location. The switch shall directly break power to the lock.

4. A building occupant shall not be required to pass through more than one door equipped with a controlled *egress* locking system before entering an *exit*.

5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.

6. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.

7. Emergency lighting shall be provided at the door.

8. The door locking system units shall be listed in accordance with UL 294.

EXCEPTIONS:
1. Items 1 through 4, and 6, shall not apply to doors to areas occupied by persons who, because of clinical needs, require restraint or containment as part of the function of a psychiatric or cognitive treatment area, provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
2. Items 1 through 4, and 6, shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

1010.3.4.1 Fixed transit and passenger rail systems. In fixed transit and passenger rail system stations, horizontal and vertical security grilles are permitted at station entrances as a component in the means of egress when the station is under constant supervision by on-site security personnel and an exit door with panic hardware that swings in the direction of egress, with a minimum clear width of 32 inches, provided within 10 feet of the gate. The security grilles shall remain secured in the full-open position during the period of occupancy by the general public.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-10100, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-10100, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-10100, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-10100, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1011 Section 1011—Stairways.

((~~**1011.7 Stairway construction.** Stairways shall be built of materials consistent with the types permitted for the type of construction of the building.~~

~~EXCEPTIONS: 1. Wood handrails shall be permitted in all types of construction.~~
~~2. Interior exit stairway in accordance with Section 510.2.~~

~~**1011.17 Stairways in individual dwelling units.** Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1011.~~))

1011.1 General. *Stairways* serving occupied portions of a building shall comply with the requirements of Sections 1011.2 through 1011.13. *Alternating tread devices* shall comply with Section 1011.14. Ship's ladders shall comply with Section 1011.15. Ladders shall comply with Section 1011.16.

EXCEPTIONS:
1. Within rooms or spaces used for assembly purposes, stepped aisles shall comply with Section 1029.
2. Stairways, alternating tread devices, ship's ladders, or ladders within an individual dwelling unit or sleeping unit used for egress from areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1011. Such areas shall not be located more than 10 feet (3048 mm) above the finished floor of the space below.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1011, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-1011, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1012 Section 1012—Ramps.

1012.1 Scope. The provisions of this section shall apply to ramps used as a component of a *means of egress*.

EXCEPTIONS:
1. Ramped *aisles* within assembly rooms or spaces shall ((~~conform~~)) comply with the provisions in Section ((~~1029.13~~)) 1030.13.
2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian *exit access* shall not be required to comply with Sections 1012.3 through 1012.10 where they are not an *accessible route* serving *accessible* parking spaces, other required *accessible* elements, or part of an accessible *means of egress*.
4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections 1012.5, 1012.6, and 1012.9. A landing complying with Sections 1012.6.1 and 1012.6.4 shall be provided at any change of direction in the accessible means of egress.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1012, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1014 ((~~Reserved.~~)) Section 1014—Location.

1014.2 Location. Handrails serving flights of stairways, ramps, stepped aisles, and ramped aisles shall comply with the provisions of Sections 1014.2.1 and 1014.2.2.

1014.2.1 Height. *Handrail* height, measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm). Handrail height of alternating tread devices and ships ladders, measured above tread nosings, shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

EXCEPTIONS:
1. Where *handrail* fittings or bendings are used to provide continuous transition between flights, the fittings or bendings shall be permitted to exceed the maximum height.
2. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are associated with a Group R-3 occupancy or associated with individual *dwelling units* in Group R-2 occupancies; where *handrail* fittings or bendings are used to provide continuous transition between flights, transition at *winder* treads, transition from *handrail* to guard, or where used at the start of a *flight*, the *handrail* height at the fittings or bendings shall be permitted to exceed the maximum height.
3. *Handrails* on top of a *guard* where permitted along stepped *aisles* and ramped *aisles* in accordance with Section 1030.16.

1014.2.2 Lateral location. Handrails located outward from the edge of the walking surface of flights of stairways, ramps, stepped aisles, and ramped aisles shall be located within 6 inches (152.4 mm) measured horizontally from the edge of the walking surface. Handrails projecting into the width of the walking surface shall comply with Section 1014.8.

1014.3 Lateral location. Handrails located outward from the edge of the walking surface of flights of stairways, ramps, stepped aisles, and ramped aisles shall be located within 6 inches (152.4 mm) measured horizontally from the edge of the walking surface. Handrails projecting into the width of the walking surface shall comply with Section 1014.8.

1014.8 Projections. On ramps and on ramped aisles that are part of an accessible route, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of stepped and ramped aisles, flights of stairways and ramps at each side shall not exceed 4.5 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1011.3. Projections due to intermediate handrails shall not constitute a reduction in the egress width. Where a pair of intermediate handrails are provided within the stairway width without a walking surface between the pair of intermediate handrails and the distance between the pair of intermediate handrails is greater than 6 inches (152 mm), the available egress width shall be reduced by the distance between the closest edges of each such intermediate pair of handrails that is greater than 6 inches (152 mm).

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1014, filed 2/1/13, effective 7/1/13. Statutory

Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-1014, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1014, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 10-03-097, filed 1/20/10, effective 7/1/10)

WAC 51-50-1015 ((~~Reserved.~~)) Section 1015—Guards.

1015.2 Where required. *Guards* shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, lofts in accordance with Section 420.14, aisles, stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. *Guards* shall be provided at the perimeter of the occupied portions of an occupied roof. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.9.

EXCEPTION: *Guards* are not required for the following locations:
1. On the loading side of loading docks or piers.
2. On the audience side of stages and raised platforms, including stairs leading up to the stage and raised platforms.
3. On raised stage and platform floor areas, such as runways, ramps and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating areas at cross aisles in accordance with Section 1030.17.2.
8. On the loading side of station platforms on fixed guideway transit or passenger rail stations.
9. Portions of an occupied roof located less than 30 inches measured vertically to adjacent unoccupied roof areas when approved guards are present at the perimeter of the roof.
10. At an occupied portion of an occupied roof where a barrier approved by the building official is provided.

1015.3 Height. Required guards shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.

2. On *stairways* and stepped *aisles*, from the line connecting the leading edges of the tread nosings.

3. On *ramps* and ramped *aisles*, from the ramp surface at the *guard*.

EXCEPTIONS:
1. For occupancies in Group R-3 not more than three stories above grade in height and within individual *dwelling units* in occupancies in Group R-2 not more than three stories above grade in height with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces.
2. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
3. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
4. In areas with ceiling heights of 7 feet (2134 mm) or less in *lofts* constructed in accordance with Section 420.14, *guards* shall not be less than 36 inches (914 mm) in height or one-half of the clear height from the *loft* floor to the *loft* ceiling, whichever is less.
5. The *guard* height in assembly seating areas shall comply with Section 1030.17 as applicable.
6. Along *alternating tread devices* and ships ladders, *guards* where the top rail serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread nosing.
7. In Group F occupancies where *exit access stairways* serve fewer than three stories and such *stairways* are not open to the public, and where the top of the *guard* also serves as a *handrail*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-1015, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1015, filed 12/19/06, effective 7/1/07.]

NEW SECTION

WAC 51-50-10170 Section 1017—Exit access travel distance.

Table 1017.2
Exit Access Travel Distance[a]

Occupancy	Without Sprinkler System (feet)	With Sprinkler System (feet)
A, E, F-1, M, R, S-1	200[e]	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-Z, S-Z, U	300	400[c]
H-1	Not Permitted	75[d]
H-Z	Not Permitted	100[d]
H-3	Not Permitted	150[d]
H-4	Not Permitted	175[d]
H-5	Not Permitted	200[c]
1-Z, 1-3	Not Permitted	200[c]
l-4	150	200[c]

For SI: 1 foot = 304.8 mm.

[a] See the following sections for modifications to exit access travel distance requirements:
- Section 402.8: For the distance limitation in malls.
- Section 407.4: For the distance limitation in Group I-2.
- Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
- Section 411.2: For the distance limitation in special amusement buildings.
- Section 412.6: For the distance limitations in aircraft manufacturing facilities.
- Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.
- Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.
- Section 1006.3.4: For buildings with one exit.
- Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.
- Section 1030.7: For increased limitation in assembly seating.
- Section 3103.4: For temporary structures.
- Section 3104.9: For pedestrian walkways.
- Section 3114: For fixed guideway and passenger rail stations.

[b] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.

[c] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

[d] Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.

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AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-1019 Section 1019—Exit access stairways and ramps.

1019.3 Occupancies other than Groups I-2 and I-3. In other than Groups I-2 and I-3 occupancies, floor openings containing *exit access stairways* or ramps shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

EXCEPTIONS:
1. Exit access stairways and ramps that serve or atmospherically communicate between only two adjacent stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
3. Exit access stairways serving and contained within a Group R-3 congregate residence are not required to be enclosed.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an atrium complying with the provisions of Section 404.

6. *Exit access stairways* and *ramps* in open parking garages that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving smoke-protected or open-air assembly seating complying with the exit access travel distance requirements of Section ((~~1029.7~~)) 1030.7.
8. *Exit access stairways* and *ramps* between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums, and sports facilities.
9. Exterior *exit access stairways* or *ramps* between occupied roofs.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-1019, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-1019, filed 12/12/19, effective 7/1/20; WSR 10-03-097, § 51-50-1019, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1019, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1020 Section 1020—Corridors.

((~~**1020.4 Dead ends.** Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead-end corridors do not exceed 20 feet (6096 mm) in length.~~

~~EXCEPTIONS:~~ ~~1. In Group I-3, Condition 2, 3 or 4, occupancies, the dead end in a corridor shall not exceed 50 feet (15,240 mm).~~
~~2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet (15,240 mm).~~
~~3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.~~
~~4. In Group I-2, Condition 2 occupancies, the length of dead-end corridors that do not serve patient rooms or patient treatment spaces shall not exceed 30 feet (9144 mm).~~

~~**1020.5**~~)) **1020.6 Air movement in corridors.** *Corridors* shall not serve as supply, return, exhaust, relief, or ventilation air ducts.

EXCEPTIONS:
1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
3. Where located within tenant spaces of one thousand square feet (93 m^2) or less in area, utilization of corridors for conveying return air is permitted.
4. ((~~Incidental air movement from pressurized rooms within health care facilities, provided that a corridor is not the primary source of supply or return to the room.~~)) Transfer air movement required to maintain the pressurization difference within health care facilities in accordance with ASHRAE 170.
5. Where such air is part of an engineered smoke control system.
6. Air supplied to corridors serving residential occupancies shall not be considered as providing ventilation air to the dwelling units and sleeping units subject to the following:
6.1 The air supplied to the corridor is one hundred percent outside air; and
6.2 The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and
6.3 For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors which shall be spaced at no more than thirty feet (9,144 mm) on center along the corridor; or
6.4 For high-rise buildings, corridor smoke detector activation will close required smoke/fire dampers at the supply inlet to the corridor at the floor receiving the alarm.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1020, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-1020, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1023 Section 1023—Interior exit stairways and ramps.

((~~**1023.2 Construction.** Enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section~~

~~707 or *horizontal* assemblies constructed in accordance with Section 711, or both. Interior exit stairway and ramp enclosures shall have a *fire-resistance rating* of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but not any mezzanines. Interior exit stairways and ramps shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours.~~

~~EXCEPTIONS: 1. Interior exit stairways and ramps in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.~~
~~2. Interior exit stairways within an atrium enclosed in accordance with Section 404.6.~~
~~3. Interior exit stairway in accordance with Section 510.2.~~

~~**1023.5 Penetrations.** Penetrations into or through interior exit stairways and ramps are prohibited except for the following:~~

~~1. Equipment and ductwork necessary for independent ventilation or pressurization;~~

~~2. Fire protection systems;~~

~~3. Security systems;~~

~~4. Two-way communication systems;~~

~~5. Electrical raceway for fire department communication systems;~~

~~6. Electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m);~~

~~7. Structural elements supporting the interior exit stairway or ramp or enclosure, such as beams or joists.~~

~~**1023.11**~~)) **1023.12 Smokeproof enclosures.** Where required by Section 403.5.4, 405.7.2 or 412.2.2.1, interior exit stairways and ramps shall be smokeproof enclosures in accordance with Section 909.20. Where interior exit stairways and ramps are pressurized in accordance with Section 909.20.5, the smoke control pressurization system shall comply with the requirements specified in Section 909.6.3.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1023, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-10240 ((~~Section 1024 Exit passageways.~~)) Reserved.

((~~**1024.9 Exit passageway exterior walls.** Exterior walls of the exit passageway shall comply with Section 705. Where nonrated walls or unprotected openings enclose the exterior of the exit passageway and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the building exterior walls within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a *fire-resistance rating* of not less than 1 hour. Openings within such exterior walls shall be protected by opening protectives having a *fire-protection rating* of not less than 3/4 hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor of the exit passageway, or to the roof line, whichever is lower.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-10240, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-10240, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-10300 ((~~Section 1030—Emergency escape and rescue.~~)) Reserved.

((~~**1030.6 Drainage.** Window wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section 1805.4.2 or by an approved alternative method.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-10300, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 17-23-182, filed 11/21/17, effective 7/1/18)

WAC 51-50-1101 Section 1101—General.

1101.2 Design. Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and ICC A117.1, except those portions of ICC A117.1 amended by this section.

((~~**1101.2.1 (ICC A117.1 Section 403.5) Clear width of accessible route.** Clear width of an accessible route shall comply with ICC A117.1 Section 403.5. For exterior routes of travel, the minimum clear width shall be 44 inches (1118 mm).~~))

1101.2.2 (ICC A117.1 Section 404.2.8) Door-opening force. ((~~Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:~~)) Fire doors and doors or gates required to be equipped with panic hardware, break away features or other factors requiring higher opening force for safety reasons shall have the minimum opening force allowable in scoping provisions adopted by the appropriate administrative authority. For other doors or gates, the force for pushing or pulling open doors or gates shall be as follows:

1. Interior hinged door: 5.0 pounds (22.2 N) maximum
2. Interior sliding or folding doors: 5.0 pounds (22.2 N) maximum
3. Exterior hinged, sliding or folding door: 10 pounds (44.4 N) maximum.

((~~EXCEPTION: Interior or exterior automatic doors complying with Section 404.3 of ICC ANSI A117.1.~~

~~These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.~~

~~1101.2.3 (ICC A117.1 Section 407.4.6.2.2) Arrangement of elevator car buttons.~~ ~~Buttons shall be arranged with numbers in ascending order. When two or more columns of buttons are provided they shall read from left to right.~~))

EXCEPTION: The force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position shall not apply to panic hardware, delayed egress devices or fire-rated hardware.

1101.2.4 (ICC ANSI A117.1 ((~~606.7~~)) 603.6) Operable parts. Operable parts on drying equipment, towel or cleansing product dispensers, and disposal fixtures shall comply with Table 603.6.

1101.2.5 (ICC A117.1 Section 604.6) Flush controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309, except the maximum height above the floor shall be 44 inches. Flush controls shall be located on the open side of the water closet.

EXCEPTION: In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

1101.2.6 (ICC A117.1 Section 703.6.3.1) International Symbol of Accessibility. Where the International Symbol of Accessibility is required, it shall be proportioned complying with ICC A117.1 Figure 703.6.3.1. All interior and exterior signs depicting the International Symbol of Accessibility shall be white on a blue background.

1101.2.7 (ICC A117.1 Section 502.2) Vehicle space size. Car and van parking spaces shall be 96 inches (2440 mm) minimum in width.

1101.2.8 (ICC A117.1 Section 502.4.2) Access aisle width. Access aisles serving car parking spaces shall be 60 inches (1525 mm) minimum in width. Access aisles serving van parking spaces shall be 96 inches (2440 mm) minimum in width.

1101.2.9 (ICC A117.1 Section 502.7) Identification. Accessible parking spaces shall be indicated by a vertical sign. The signs shall include the International Symbol of Accessibility complying with section 703.6.3.1. Such symbol shall be white on a blue background. Signs identifying van parking spaces shall contain the designation "van accessible." The sign may include additional language such as, but not limited to, an indication of the amount of the monetary penalty defined in RCW 46.19.050 for parking in the space without a valid permit. A vertical "no parking" sign shall be erected at the head of each access aisle located adjacent to an accessible parking space. The sign may include additional language such as, but not limited to, an indication of any penalty for parking in an access aisle. Such signs shall be 60 inches (1525 mm) minimum above the floor of the parking space, measured to the bottom of the sign.

[Statutory Authority: RCW 19.27.074 and 19.27.550. WSR 17-23-182, § 51-50-1101, filed 11/21/17, effective 7/1/18. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1101, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1101, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1101, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074, and chapters 19.27 and 34.05 RCW. WSR 05-24-070, § 51-50-1101, filed 12/5/05, effective 7/1/06; WSR 05-01-014, § 51-50-1101, filed 12/2/04, effective 7/1/05. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-1101, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-11050 ((~~Section 1105 Accessible entrances.~~)) Reserved.

((~~**1105.1.8 Automatic doors.** In facilities with the occupancies and building occupant loads indicated in Table 1105.1.8, all public entrances that are required to be accessible shall have one door be either a full power-operated door or a low-energy power-operated door. Where the public entrance includes a vestibule, at least one door into and one door out of the vestibule shall meet the requirements of this section.~~

~~**Table 1105.1.8[a]**~~

~~**PUBLIC ENTRANCE WITH POWER-OPERATED DOORS[a]**~~

~~Occupancy~~	~~Building Occupant Load Greater Than~~
~~A-1, A-2, A-3, A-4~~	~~300~~
~~B, M, R-1~~	~~500~~

~~[a] In mixed-use facilities containing occupancies listed, when the total sum of the occupant load is greater than those listed, the most restrictive building occupant load shall apply.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-11050, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1106 Section 1106—Parking and passenger loading facilities.

((~~1106.6~~)) 1106.7 Location. Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance. In parking facilities that do not serve a particular building, accessible parking spaces shall be located on the shortest route to an accessible pedestrian entrance to the parking facility. Where buildings have multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances. Wherever practical, the accessible route shall not cross lanes of vehicular traffic. Where crossing traffic lanes is necessary, the route shall be designated and marked as a crosswalk.

EXCEPTION: 1. In multilevel parking structures, van accessible parking spaces are permitted on one level.
2. Accessible parking spaces shall be permitted to be located in different parking facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, parking fee and user convenience.

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1106, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-1106, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1106, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW

19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-1106, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-1107 Section 1107—((~~Dwelling units and sleeping units~~)) Motor vehicle related facilities.

((~~**1107.5 Group I.** Accessible units and Type B units shall be provided in Group I occupancies in accordance with Sections 1107.5.1.1 through 1107.5.1.3.~~

~~**1107.5.1.1 Accessible units in Group I-1, Condition 1.** In Group I-1, Condition 1, at least 4 percent, but not less than one, of the dwelling units and sleeping units shall be accessible units.~~

~~EXCEPTIONS: 1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.4.~~
~~2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.5.~~

~~**1107.5.1.2 Accessible units in Group I-1, Condition 2.** In Group I-1, Condition 2, at least 10 percent, but not less than one, of the dwelling units and sleeping units shall be accessible units.~~

~~EXCEPTIONS: 1. In not more than 90 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.4.~~
~~2. In not more than 90 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.5.~~

~~**1107.5.4 Group I-2 rehabilitation facilities.** In hospitals and rehabilitation facilities of Group I-2 occupancies that specialize in treating conditions that affect mobility, or units within either that specialize in treating conditions that affect mobility, 100 percent of the dwelling units and sleeping units shall be accessible units.~~

~~EXCEPTIONS: 1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.4.~~
~~2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.5.~~

~~**1107.6.2.2.1 Type A units.** In Group R-2 Occupancies containing more than 10 dwelling units or sleeping units, at least 5 percent, but not less than one, of the units shall be a Type A unit. All units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units, as described in Section 1107.6. Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units. Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*.~~

~~EXCEPTIONS: 1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.~~
~~2. Existing structures on a site shall not contribute to the total number of units on a site.~~

~~**1107.5.1 Group I-1.** Accessible units and Type B units shall be provided in Group I-1 occupancies in accordance with Sections 1107.5.1.1 through 1107.5.1.3.~~

~~**1107.5.1.1 Accessible units in Group I-1, Condition 1.** In Group I-1, Condition 1, at least 4 percent, but not less than one, of the dwelling units and sleeping units shall be accessible units.~~

EXCEPTIONS: 1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

1107.5.1.2 Accessible units in Group I-1, Condition 2. In Group I-1, Condition 2, at least 10 percent, but not less than one, of the dwelling units and sleeping units shall be accessible units.

EXCEPTIONS: 1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

1107.5.1.3 Type B units. In structures with four or more dwelling units or sleeping units intended to be occupied as a residence, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.

EXCEPTION: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1107.5.2 Group I-2 nursing homes. Accessible units and Type B units shall be provided in nursing homes of Group I-2, Condition 1 occupancies in accordance with Sections 1107.5.2.1 and 1107.5.2.2.

1107.5.2.1 Accessible units. At least 50 percent but not less than one of each type of the dwelling units and sleeping units shall be accessible units.

EXCEPTIONS: 1. In not more than 90 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 90 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

1107.5.4 Group I-2 rehabilitation facilities. In hospitals and rehabilitation facilities of Group I-2 occupancies that specialize in treating conditions that affect mobility, or units within either that specialize in treating conditions that affect mobility, 100 percent of the dwelling units and sleeping units shall be accessible units.

EXCEPTIONS: 1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents. In Group R-2 Occupancies, other than live/work units, apartment houses, monasteries and convents falling within the scope of Sections 1107.6.2.1 and 1107.6.2.2, accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.3.1 and 1107.6.2.3.2. Bedrooms within congregate living facilities shall be counted as sleeping units for the purpose of determining the number of units. Where the sleeping units are grouped into suites, only one sleeping unit in each suite shall be permitted to count towards the number of required accessible units. Accessible units shall be dispersed among the various classes of units, as described in Section 1107.6.))

1107.2 Electrical vehicle charging stations. Electrical vehicle charging stations shall comply with Sections 1107.2.1 and 1107.2.2.

EXCEPTION: Electrical vehicle charging stations provided to serve Group R-3 occupancies are not required to comply with this section.

1107.2.1 Number of accessible vehicle spaces. See Section 429.4.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, § 51-50-1107, filed 2/23/21, effective 3/26/21; WSR 20-21-021, § 51-50-1107, filed 10/9/20, effective 11/9/20; WSR 20-01-090, §

51-50-1107, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-1107, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1107, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1107, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-1107, filed 12/17/03, effective 7/1/04.]

NEW SECTION

WAC 51-50-1108 Section 1108—Dwelling units and sleeping units.

1108.6.2.2.1 Type A units. In Group R-2 Occupancies containing more than 10 dwelling units or sleeping units, at least 5 percent, but not less than one, of the units shall be a Type A unit. All units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units, as described in Section 1108.6. Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units. Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*.

EXCEPTIONS: 1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.
2. Existing structures on a site shall not contribute to the total number of units on a site.

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AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-11090 ((~~Section 1109 Other features and facilities.~~)) Reserved.

((~~**1109.2 Toilet and bathing facilities.** Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1109.2 and 1109.2.3 at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.~~

~~EXCEPTIONS: 1. Toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, shall be permitted to comply with the specific exceptions in ICC A117.1.~~
~~2. This section is not applicable to toilet and bathing rooms that serve dwelling units or sleeping units that are not required to be accessible by Section 1107.~~
~~3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible. Where these rooms are designated as gender-neutral, the total number of accessible toilet or bathing rooms shall not be less than the sum of required accessible separate male plus female rooms.~~
~~4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be accessible.~~
~~5. Toilet rooms or bathing rooms that are part of critical care or intensive care patient sleeping rooms serving accessible units are not required to be accessible.~~
~~6. Toilet rooms or bathing rooms designed for bariatrics patients are not required to comply with the toilet room and bathing room requirement in ICC A117.1. The sleeping units served by bariatrics toilet or bathing rooms shall not count toward the required number of accessible sleeping units.~~
~~7. Where permitted in Section 1107, in toilet rooms or bathrooms serving accessible units, water closets designed for assisted toileting shall be permitted to comply with Section 1109.2.4.~~
~~8. Where permitted in Section 1107, in bathrooms serving accessible units, showers designed for assisted toileting shall be permitted to comply with Section 1109.2.5.~~

9. Where toilet facilities are primarily for children's use, required accessible water closets, toilet compartments and lavatories shall be permitted to comply with children's provision of ICC A117.1.

1109.2.4 Water closets designed for assisted toileting. Water closets designed for assisted toileting shall comply with Sections 1109.2.4.1 through 1109.2.4.6.

1109.2.4.1 Location. The centerline of the water closet shall be 24 inches (610 mm) minimum and 26 inches (660 mm) maximum from one side of the required clearance.

1109.2.4.2 Clearance. Clearance around the water closet shall comply with Sections 1109.2.4.2.1 through 1109.2.4.2.3.

1109.2.4.2.1 Clearance width. Clearance around a water closet shall be 66 inches (1675 mm) minimum in width, measured perpendicular from the side of the clearance that is 24 inches (610 mm) minimum and 26 inches (660 mm) maximum from the water closet centerline.

1109.2.4.2.2 Clearance depth. Clearance around the water closet shall be 78 inches (1980 mm) minimum in depth, measured perpendicular from the rear wall.

1109.2.4.2.3 Clearance overlap. The required clearance around the water closet shall be permitted overlaps in accordance with ICC A117.1 Section 604.3.3.

1109.2.4.3 Height. The height of the water closet seats shall comply with ICC A117.1 Section 604.4.

1109.2.4.4 Swing-up grab bars. The swing-up grab bars shall comply with ICC A117.1 Sections 609.2 and 609.8. Swing-up grab bars shall be provided on both sides of the water closet and shall comply with all of the following:

1. The centerline of the grab bar shall be 14 inches minimum to 16 inches (356 mm to 405 mm) maximum from the centerline of the water closet.

2. The length of the grab bar is 36 inches (915 mm) minimum in length, measured from the rear wall to the end of the grab bar.

3. The top of the grab bar in the down position is 30 inches (760 mm) minimum and 34 inches (865 mm) maximum above the floor.

1109.2.4.5 Flush controls. Flush controls shall comply with ICC A117.1 Section 604.6.

1109.2.4.6 Dispensers. Toilet paper dispensers shall be mounted on at least one of the swing-up grab bars and the outlet of the dispenser shall be located at 24 inches (610 mm) minimum to 36 inches (915 mm) maximum from the rear wall.

1109.2.5 Standard roll-in-type shower compartment designed for assisted bathing. Standard roll-in-type shower compartments designed for assisted bathing shall comply with Sections 1109.2.5.1 through 1109.2.5.8.

1109.2.5.1 Size. Standard roll-in-type shower compartments shall have a clear inside dimension of 60 inches (1525 mm) minimum in width and 30 inches (760 mm) minimum in depth, measured at the center point of opposing sides. An entry 60 inches (1525 mm) minimum in width shall be provided.

1109.2.5.2 Clearance. A clearance of 60 inches (1525 mm) minimum in length adjacent to the 60 inch (1525 mm) width of the open face of the

~~shower compartment, and 30 inches (760 mm) minimum in depth, shall be provided.~~

~~EXCEPTIONS:~~ ~~1. A lavatory complying with Section 606 shall be permitted at one end of the clearance.~~
~~2. Where the shower compartment exceeds minimum sizes, the clear floor space shall be placed adjacent to the grab bars and 30 inches minimum from the back wall.~~

~~**1109.2.5.3 Grab bars.** Grab bars shall comply with ICC A117.1 Section 609 and shall be provided in accordance with Sections 1109.2.5.3.1 and 1109.2.5.3.2. In standard roll-in-type shower compartments, grab bars shall be provided on three walls. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the floor. Grab bars can be separate bars or one continuous bar.~~

~~**1109.2.5.3.1 Back-wall grab bar.** The back-wall grab bar shall extend the length of the back wall and extend within 6 inches (150 mm) maximum from the two adjacent side walls.~~

~~EXCEPTION:~~ ~~The back wall grab bar shall not be required to exceed 48 inches (1220 mm) in length. The rear grab bar shall be located with one end within 6 inches maximum of a side wall with a grab bar complying with Section 1109.2.5.3.2.~~

~~**1109.2.5.3.2 Side-wall grab bars.** The side-wall grab bars shall extend the length of the wall and extend within 6 inches (150 mm) maximum from the adjacent back wall.~~

~~EXCEPTIONS:~~ ~~1. The side-wall grab bar shall not be required to exceed 30 inches (760 mm) in length. The side grab bar shall be located with one end within 6 inches maximum of the back wall with a grab bar complying with Section 1109.2.5.3.1.~~
~~2. Where the side walls are located 72 inches (1830 mm) or greater apart, a grab bar is not required on one of the side walls.~~

~~**1109.2.5.4 Seats.** Wall-mounted folding seats shall not be installed.~~

~~**1109.2.5.5 Controls and hand showers.** In standard roll-in-type showers, the controls and hand shower shall be located 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor. Controls shall be located to facilitate caregiver access.~~

~~**1109.2.5.6 Hand showers.** Hand showers shall comply with ICC A117.1 Section 608.5.~~

~~**1109.2.5.7 Thresholds.** Thresholds shall comply with ICC A117.1 Section 608.6.~~

~~**1109.2.5.8 Shower enclosures.** Shower compartment enclosures for shower compartments shall comply with ICC A117.1 Section 608.7.~~

~~**1109.2.5.9 Water temperature.** Water temperature shall comply with ICC A117.1 Section 608.8.~~

~~**1109.5.1 Minimum number.** Not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.~~

~~EXCEPTIONS:~~ ~~1. A single drinking fountain with two separate spouts that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.~~
~~2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.~~
~~3. In all occupancies that require more than two drinking fountains per floor or secured area, bottle filling stations shall be allowed to be substituted in accordance with Section 2902.5.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-11090, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-11090, filed 12/12/19, effective 7/1/20.]

NEW SECTION

WAC 51-50-1110 Section 1110—Other features and facilities.

1110.2 Toilet and bathing facilities. Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1110.2.4 and 1110.2.5 at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

EXCEPTIONS:
1. Toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, shall be permitted to comply with the specific exceptions in ICC A117.1.
2. This section is not applicable to toilet and bathing rooms that serve dwelling units or sleeping units that are not required to be accessible by Section 1108.
3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible. Where rooms are designated as all-gender, the total number of accessible toilet or bathing rooms shall be at least 50 percent, but not less than two rooms.
4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be accessible.
5. Toilet rooms or bathing rooms that are part of critical care or intensive care patient sleeping rooms serving accessible units are not required to be accessible.
6. Toilet rooms or bathing rooms designed for bariatrics patients are not required to comply with the toilet room and bathing room requirement in ICC A117.1. The sleeping units served by bariatrics toilet or bathing rooms shall not count toward the required number of accessible sleeping units.
7. Where permitted in Section 1107, in toilet rooms or bathrooms serving accessible units, water closets designed for assisted toileting shall be permitted to comply with Section 1109.2.4.
8. Where permitted in Section 1107, in bathrooms serving accessible units, showers designed for assisted toileting shall be permitted to comply with Section 1109.2.5.
9. Where toilet facilities are primarily for children's use, required accessible water closets, toilet compartments and lavatories shall be permitted to comply with children's provision of ICC A117.1.

1110.5.1 Minimum number. Not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

EXCEPTIONS:
1. A single drinking fountain with two separate spouts that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.
2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.
3. In all occupancies that require more than two drinking fountains per floor or secured area, bottle filling stations shall be allowed to be substituted in accordance with Section 2902.5.

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AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-1202 Section 1202—Ventilation.

1202.1 General. Buildings shall be provided with natural ventilation in accordance with Section ((~~1203.5~~)) 1202.5, or mechanical ventilation in accordance with the *International Mechanical Code*. *Ambulatory care facilities* and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the *International Mechanical Code*.

((~~1202.2 Attic spaces.~~)) 1202.2.1 Ventilated attics and rafter spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An

airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated. Ventilators shall be installed in accordance with the manufacturer's installation instructions.

EXCEPTION: The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:
1. A Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

1202.4 Under-floor ventilation. The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation openings through foundation walls or *exterior walls*. Such openings shall be placed so as to provide cross ventilation of the under-floor space. A ground cover of six mil (0.006 inch thick) black polyethylene or approved equal shall be laid over the ground within crawl spaces. The ground cover shall be overlapped six inches minimum at the joints and shall extend to the foundation wall.

EXCEPTION: The ground cover may be omitted in crawl spaces if the crawl space has a concrete slab floor with a minimum thickness of two inches.

1202.5 Natural ventilation. For other than Group R Occupancies, natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants. Group R Occupancies shall comply with the *International Mechanical Code*.

1202.7 Radon resistive construction standards. The criteria of this section establishes minimum radon resistive construction requirements for Group R Occupancies.

1202.7.1 Application. The requirements of Section ((~~1202.6~~)) 1202.7 shall be adopted and enforced by all jurisdictions of the state according to the following subsections.

1202.7.1.1 All jurisdictions of the state shall comply with Section ((~~1202.6.2~~)) 1202.7.2.

1202.7.1.2 Clark, Ferry, Okanogan, Pend Oreille, Skamania, Spokane, and Stevens counties shall also comply with Section ((~~1203.6.3~~)) 1202.7.3.

1202.7.2 State wide radon requirements.

1202.7.2.1 Crawlspaces. All crawlspaces shall comply with the requirements of this section.

1202.7.2.2 Ventilation. All crawlspaces shall be ventilated as specified in Section ((~~1203.3~~)) 1202.4.

If the installed ventilation in a crawlspace is less than one square foot for each 300 square feet of crawlspace area, or if the crawlspace vents are equipped with operable louvers, a radon vent shall be installed to originate from a point between the ground cover and soil. The radon vent shall be installed in accordance with Sections ((~~1203.6.3.2.6 and 1203.6.3.2.7~~)) 1202.7.3.2.6 and 1202.7.3.2.7.

1202.7.2.3 Crawlspace plenum systems. In crawlspace plenum systems used for providing supply air for an HVAC system, aggregate, a permanently sealed soil gas retarder membrane and a radon vent pipe shall

be installed in accordance with Section ((~~1203.6.3.2~~)) 1202.7.3.2. Crawlspaces shall not be used for return air plenums.

In addition, an operable radon vent fan shall be installed and activated. The fan shall be located as specified in Section ((~~1203.6.3.2.7~~)) 1202.7.3.2.7. The fan shall be capable of providing at least 100 cfm at 1-inch water column static pressure. The fan shall be controlled by a readily accessible manual switch. The switch shall be labeled "RADON VENT FAN."

1202.7.3 Radon prescriptive requirements.

1202.7.3.1 Scope. This section applies to those counties specified in Section ((~~1203.6.1.2~~)) 1202.7.1.2. This section establishes prescriptive construction requirements for reducing the potential for radon entry into all Group R Occupancies, and for preparing the building for future mitigation if desired.

In all crawlspaces, except crawlspace plenums used for providing supply air for an HVAC system, a continuous air barrier shall be installed between the crawlspace area and the occupied area to limit air transport between the areas. If a wood sheet subfloor or other material is utilized as an air barrier, in addition to the requirements of Section 502.1.6.2 of the Washington State Energy Code, all joints between sheets shall be sealed.

1202.7.3.2 Floors in contact with the earth.

1202.7.3.2.1 General. Concrete slabs that are in direct contact with the building envelope shall comply with the requirements of this section.

EXCEPTION: Concrete slabs located under garages or other than Group R Occupancies need not comply with this chapter.

1202.7.3.2.2 Aggregate. A layer of aggregate of 4-inch minimum thickness shall be placed beneath concrete slabs. The aggregate shall be continuous to the extent practical.

1202.7.3.2.3 Gradation. Aggregate shall:

1. Comply with ASTM Standard C-33 Standard Specification for Concrete Aggregate and shall be size No. 8 or larger size aggregate as listed in Table 2, Grading Requirements for Course Aggregate; or

2. Meet the 1988 Washington State Department of Transportation Specification 9-03.1 (3) "Coarse Aggregate for Portland Cement Concrete," or any equivalent successor standards. Aggregate size shall be of Grade 8 or larger as listed in Section 9-03.1 (3) C, "Grading"; or

3. Be screened, washed pea gravel free of deleterious substances in a manner consistent with ASTM Standard C-33 with 100 percent passing a 1/2-inch sieve and less than 5 percent passing a No. 16 sieve. Sieve characteristics shall conform to those acceptable under ASTM Standard C-33.

EXCEPTION: Aggregate shall not be required if a substitute material or system, with sufficient load bearing characteristics, and having approved capability to provide equal or superior air flow, is installed.

1202.7.3.2.4 Soil-gas retarder membrane. A soil-gas retarder membrane, consisting of at least one layer of virgin polyethylene with a thickness of at least 6 mil, or equivalent flexible sheet material, shall be either placed directly under all concrete slabs so that the slab is in direct contact with the membrane, or on top of the aggregate with 2 inches minimum of fine sand or pea gravel installed between the concrete slab and membrane. The flexible sheet shall extend to the foundation wall or to the outside edge of the monolithic slab. Seams shall overlap at least 12 inches. The membrane shall also be fitted tightly

to all pipes, wires, and other penetrations of the membrane and sealed with an approved sealant or tape. All punctures or tears shall be repaired with the same or approved material and similarly lapped and sealed.

1202.7.3.2.5 Sealing of penetrations and joints. All penetrations and joints in concrete slabs or other floor systems and walls below grade shall be sealed by an approved sealant to create an air barrier to limit the movement of soil-gas into the indoor air.

Sealants shall be approved by the manufacturer for the intended purpose. Sealant joints shall conform to manufacturer's specifications. The sealant shall be placed and tooled in accordance with manufacturer's specifications. There shall be no gaps or voids after the sealant has cured.

1202.7.3.2.6 Radon vent. One continuous sealed pipe shall run from a point within the aggregate under each concrete slab to a point outside the building. Joints and connections shall be permanently gas tight. The continuous sealed pipe shall interface with the aggregate in the following manner, or by other approved equal method. The pipe shall be permanently connected to a "T" within the aggregate area so that the two end openings of the "T" lie within the aggregate area. A minimum of 5 feet of perforated drain pipe of 3 inches minimum diameter shall join to and extend from the "T." The perforated pipe shall remain in the aggregate area and shall not be capped at the ends. The "T" and its perforated pipe extensions shall be located at least 5 feet horizontally from the exterior perimeter of the aggregate area.

The continuous sealed pipe shall terminate no less than 12 inches above the eave, and more than 10 horizontal feet from a woodstove or fireplace chimney, or operable window. The continuous sealed pipe shall be labeled "radon vent." The label shall be placed so as to remain visible to an occupant.

The minimum pipe diameter shall be 3 inches unless otherwise approved. Acceptable sealed plastic pipe shall be smooth walled, and may include either PVC schedule 40 or ABS schedule of equivalent wall thickness.

The entire sealed pipe system shall be sloped to drain to the subslab aggregate.

The sealed pipe system may pass through an unconditioned attic before exiting the building; but to the extent practicable, the sealed pipe shall be located inside the thermal envelope of the building in order to enhance passive stack venting.

EXCEPTION: A fan for subslab depressurization system includes the following:
1. Soil-gas retarder membrane as specified in Section ((~~1203.6.3.2.4~~)) 1202.7.3.2.4;
2. Sealing of penetrations and joints as specified in Section ((~~1203.6.3.2.5~~)) 1202.7.3.2.5;
3. A 3-inch continuous sealed radon pipe shall run from a point within the aggregate under each concrete slab to a point outside the building;
4. Joints and connections shall be gas tight, and may be of either PVC schedule 40 or ABS schedule of equivalent in wall thickness;
5. A label of "radon vent" shall be placed on the pipe so as to remain visible to an occupant;
6. Fan circuit and wiring as specified in Section ((~~1203.6.3.2.7~~)) 1202.7.3.2.7 and a fan.

If the subslab depressurization system is exhausted through the concrete foundation wall or rim joist, the exhaust terminus shall be a minimum of 6 feet from operable windows or outdoor air intake vents and shall be directed away from operable windows and outdoor air intake vents to prevent radon reentrainment.

1202.7.3.2.7 Fan circuit and wiring and location. An area for location of an in-line fan shall be provided. The location shall be as close as practicable to the radon vent pipe's point of exit from the building,

or shall be outside the building shell; and shall be located so that the fan and all downstream piping is isolated from the indoor air.

Provisions shall be made to allow future activation of an in-line fan on the radon vent pipe without the need to place new wiring. A 110 volt power supply shall be provided at a junction box near the fan location.

1202.7.3.2.8 Separate aggregate areas. If the 4-inch aggregate area underneath the concrete slab is not continuous, but is separated into distinct isolated aggregate areas by a footing or other barrier, a minimum of one radon vent pipe shall be installed into each separate aggregate area.

EXCEPTION: Separate aggregate areas may be considered a single area if a minimum 3-inch diameter connection joining the separate areas is provided for every 30 feet of barrier separating those areas.

1202.7.3.2.9 Concrete block walls. Concrete block walls connected to below grade areas shall be considered unsealed surfaces. All openings in concrete block walls that will not remain accessible upon completion of the building shall be sealed at both vertical and horizontal surfaces, in order to create a continuous air barrier to limit the transport of soil-gas into the indoor air.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-1202, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-1202, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1204 ((~~Section 1204—Temperature control.~~)) Reserved.

((~~**1204.1 Equipment and systems.** Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.~~

~~EXCEPTION: 1. Interior spaces where the primary purpose of the space is not associated with human comfort.~~
~~2. Group F, H, S, or U occupancies.~~
~~3. Group R-1 Occupancies not more than 500 square feet.~~

~~**1204.2.1 Definitions.** For the purposes of this section only, the following definitions apply.~~

~~**DESIGNATED AREAS** are those areas designated by a county to be an urban growth area in chapter 36.70A RCW and those areas designated by the U.S. Environmental Protection Agency as being in nonattainment for particulate matter.~~

~~**SUBSTANTIALLY REMODELED** means any alteration or restoration of a building exceeding 60 percent of the appraised value of such building within a 12-month period. For the purpose of this section, the appraised value is the estimated cost to replace the building and structure in-kind, based on current replacement costs.~~

~~**1204.2.2 Primary heating source.** Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.~~

~~**1204.2.3 Solid fuel burning devices.** No new or used solid fuel burning device shall be installed in new or existing buildings unless such device is United States Environmental Protection Agency certified or exempt from certification by the United States Environmental Protection Agency and conforms with RCW 70.94.011, 70.94.450, 70.94.453 and 70.94.457.~~

~~EXCEPTION: 1. Wood cook stoves.~~
~~2. Antique wood heaters manufactured prior to 1940.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1204, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1204, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1204, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-1204, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1206 ((~~Section 1206—Sound transmission.~~)) Reserved.

((~~**1206.1 Scope.** This section shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent dwelling units and sleeping units or between dwelling units and sleeping units and adjacent public areas.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1206, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1207 ((~~Section 1207—Interior space dimensions.~~)) Reserved.

((~~**1207.4 Efficiency dwelling units.** Efficiency dwelling units shall conform to the requirements of the code except as modified herein:~~

~~1. The unit shall have a living room of not less than 190 square feet (17.7 m) of floor area.~~

~~2. The unit shall be provided with a separate closet.~~

~~3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and ventilation conforming to this code shall be provided.~~

~~4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1207, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1208 ((~~Reserved.~~)) Section 1208—Dwelling unit size.

1208.3 Dwelling unit size. Dwelling units shall have a minimum of 190 square feet (17.7 m^2) of habitable space.

1208.4 Room area. Every *dwelling unit* shall have not less than one room that shall have not less than 120 square feet (11.2 m^2) of *net floor area*. *Sleeping units* and other habitable rooms of a *dwelling unit* shall have a *net floor area* of not less than 70 square feet (6.5 m^2).

EXCEPTION: Kitchens are not required to be of a minimum floor area.

1208.5 Efficiency dwelling units. *Efficiency dwelling units* shall conform to the requirements of the code except as modified herein:

1. The unit's habitable space shall comply with Sections 1208.1 through 1208.4.

2. The unit shall be provided with a separate closet.

3. For other than *accessible*, Type A and Type B dwelling units, the unit shall be provided with a kitchen sink, cooking appliance and refrigerator, each having a clear working space of not less than 30 inches (762 mm) in front. Light and *ventilation* conforming to this code shall be provided.

4. The unit shall be provided with a separate bathroom containing a water closet, lavatory, and bathtub or shower.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1208, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-1208, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1208, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-1208, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-014, § 51-50-1208, filed 12/2/04, effective 7/1/05. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-1208, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1209 ((~~Section 1209—Toilet and bathroom requirements.~~)) Reserved.

((~~**1209.3.1 Water closet compartment.** Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. Gender-neutral toilet room water closet compartments shall be in accordance with Section 2902.2.2.~~

~~EXCEPTIONS: 1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.~~
~~2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.~~
~~3. This provision is not applicable to toilet areas located within Group I-3 occupancy housing areas.~~

~~**1209.3.2 Urinal partitions.** Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The walls or partitions shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished back wall surface, whichever is greater.~~

~~EXCEPTIONS: 1. Urinal partitions shall not be required in a single occupant or family or assisted-use toilet room with a lockable door.~~
~~2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.~~
~~3. Urinals located in gender-neutral toilet facilities shall be in accordance with Section 2902.2.2.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1209, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1210 Section 1210—((~~Reserved~~)) Toilet and bathroom requirements.

1210.3.1 Water closet compartment. Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. Gender-neutral toilet room water closet compartments shall be in accordance with Section 2902.2.2.

EXCEPTIONS: 1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.
3. This provision is not applicable to toilet areas located within Group I-3 occupancy housing areas.

1210.3.2 Urinal partitions. Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The walls or partitions shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished back wall surface, whichever is greater.

EXCEPTIONS: 1. Urinal partitions shall not be required in a single occupant or family or assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.
3. Urinals located in gender-neutral toilet facilities shall be in accordance with Section 2902.2.2.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1210, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1210, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-014, § 51-50-1210, filed 12/2/04, effective 7/1/05.]

NEW SECTION

WAC 51-50-1402 Section 1402—Performance requirements.

1402.2 Weather protection. Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section 1404.4. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer, as described in Section 1403.2, and a means for draining water that enters the assembly to the exterior. An air space cavity is not required under the exterior cladding for an exterior wall clad with lapped or panel siding made of plywood, engineered wood, hardboard, or fiber cement. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section 1404.3.

EXCEPTIONS:
1. A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapters 19 and 21, respectively.
2. Compliance with the requirements for a means of drainage, and the requirements of Sections 1403.2 and 1404.4, shall not be required for an exterior wall envelope that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
2.1 Exterior wall envelope test assemblies shall include not fewer than one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.
2.2 Exterior wall envelope test assemblies shall be not less than 4 feet by 8 feet (1219 mm by 2438 mm) in size.
2.3 Exterior wall envelope assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/m^2).
2.4 Exterior wall envelope assemblies shall be subjected to a minimum test exposure duration of 2 hours. The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.
3. Exterior insulation and finish systems (EIFS) complying with Section 1407.4.1.

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AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-1403 ((~~Section 1403—Performance requirements.~~)) Reserved.

((~~**1402.2 Weather protection.** Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section 1404.4. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer, as described in Section 1403.2, and a means for draining water that enters the assembly to the exterior. An air space cavity is not required under the exterior cladding for an exterior wall clad with lapped or panel siding made of plywood, engineered wood, hardboard, or fiber cement. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section 1404.3.~~

~~EXCEPTIONS:~~
~~1. A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapters 19 and 21, respectively.~~
~~2. Compliance with the requirements for a means of drainage, and the requirements of Sections 1404.2 and 1405.4, shall not be required for an exterior wall envelope that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:~~
~~2.1 Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.~~
~~2.2 Exterior wall envelope test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.~~
~~2.3 Exterior wall envelope assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/m^2).~~
~~2.4 Exterior wall envelope assemblies shall be subjected to a minimum test exposure duration of 2 hours.~~

~~The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.~~
~~3. Exterior insulation and finish systems (EIFS) complying with Section 1408.4.1.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, § 51-50-1403, filed 2/23/21, effective 3/26/21; WSR 16-03-064, § 51-50-1403, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1403, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-1403, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-110, § 51-50-1403, filed 12/18/07, effective 4/1/08.]

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1405 ((~~Section 1405—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1405, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-1405, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1405, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-014, § 51-50-1405, filed 12/2/04, effective 7/1/05.]

AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-2900 ((~~Chapter 29—Plumbing systems.~~)) Reserved.

((~~**SECTION 2901—GENERAL.**~~

~~**2901.1 Scope.** The provisions of this chapter and the state plumbing code shall govern the erection, installation, *alteration*, repairs, relocation, replacement, *addition* to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the state plumbing code.~~

~~**2901.2 Health codes.** In food preparation, serving and related storage areas, additional fixture requirements may be dictated by health codes.~~

~~**2901.3 Fixed guideway transit and passenger rail systems.** In construction of a fixed guideway and passenger rail system, subject to Section 3114, public plumbing fixtures are not required.~~

~~**SECTION 2902—MINIMUM PLUMBING FACILITIES.**~~

~~**2902.1 Minimum number of fixtures.** Plumbing fixtures shall be provided in the minimum number shown in Table 2902.1. Uses not shown in Table~~

2902.1 shall be determined individually by the *building official* based on the occupancy which most nearly resembles the proposed occupancy. The number of occupants shall be determined by this code. Plumbing fixtures need not be provided for unoccupied buildings or facilities.

2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

EXCEPTION: The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

2902.1.1.1 Private offices. Fixtures only accessible to private offices shall not be counted to determine compliance with this section.

2902.1.1.2 Urinals in men's facilities. Where urinals in men's facilities are provided, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced to less than one quarter (25%) of the minimum specified. For men's facilities serving 26 or more persons, not less than one urinal shall be provided.

2902.1.1.3 Urinals. Where urinals are provided in gender-neutral facilities, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced less than one quarter (25 percent) of the minimum specified. Facilities serving 26 or more persons, not less than one urinal shall be provided.

2902.1.4 Family or assisted-use toilet and bath fixtures. Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.

2902.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

EXCEPTIONS:
1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or less.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.
4. Separate facilities shall not be required in spaces primarily used for drinking or dining with a total occupant load, including both employees and customers, of 30 or fewer.
5. Separate facilities shall not be required when gender-neutral facilities are provided in accordance with Section 2902.2.2.

2902.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 2902.4.

2902.2.2 Gender-neutral facilities. Gender-neutral toilet facilities, when provided, shall be in accordance with the following:

1. There is no reduction in the number of fixtures required to be provided for male and female in the type of occupancy and in the minimum number shown in Table 2902.1.

2. Gender-neutral multiuser toilet rooms shall have water closets and urinals located in toilet compartments in accordance with ICC A117.1.

3. Gender-neutral multiuser toilet room water closet and urinal compartments shall have full-height walls and a door enclosing the fixture to ensure privacy.

4. Gender-neutral toilet room water closet and urinal compartment doors shall be securable from within the compartment.

5. Gender-neutral toilet rooms provided for the use of multiple occupants, the egress door from the room shall not be lockable from the inside of the room.

6. Compartments shall not be required in a single-occupant toilet room with a lockable door.

2902.3 Employee and public toilet facilities. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902.1 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall either be separate or combined employee and public toilet facilities.

EXCEPTION: Public toilet facilities shall not be required in:
1. Open or enclosed parking garages where there are no parking attendants.
2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).
3. Fixed guideway transit and passenger rail systems constructed in accordance with Section 3112.

2902.3.3 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located in each building not more than one story above or below the space required to be provided with toilet facilities, or conveniently in a building adjacent thereto on the same property, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

EXCEPTION: The location and maximum distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum distance of travel are *approved*.

2902.5 Drinking fountain location. Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet. Drinking fountains shall be located on an accessible route. Drinking fountains shall not be located in toilet rooms.

2902.5.1 Drinking fountain number. Occupant loads over 30 shall have one drinking fountain for the first 150 occupants, then one per each additional 500 occupants.

EXCEPTIONS: 1. Sporting facilities with concessions serving drinks shall have one drinking fountain for each 1000 occupants.
2. A drinking fountain need not be provided in a drinking or dining establishment.

2902.5.2 Multistory buildings. Drinking fountains shall be provided on each floor having more than 30 occupants in schools, dormitories, auditoriums, theaters, offices and public buildings.

2902.5.3 Penal institutions. Penal institutions shall have one drinking fountain on each cell block floor and one on each exercise floor.

2902.5.4 Bottle filling stations. Bottle filling stations shall be provided in accordance with Sections 2902.5.4.1 through 2902.5.4.3.

2902.5.4.1 Group E occupancies. In Group E occupancies with an occupant load over 30, a minimum of one bottle filling station shall be provided on each floor. This bottle filling station may be integral to a drinking fountain.

2902.5.4.2 Substitution. In all occupancies that require more than two drinking fountains per floor or secured area, *bottle filling stations* shall be permitted to be substituted for up to 50 percent of the required number of drinking fountains.

2902.5.4.3 Accessibility. At least one of the required bottle filling stations shall be located in accordance with Section 309 ICC A117.1.

2902.7 Dwelling units. Dwelling units shall be provided with a kitchen sink.

2902.8 Water. Each required sink, lavatory, bathtub and shower stall shall be equipped with hot and cold running water necessary for its normal operation.

SECTION 2903—RESERVED.

SECTION 2904—RESERVED.

Table 2902.1
Minimum Number of Required Plumbing Fixtures[a]

(See Sections 2902.2 and 2902.3)

No.	Classification	Occupancy	Description	Water Closets		Lavatories		Bathtubs/ Showers
				Male	Female	Male	Female	
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—
		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—
		A-4	Coliseums, arenas, skating rinks, pools, and tennis courts for indoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—
		A-5	Stadiums amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—

No.	Classification	Occupancy	Description	Water Closets		Lavatories		Bathtubs/ Showers
				Male	Female	Male	Female	
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for first 80 and 1 per 80 for remainder exceeding 80		—
3	Educational	E[c]	Educational facilities	1 per 35	1 per 25	1 per 85	1 per 50	—
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		Check State (UPC)
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8
		I-2	Hospitals, ambulatory nursing home care recipient[b]	1 per room[c]		1 per room[c]		1 per 15
			Employees, other than residential care[b]	1 per 25		1 per 35		—
			Visitors other than residential care	1 per 75		1 per 100		—
		I-3	Prisons[b]	1 per cell		1 per cell		1 per 15
			Reformatories, detention centers and correctional centers[b]	1 per 15		1 per 15		1 per 15
			Employees[b]	1 per 25		1 per 35		—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8
			Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit
		R-3	One- and two-family dwellings	1 per dwelling unit		1 per 10		1 per dwelling unit
			Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100		1 per 100		Check State (UPC)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code, except with respect to Group E occupancies the provisions of note "e" shall apply.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For Group E occupancies: The number of occupants shall be determined by using a calculation of 100 square feet gross building area per student for the minimum number of plumbing fixtures.))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, § 51-50-2900, filed 2/23/21, effective 3/26/21; WSR 20-21-021, §

51-50-2900, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-2900, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-2900, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-2900, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-087, § 51-50-2900, filed 12/1/14, effective 5/1/15. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-2900, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-2900, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-2900, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-014, § 51-50-2900, filed 12/2/04, effective 7/1/05. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-2900, filed 12/17/03, effective 7/1/04.]

NEW SECTION

WAC 51-50-2901 Section 2901—General.

2901.1 Scope. The provisions of this chapter and the state plumbing code shall govern the design, construction, erection, and installation of plumbing components, appliances, equipment and systems used in buildings and structures covered by this code. Toilet and bathing rooms shall be constructed in accordance with Section 1210. The *International Fire Code* and the state plumbing code shall govern the use and maintenance of plumbing components, appliances, equipment and systems. The International Existing Building Code and the state plumbing code shall govern the alteration, repair, relocation, replacement and addition of plumbing components, appliances, equipment and systems.

2901.2 Health codes. In food preparation, serving and related storage areas, additional fixture requirements may be dictated by health codes.

2901.3 Fixed guideway transit and passenger rail systems. In construction of a fixed guideway and passenger rail system, subject to Section 3116, public plumbing fixtures are not required.

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NEW SECTION

WAC 51-50-2902 Section 2902—Minimum plumbing facilities.

2902.1 Minimum number of fixtures. Plumbing fixtures shall be provided in the minimum number shown in Table 2902.1. Uses not shown in Table 2902.1 shall be determined individually by the *building official* based on the occupancy which most nearly resembles the proposed occupancy. The number of occupants shall be determined by this code. Plumbing fixtures need not be provided for unoccupied buildings or facilities.

2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine

the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

EXCEPTION: The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

2902.1.1.1 Private offices. Fixtures only accessible to private offices shall not be counted to determine compliance with this section.

2902.1.1.2 Urinals in men's facilities. Where urinals in men's facilities are provided, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced to less than one quarter (25 percent) of the minimum specified. For men's facilities serving 26 or more persons, not less than one urinal shall be provided.

2902.1.1.3 Urinals. Where urinals are provided in gender-neutral facilities, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced less than one quarter (25 percent) of the minimum specified. Facilities serving 26 or more persons, not less than one urinal shall be provided.

2902.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

EXCEPTIONS:
1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or fewer.
4. Separate facilities shall not be required in business occupancies in which the maximum occupant load is 25 or fewer.
5. Separate facilities shall not be required in spaces primarily used for drinking or dining with a total occupant load, including both employees and customers, of 30 or fewer.
6. Separate facilities shall not be required when gender-neutral facilities are provided in accordance with Section 2902.2.2.
7. Separate facilities shall not be required where rooms having both water closets and lavatory fixtures are designed for use by both sexes and privacy for water closets are installed in accordance with Section 405.3.4 of the *International Plumbing Code*. Urinals shall be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall.

2902.2.2 Gender-neutral facilities. Gender-neutral toilet facilities, when provided, shall be in accordance with the following:

1. There is no reduction in the number of fixtures required to be provided for male and female in the type of occupancy and in the minimum number shown in Table 2902.1.

2. Gender-neutral multiuser toilet rooms shall have water closets and urinals located in toilet compartments in accordance with ICC A117.1.

3. Gender-neutral multiuser toilet room water closet and urinal compartments shall have full-height walls and a door enclosing the fixture to ensure privacy.

4. Gender-neutral toilet room water closet and urinal compartment doors shall be securable from within the compartment.

5. Gender-neutral toilet rooms provided for the use of multiple occupants, the egress door from the room shall not be lockable from the inside of the room.

6. Compartments shall not be required in a single-occupant toilet room with a lockable door.

2902.3 Employee and public toilet facilities. For structures and tenant spaces intended for public utilization, customers, patrons and visitors shall be provided with public toilet facilities. Employees

associated with structures and tenant spaces shall be provided with toilet facilities. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902 for all users. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

EXCEPTION: Public toilet facilities shall not be required for:
1. Parking garages where operated without parking attendants.
2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).
3. Fixed guideway transit and passenger rail systems constructed in accordance with Section 3112.

2902.3.3 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located in each building not more than one story above or below the space required to be provided with toilet facilities, or conveniently in a building adjacent thereto on the same property, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

EXCEPTIONS: 1. The location and maximum distances of travel to required employee facilities in factory and industrial occupancies shall be permitted to exceed that required by this section, provided that the location and maximum distance of travel are *approved*.
2. The location and maximum distances of travel to required public and employee facilities in Group S occupancies shall be permitted to exceed that required by this section, provided that the location and maximum distances of travel are approved.

2902.5 Drinking fountain location. Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet. Drinking fountains shall be located on an accessible route. Drinking fountains shall not be located in toilet rooms.

2902.5.1 Drinking fountain number. Occupant loads over 30 shall have one drinking fountain for the first 150 occupants, then one per each additional 500 occupants.

EXCEPTIONS: 1. Sporting facilities with concessions serving drinks shall have one drinking fountain for each 1000 occupants.
2. A drinking fountain need not be provided in a drinking or dining establishment.

2902.5.2 Multistory buildings. Drinking fountains shall be provided on each floor having more than 30 occupants in schools, dormitories, auditoriums, theaters, offices and public buildings.

2902.5.3 Penal institutions. Penal institutions shall have one drinking fountain on each cell block floor and one on each exercise floor.

2902.5.4 Bottle filling stations. Bottle filling stations shall be provided in accordance with Sections 2902.5.4.1 through 2902.5.4.3.

2902.5.4.1 Group E occupancies. In Group E occupancies with an occupant load over 30, a minimum of one bottle filling station shall be provided on each floor. This bottle filling station may be integral to a drinking fountain.

2902.5.4.2 Substitution. In all occupancies that require more than two drinking fountains per floor or secured area, *bottle filling stations* shall be permitted to be substituted for up to 50 percent of the required number of drinking fountains.

2902.5.4.3 Accessibility. At least one of the required bottle filling stations shall be located in accordance with Section 309 ICC A117.1.

2902.6 Small occupancies. This section is not adopted.

2902.8 Dwelling units. Dwelling units shall be provided with a kitchen sink.

2902.9 Water. Each required sink, lavatory, bathtub and shower stall shall be equipped with hot and cold running water necessary for its normal operation.

SECTION 2903—RESERVED.

SECTION 2904—RESERVED.

Table 2902.1
Minimum Number of Required Plumbing Fixtures[a]

(See Sections 2902.2 and 2902.3)

No.	Classification	Occupancy	Description	Water Closets		Lavatories		Bathtubs/ Showers
				Male	Female	Male	Female	
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—
		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—
		A-4	Coliseums, arenas, skating rinks, pools, and tennis courts for indoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for first 80 and 1 per 80 for remainder exceeding 80		—
3	Educational	E[e]	Educational facilities	1 per 35	1 per 25	1 per 85	1 per 50	—
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembling or processing of products or materials	1 per 100		1 per 100		Check State (UPC)
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8
		I-2	Hospitals, ambulatory nursing home care recipient[b]	1 per room[c]		1 per room[c]		1 per 15
			Employees, other than residential care[b]	1 per 25		1 per 35		—

No.	Classification	Occupancy	Description	Water Closets		Lavatories		Bathtubs/ Showers
				Male	Female	Male	Female	
			Visitors other than residential care	1 per 75		1 per 100		—
		I-3	Prisons[b]	1 per cell		1 per cell		1 per 15
			Reformatories, detention centers and correctional centers[b]	1 per 15		1 per 15		1 per 15
			Employees[b]	1 per 25		1 per 35		—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8
			Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit
		R-3	One- and two-family dwellings	1 per dwelling unit		1 per 10		1 per dwelling unit
			Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100		1 per 100		Check State (UPC)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code, except with respect to Group E occupancies the provisions of note "e" shall apply.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For Group E occupancies: The number of occupants shall be determined by using a calculation of 100 square feet gross building area per student for the minimum number of plumbing fixtures.

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AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-3004 ((~~Section 3004—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-3004, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-3004, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-3004, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-3101 Section 3101—General.

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, towers ((~~and~~)), antennas, relocatable buildings, swimming pool enclosures and safety devices, ((~~and~~)) solar energy systems and fixed guideway transit and passenger rail systems, public use restroom buildings on publicly owned lands in flood hazard areas, intermodal shipping containers.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-3101, filed 12/12/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-02-038, filed 12/26/18, effective 7/1/19)

WAC 51-50-3102 ((~~Section 3102 Membrane structures.~~)) Reserved.

((~~**3102.3 Type of construction.** Noncombustible membrane structures shall be classified as Type II-B construction. Noncombustible frame or cable-supported structures covered by an *approved* membrane in accordance with Section 3102.3.1 shall be classified as Type II-B construction. Heavy timber frame-supported structures covered by an *approved* membrane in accordance with Section 3102.3.1 shall be classified as Type IV-HT construction. Other membrane structures shall be classified as Type V construction.~~

~~EXCEPTION: Plastic less than 30 feet (9144 mm) above any floor used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers is not required to meet the fire propagation performance criteria of Test Method 1 or 2, as appropriate, of NFPA 701.~~

~~**3102.6.1.1 Membrane.** A membrane meeting the fire propagation performance criteria of Test Method 1 or 2, as appropriate, of NFPA 701 shall be permitted to be used as the roof or as a skylight on buildings of Type II-B, III, IV-HT and V construction, provided that the membrane is not less than 20 feet (6096 mm) above any floor, balcony or gallery.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-02-038, § 51-50-3102, filed 12/26/18, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-3103 Temporary structures.

3103.1 General. The provisions of this section shall apply to structures erected for a period of less than ((~~one hundred eighty~~)) 180 days. ((~~Tents~~)) Special event structures, tents, umbrella structures and other membrane structures erected for a period of less than ((~~one hundred eighty~~)) 180 days shall also comply with the *International*

Fire Code. Those erected for a longer period of time shall comply with applicable sections of this code.

EXCEPTION: The building official may authorize unheated tents and yurts under five hundred square feet accommodating an R-1 Occupancy for recreational use as a temporary structure and allow them to be used indefinitely.

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-3103, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-3114 ((~~Section 3114—Fixed guideway transit and passenger rail systems.~~)) Reserved. ((~~Construction of fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130, standard for fixed guideway transit and passenger rail systems.~~

~~3114.1 Means of egress.~~ ~~The means of egress for fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130-17.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-3114, filed 12/12/19, effective 7/1/20.]

NEW SECTION

WAC 51-50-3116 Section 3116—Fixed guideway transit and passenger rail systems.

3116.1 Construction. Construction of fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130-2020, standard for fixed guideway transit and passenger rail systems, as modified in Section 3116.2.

3116.2 Modifications to NFPA 130.

5.2.2.1 Building construction for stations shall be in accordance with Table 5.2.2.1 based upon station configuration.

5.2.2.2 Construction types shall conform to the requirements in IBC Chapter 6, unless otherwise exempted in this section.

Table 5.2.2.1
Minimum Construction Requirements for New Station Structures

Station Configuration	Construction Type†
Stations erected entirely above grade and in a separate building:	
Open stations	Type IIB
Enclosed stations	Type IIA
Stations erected entirely or partially below grade:	
Open above grade portions of below grade structures*	Type IIA

Station Configuration	Construction Type†
Below grade portions of structures	Type IB
Below grade structures with occupant loads exceeding 1000	Type IA

* Roofs not supporting an occupancy above are not required to have a fire resistance rating.
† Construction types are in accordance with the IBC.

5.2.4.3 Ancillary spaces. Fire resistance ratings of separations between ancillary occupancies shall be established as required for accessory occupancies and incidental uses by the IBC and in accordance with ASTM E119 and ANSI/UL 263.

5.2.5.4 Materials used as interior finish in open stations shall comply with the requirements of IBC, Chapter 8.

5.3.1* General.

5.3.1.1 The provisions for means of egress for a station shall comply with IBC, Chapter 10, except as herein modified.

5.3.2 Occupant load.

5.3.2.1 The occupant load for a station shall be based on the train load of trains simultaneously entering the station on all tracks in normal traffic direction plus the simultaneous entraining load awaiting trains.

1. The train load shall consider only one train at any one track, inside a station.

2. The basis for calculating train and entraining loads shall be the peak period ridership figures as projected for design of a new system or as updated for an operating system.

5.3.2.2* For station(s) servicing areas such as civic centers, sports complexes, and convention centers, the peak ridership figures shall consider events that establish occupant loads not included in normal passenger loads.

5.3.2.2.1 Where station occupancy is anticipated to be greater than design capacity during a major event the operating agency shall initiate approved measures to restrict access to the station, when required by the fire code official, to ensure existing means of egress are adequate as an alternate to account for peak ridership associated with major events.

5.3.2.3 At multilevel, multiline, or multiplatform stations, occupant loads shall be determined as follows:

1. The maximum occupant load for each platform shall be considered separately for the purpose of sizing the means of egress from that platform.

2.* Simultaneous loads shall be considered for all egress routes passing through each level of that station.

5.3.2.4 Where an area within a station is intended for use by other than passengers or employees, the following parameters shall apply:

1. The occupant load for that area shall be determined in accordance with the provisions of the IBC NFPA 101 as appropriate for the use.

2. The additional occupant load shall be included in determining the required egress from that area.

3. The additional occupant load shall be permitted to be omitted from the station occupant load where the area has independent means of egress of sufficient number and capacity.

5.3.3.4 Travel distance. For open stations the maximum travel distance on the platform to a point at which a means of egress route leaves the platform shall not exceed 100 m (325 ft). For enclosed stations the travel distance to an exit shall not exceed 76 m (250 ft).

5.3.5 Stairs and escalators.

5.3.5.1 Stairs and escalators permitted by Section 5.2.4.1 to be unenclosed shall be permitted to be counted as contributing to the egress capacity in stations as detailed in Sections 5.2.2 and 5.3.3.

5.3.5.2 Stairs in the means of egress shall be a minimum of 1120 mm (44 in.) wide.

5.3.5.3* Capacity and travel speed for stairs and escalators shall be computed as follows:

1. Capacity - 0.0555 p/mm-min (1.41 p/in.-min)

2.* Travel speed - 14.6 m/min (48 ft/min) (indicates vertical component of travel speed)

5.3.5.4 Escalators shall not account for more than one-half of the egress capacity at any one level.

5.3.5.6* In calculating the egress capacity of escalators, the following criteria shall be met:

1. One escalator at each level shall be considered as being out of service.

2. The escalator chosen shall be the one having the most adverse effect upon egress capacity.

5.3.5.7 Where escalators are permitted as a means of egress in stations, the following criteria shall be met:

1.* The escalators shall be constructed of noncombustible materials.

2.* Escalators running in the direction of egress shall be permitted to remain operating.

3. Escalators running reverse to the direction of egress shall be capable of being stopped locally and remotely as follows:

a. Locally by a manual stopping device at the escalator.

b. Remotely by one of the following:

i. A manual stopping device at a remote location.

ii. As part of a preplanned evacuation response.

4.* Where provision is made for remote stopping of escalators counted as means of egress, one of the following shall apply:

a. The stop shall be delayed until it is preceded by a minimum 15-second audible signal or warning message sounded at the escalator.

b. Where escalators are equipped with the necessary controls to decelerate in a controlled manner under the full rated load, the stop shall be delayed for at least 5 seconds before beginning deceleration, and the deceleration rate shall be no greater than 0.052 m/sec^2 (0.17 ft/sec^2).

5. Where an audible signal or warning message is used, the following shall apply:

a. The signal or message shall have a sound intensity that is at least 15 dBA above the average ambient sound level for the entire length of the escalator.

b. The signal shall be distinct from the fire alarm signal.

c. The warning message shall meet audibility and intelligibility requirements.

5.3.7* Doors, gates, security grilles, and exit hatches.

5.3.7.1 The egress capacity for doors and gates in a means of egress serving public areas shall be computed as follows:

1. Sixty people per minute (p/min) for single leaf doors and gates.

2.* 0.0819 p/mm-min (2.08 p/in.-min) for bi-parting multileaf doors and gates measured for the clear width dimension.

5.3.7.2 Gates in a means of egress shall be designed in accordance with the requirements for doors serving as a means of egress.

5.3.7.2.1 Security grilles are allowed when designed and operated in accordance with the IBC.

5.3.7.3 Where used, exit hatches shall comply with the requirements of Sections 6.3.3.15 through 6.3.3.17.

5.3.9* Horizontal exits. Horizontal exits shall comply with IBC Section 1026.

5.3.11 Means of egress lighting.

5.3.11.1 Illumination of the means of egress in stations, including escalators that are considered a means of egress, shall be in accordance with IBC Section 1008.

5.3.11.2 Means of egress, including escalators considered as means of egress, shall be provided with a system of emergency lighting in accordance with IBC Section 1008

5.3.11.3 In addition to the requirements of Sections 5.3.11.1 and 5.3.11.2:

1. Lighting for stairs and escalators shall be designed to emphasize illumination on the top and bottom steps and landings.

2. Where newel- and comb-lighting is provided for escalator steps, such lighting shall be on emergency power circuits.

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AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-3304 ((~~Section 3304—Site work.~~)) Reserved.

((~~**3304.2 Fire watch during construction.** Where required by the fire code official, a fire watch shall be provided during nonworking hours for new construction that exceeds 40 feet (12,192 mm) in height above the lowest adjacent grade.~~

~~EXCEPTIONS: 1. New construction that is built under the IRC.~~
~~2. New construction less than 5 stories and 50,000 square feet per story.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, § 51-50-3304, filed 2/23/21, effective 3/26/21; WSR 20-01-090, § 51-50-3304, filed 12/12/19, effective 7/1/20.]

NEW SECTION

WAC 51-50-3314 Section 3314—Fire watch during construction.

3314.1 Fire watch during construction. Where required by the fire code official, a fire watch shall be provided during nonworking hours for new construction that exceeds 40 feet (12,192 mm) in height above the lowest adjacent grade.

EXCEPTIONS: 1. New construction that is built under the IRC.
2. New construction less than 5 stories and 50,000 square feet per story.

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AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-3401 ((~~Section 3401—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-3401, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-3401, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-3401, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-3404 ((~~Section 3404—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-3404, filed 1/19/16, effective 7/1/16; WSR 10-03-097, § 51-50-3404, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-3410 ((~~Section 3410—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-3410, filed 1/19/16, effective 7/1/16; WSR 10-03-097, amended and recodified as § 51-50-3410, filed 1/20/10, effective 7/1/10; WSR 04-01-108, § 51-50-3408, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-3411 ((~~Section 3411—~~))Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-3411, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-3411, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, amended and recodified as § 51-50-3411, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-3409, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-3409, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-3500 Chapter 35—Referenced standards. Add the reference standards as follows:

Standard reference number	Title	Referenced in code section number
((~~ANSI/APA PRG-320-18~~	~~Standard for Performance-Rated Cross-Laminated Timber (revised 2018)~~	~~602.4, 2303.1.4~~))
NFPA ((~~130-17~~)) 130-20	Standard for Fixed Guideway Transit and Passenger Rail Systems	3101.1, ((~~3114~~)) 3116

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-3500, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-3500, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-3500, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-3500, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-3500, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-4700 ((~~Appendix D—Fire districts.~~)) Appendix P—Construction and demolition material management.

((~~**D102.2.5 Structural fire rating.** Walls, floors, roofs and their supporting structural members shall be not less than 1 hour fire-resistance-rated construction.~~

~~EXCEPTIONS: 1. Buildings of Type IV-HT construction.~~
~~2. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~
~~3. Automobile parking structures.~~
~~4. Buildings surrounded on all sides by a permanently open space of not less than 30 feet (9144 mm).~~
~~5. Partitions complying with Section 603.1, Item 11.~~))

P101 General

P101.1 Purpose. The purpose of this code is to increase the *reuse* and *recycling* of construction and *demolition* materials.

P101.2 Scope. This code applies to new *building* construction, *alterations to existing buildings* and the *demolition of existing buildings* having a work area greater than 750 square feet or a project value greater than $75,000, whichever is more restrictive.

EXCEPTION: Projects determined to be unsafe pursuant to Section 116.

P102 General definitions.

Demolition. The process of razing, relocating, or removing an existing *building or structure*, or a portion thereof.

Divert, diverted, or diversion. The reuse, recycling, or beneficial use of construction and *demolition* materials.

Recycling. The process of transforming or remanufacturing waste materials into useable or marketable materials for use other than landfill disposal, combustion, or incineration.

Reuse. The return of a material into the economic stream for use.

Salvage. The recovery of construction and *demolition building* material and components from a *building or site* in order to increase the reuse or repurpose potential of these materials and decrease the amount of material being sent to the landfill. Salvaged material may be sold, donated, or reused on *site.*

P103 Construction and demolition material management.

P103.1 Collection containers. All *sites* where *recyclable* construction and *demolition* materials are generated and transported for *recycling* must provide a separate container for nonrecyclable materials pursuant to WAC 173-345-040.

P103.2 Salvage assessment. A *salvage* assessment shall be submitted prior to permit issuance. The salvage assessment shall identify the building components of an existing building that, if removed, have the potential to be reused. This assessment shall be signed by the owner and serve as an affidavit stating that the project shall be executed in compliance with the requirements of this code.

EXCEPTION: Projects that include only new construction.

P103.3 Waste diversion report. A waste diversion report shall be submitted prior to issuance of the Certificate of Occupancy. The waste diversion report shall identify the following:

1. Weight or volume of project-generated construction and *demolition* material;
2. Whether the material was disposed in a landfill or *diverted;*
3. The hauler of the material;
4. The receiving facility or location; and
5. The date materials were accepted by the receiving facility or location.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-4700, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-4700, filed 12/26/18, effective 7/1/19.]

WSR 22-02-041
PROPOSED RULES
BUILDING CODE COUNCIL

[Filed December 30, 2021, 10:08 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-07-137.

Title of Rule and Other Identifying Information: Chapter 51-54A WAC, Adoption and amendments of the 2021 International Fire Code (IFC).

Hearing Location(s): On February 11, 2022, at 10:00 a.m., and March 11, 2022, at 10:00 a.m., virtual meeting - Zoom. In response to the governor's emergency proclamation there will not be a physical location. Please access the meeting via Zoom or Conference Phone provided in the agenda.

Date of Intended Adoption: April 15, 2022.

Submit Written Comments to: State Building Code Council (SBCC), 1500 Jefferson Street S.E., Olympia, WA 98504, email SBCC@des.wa.gov, by March 4, 2022.

Assistance for Persons with Disabilities: Contact Annette Haworth, phone 360-407-9255, email SBCC@des.wa.gov, by February 4, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The proposed rules adopt the 2021 edition of IFC, published by the International Code Council (ICC), with state amendments to incorporate proposed changes as adopted by SBCC. The rules will provide increased clarity and life safety measures for building construction in Washington state.

SUMMARY OF PROPOSED CHANGES:

2021 IFC
Amendments to Chapter 51-54A WAC

WAC	Section	Changes in 2018	Discussion
51-54A-003	003	Changed 2018 to 2021.	Editorial change.
51-54A-007	007	Strike The 2018 International Wildland Urban Interface Code. It is included in this code as Section 8200 with amendments found in Appendix Chapter N.	The Wildland Urban Interface code will now be its own code book and removed from the fire code.
51-54A-008	008	Strike February 1, 2021, and replace with new implementation date of July 1, 2023.	Align code language to the new implementation date.
51-54A-0105	105.5.32	Renumbered from 105.6.30 to 105.5.32 to match new model code.	Editorial change.
	105.6.25	Renumbered from 105.7.26 to 105.6.25 to match new model code.	Editorial change.
	105.5.14.1	Adding Lithium batteries. An operational permit is required for an accumulation of more than 15 cubic feet (0.42 m) of lithium-ion and lithium metal batteries, where required by Section 322.1.	A new section for lithium batteries was made. This adds the lithium battery section to the operation permit list.
51-54A-0202	Definitions	Adult family home. Struck Washington and added, state of Washington department of social and health services. It also added, An existing adult family home may provide services to up to eight adults upon approval from the department of social and health services under RCW 70.128.066 and in accordance with section 903 to the definition.	Following a legislative mandate and RCW 70.128.066 for up to eight adults if the building was sprinkled per section 903.
	Definitions	Added: Emergency responder communication enhancement systems.	Adding a defining term to the WAC for clarification in other parts of the code.
	Definitions	Added: Frequency.	Adding a defining term to the WAC for clarification in other parts of the code.
	Definitions	Added: Frequency license holder.	Adding a defining term to the WAC for clarification in other parts of the code.
	Definitions	Added: Frequency license authority.	Adding a defining term to the WAC for clarification in other parts of the code.
	Definitions	Added: Powered micromobility devices.	Adding a defining term to the WAC for clarification in other parts of the code.
	Definitions	Added: Special hazards suppression system.	Adding a defining term to the WAC for clarification in other parts of the code.

WAC	Section	Changes in 2018	Discussion
51-54A-0301	301.0	Added: Permits shall be required as set forth in Section 105.5 for the activities or uses regulated by Sections 306, 307, 308, 315, 320 and 322.	There currently are no specific requirements in the IFC that regulate the storage of lithium-ion and lithiummetal batteries. Lithium-ion and lithium metal batteries can create challenging fire hazards. This includes requirements that regulate the collection and storage of these batteries so as to reduce the probability of an event and mitigate any adverse impact on the affected facility and public safety.
51-54A-302	302.0	Adding Mobile food preparation vehicle and Powered industrial truck to the list.	These two definitions should be added to Section 302.1 since they are used in Chapter 3 and defined in Chapter 2.
51-54A-0308	308.1.4	Struck: Open-flame cooking devices. This section is not adopted.	Model code addresses any need for the current amendment.
	308.1.9	Struck: Fire Code Official, Design, will, and a distance as approved by the Fire Code Official. Added: As approved, Shall.	Matching model code language to align with current state amendment.
51-54A-0314	314.1 314.2 314.3	Language struck out of state amendment.	Language in these three sections was addressed in the model code and could be removed from state amendments.
	314.4	Struck: exceed one-quarter tank or five gallons (19 L) (whichever is least.) Added: Vehicles Language.	This code change is based on recently approved and modified by the ICC fire code committee during the latest hearings. New electric and hybrid vehicles have traditional 12V ignition batteries and main batteries for propulsion. The proposal clarifies the ignition batteries should be disconnected. The main batteries of these vehicles are typically disconnected when the vehicle ignition batteries are disconnected. Because alternative fuels are not broken down in IFC 314.4 Item 2, some officials have required these vehicles to completely purge all fuel out of their tanks when they are located at indoor displays. Doing so may allow oxygen to enter the tank which, when refueled, may create an explosive atmosphere. In addition, for composite tanks, the liner may be damaged if the internal pressure is reduced to zero. This proposal specifies the quantities allowed for each alternative fuel with the energy equivalent of five gallons of Class 1 liquid fuel (gasoline). The addition of ignition batteries is very important particularly with electric vehicles since eventually electric batteries that are the power batteries will probably need to be put into this section as well.
51-54A-0315	315.7.6 (1)	Struck: Separation Distance Between Pallet Stack and Building Table.	Model code matched state amendments, the amendment was no longer needed.
New 51-54A-0321	321.1	Added: Artificial combustible vegetation on roofs and near buildings.	Code change into 2021 IFC did not indicate an issue at one- and two-family dwellings. The exception helps to clarify that this section should not be used by a fire code official for one- and two-family dwellings. The language used in the exception is similar to the exception in 307.4.3.
New 51-54A-0322	322.1	Added: General. The storage of lithium-ion and lithium metal batteries shall comply with Section 322.	There currently are no specific requirements in IFC that regulate the storage of lithiumion and lithiummetal batteries. Lithium-ion and lithium metal batteries can create challenging fire hazards. This includes requirements that regulate the collection and storage of these batteries so as to reduce the probability of an event and mitigate any adverse impact on the affected facility and public safety. The requirements are intended to cover all types of lithium-ion and lithium metal batteries (e.g., new, used, waste, refurbished), used batteries being collected for recycling or disposal, and batteries at recycling and disposal facilities. Details on the proposal are as follows:

WAC	Section	Changes in 2018	Discussion
	322.2	Added: Permits language.	Section 322.1 identifies the threshold quantities of batteries that are regulated by Section 322. As noted in the exceptions, it is not the intent to cover lithium-ion and lithium metal batteries in products, devices or vehicles, in small retail packaging, or the temporary storage of batteries at manufacturing facilities or in transit.
	322.3	Added: A fire safety plan language.	
	322.4	Added: Storage requirement language.	
	322.4.1	Added: Limited indoor storage in containers language.	
	322.4.2	Added: Indoor storage areas language.	
	322.4.2.1	Added: Technical opinion and report language.	
	322.4.2.2	Added: Construction requirements language.	
	322.4.2.3	Added: Fire protection systems language.	
	322.4.2.4	Added: Fire alarm systems language.	
	322.4.2.5	Added: Explosion control language.	
	322.4.2.6	Added: Reduced requirements for storage of partially charged batteries language.	
	322.4.3	Added: Outdoor storage language.	
	322.4.3.1	Added: Distance from storage to exposures language.	
	322.4.3.2	Added: Storage area size limits and separation language.	
	322.4.3.3	Added: Fire detection language.	
New 51-54A-0323	323.1	Added: General language.	
	323.1.1	Added: Prohibited locations.	
	323.2	Added: Battery chargers and equipment.	
	323.3	Added: Listing.	
	323.4	Added: Battery charging areas.	
	323.5	Added: Fire safety plan.	
51-54A-0402	402.0	Definitions added: Emergency evacuation drill and lockdown.	Adding a defining term to WAC for clarification in other parts of the code.
51-54A-0403	403.4.3	403.5 renumbered to 403.4.3.	Editorial change.
	403.9.2	Added: Group R-2 occupancies.	Following a legislative mandate and RCW 70.128.066 for up to eight adults if the building was sprinkled per section 903.
	403.9.2.4	Added: Group R-2 assisted living and residential care facilities.	Following a legislative mandate and RCW 70.128.066 for up to eight adults if the building was sprinkled per section 903.
	403.10.2	Modified reference section numbers to align with code.	Editorial change.
	403.10.3	Renumbered to 403.9.3.	Editorial change.
	403.10.6	Added: Buildings with lithium-ion or lithium metal battery storage.	See WAC 51-54A-0322 discussion.
	403.12.3	Renumbered to 403.11.3 and section reference number changed. 403.12.3.1 to 403.11.3.1 and 403.12.3.3 to 403.11.3.3.	Editorial change.
51-54A-406	406.4	Renumbered to 406.3.4.	Editorial change.
	406.3.4	Renumbered to 406.3.5.	Editorial change.
New 51-54A-0501	501.3.1	Added: Site safety plan.	See WAC 51-54A-3300 description. This was added due to a reference in the new Chapter 33 to this section.
51-54A-0510	510.1	Added: 510.1 Emergency responder communication coverage in new buildings.	When solving the communications coverage issues within a building, it is vital to have a full understanding of the actual public safety communication systems that are being utilized within the coverage area. The frequency license holder of those radio frequencies (RF) must be involved in determining which solution, if any, can be utilized to enhance RF without creating harmful interference. Based on current code language, many people have a false belief that only a bi-directional amplifier should be used when in fact that particular solution may create harmful interference otherwise known as noise on the public-safety macro communications system rendering it inoperable for the entire community and all emergency responders.

WAC	Section	Changes in 2018	Discussion
	510.2	Added: 510.2 Emergency responder communication enhancement system in existing buildings.	The term "radio" was removed in the 2021 IFC and replaced with the term "communications" as there are multiple modulation technologies utilized by emergency responders to communicate during their operations.
	510.3	Added: 510.3 Permit required.	The insertion of the definitions are provided to improve clarity and context. These definitions provide multiple benefits to the users of IFC. The failure to select the proper solution and coordinate the design, installation and maintenance of the solution with the frequency license holder as required by the frequency licensing authority creates a safety issue for anyone needing to operate on those frequencies. The safety of emergency responders and the integrity of the public safety communications system is of upmost importance. Whereby, the frequency license holder(s) and the frequency licensing authority must be involved in the design, installation and maintenance of an ERCES, definitions of those are being provided.
	510.4	Added: 510.4 Technical requirements.	
	510.4.1	Added: 510.4.1 Emergency responder communication enhancement system signal strength.	
	510.4.1.1	Added: in 95 percent of the coverage area and 99 percent in critical areas. And Struck: throughout the coverage area.	
	510.4.2	Added: 510.4.2 System design.	
	510.4.2.1	Added: Amplification systems and components.	
	510.4.2.2	Added: Technical criteria.	
	510.4.2.3	Added: Standby power.	
	510.4.2.4	Modified: IP65 to IP66 and an Exception: Listed battery systems that are contained in integrated battery cabinets. #5 language deleted and added: Bi-Directional Amplifiers (BDA) used for in-building, emergency responder communication enhancement systems shall be fitted with anti-oscillation detection and control circuitry and per-channel AGC. Added: #7 Only channelized signal boosters shall be permitted. Exception: Broadband BDAs may be utilized when specifically authorized in writing by the frequency license holder.	
	510.4.2.5	Added: System monitoring.	
	510.4.2.6	Added: Additional frequencies and change of frequencies.	
	510.4.2.7	Added: Design documents.	
	510.4.2.8	Added: Radio communication antenna density.	
	510.5	Added: Installation requirements.	
	510.5.1	Added: Mounting of the donor antennas.	
	510.5.3	Modified to: Minimum qualifications of personnel.	
	510.5.4	Renumbered: Acceptance test procedure. Changed from radio coverage to communication enhancement system. Struck: not less than 95 percent. Added new language on floor areas. Item #3 added signal strength per floor #4. Added requirements for talk back testing #5. Added Failure of more than one five percent of the test areas on any floor shall result in failure of the test. #11 added Documentation maintained on premises.	
	510.5.5	Struck old language and add FCC compliance language.	
	510.5.6	Added: Wiring language.	
	510.5.7	Added: Identification signs language.	
	510.6	Added: Maintenance language.	
	510.6.1	Modified to align with model code language.	
	510.6.1.1	Added: Alternative in-building coverage test.	
	510.6.2	Added: Additional frequencies.	
	510.6.3	Added: Nonpublic safety systems.	
	510.6.4	Added: Field testing.	
51-54A-0605	605.4.1.1	Added: approval outdoor language.	UL 142A is a listing standard for "Special Purpose Aboveground Tanks for Specific Flammable or Combustible Liquids," and tanks listed to this standard are sometimes used as generator base or day tanks. Tanks listed to this standard are recognized by NFPA 30 in the 2021 edition.
	605.5.2.1	Added: approval indoor language.	
	605.4.2.2	Added: Quantity limits language.	
51-54A-606	606.0, 606.2, 606.2.1, 606.2.1(table), 606.3	Formerly Section 607.0 renumbered to 606.	Renumbered to match the model code sections.
51-54A-607		Reserved. Moved and renumbered to Chapter 606.	Moved and renumbered to match model code.

WAC	Section	Changes in 2018	Discussion
51-54A-701		Reserved. Struck state amendment.	In model code. Amendment not needed.
51-54A-901	901.4.2	Added: and life safety systems to title.	Matching model code language.
51-54A-903	903.2.1.3	Added: group A-3 occupancies and language.	Added to correlate with new amendment in Chapter 49.
	903.2.1.7	Struck amendment.	Covered in another part of the amendment. Not needed.
	903.2.3	Renumbered reference table 1004.1 to 1004.5.	Editorial change.
	903.2.6.1	Renumbered reference table 1004.1 to 1004.5.	Editorial change.
	903.2.7	Added a #4 condition.	Correlating sale of upholstered furniture or mattresses exceeding 5000 square feet with other parts of the state amendment that were struck.
	903.2.9	Struck amendment.	Covered in 903.2.7.
	903.2.9.3	Struck amendment.	
	903.2.8.5	Added: Adult family home.	Increase in occupant load if sprinkled.
	903.2.11.2	Added: Commercial cooking operations section.	Exception added clarifying language to ductwork protection.
	903.2.11.6	Add lithium batteries to table.	Lithium batteries added to table to align with Section 321.2.
	903.3.1.2	Added: NFPA 13R sprinkler systems.	Clarifying model code language to align with International Building Code (IBC).
	903.3.5.3	Added: Underground portions of fire protection system water supply piping exceptions.	Exceptions added pointers to model code and provide a minimum nominal diameter for water mains.
51-54A-904	904.1.1	Renamed Certification of service personnel for alternative fire-extinguishing equipment and added exception.	Editorial changes to the body of the code and added an exception that allowed ICC/ NAFED certification for pre-engineered kitchen fire extinguishing systems in lieu of NICET II cert.
	904.1.1.1	Old language struck and design language added.	Language was added to align with Section 904 changes.
	904.1.1.2	Old language struck and installation language added.	
	904.1.1.3	Old language struck and testing and maintenance added.	Language was added to comply with a legislative house bill mandate.
	904.13	Old language struck and new language added.	New language was added to align with model code and other sections of the Washington state amendments. Reference standards were updated to the most current adopted standard.
51-54A-907	907.2.11.1 – 907.2.11.2	Language for smoke alarms added to group R-1, R-2, R-3, and I-1.	Smoke detector language added to clarify locations for tiny homes and loft construction.
51-54A-909	909.21.12 & 909.21.13	Hoistway venting and machine rooms added.	Editorial change. These were added to align with IBC.
51-54A-913	913.2.1	Protection of fire pump rooms and access added enclosed passageway and stairways.	Providing more options by adding the NFPA 20 Section 4.14.2.1.2.
51-54A-915	915.1	Struck General.	Covered model code and other amendments.
	915.2.2	Struck Sleeping Units.	
	915.5.1	Added: General.	Language replaced Section 915.1.
	915.5.2	Added: Location.	Aligning amendment with NFPA 72.
	915.5.6	Added: Maintenance.	
51-54A-918	918.2	Power source struck 4.4 and replaced with 10.6.	Editorial.
	918.4.2	Fire Alarm System struck Section 6.8.4 replaced with 23.8.4.	
	918.5	Audibility updated section to 18.4.1 and struck a portion of the exception.	
51-54A-1003	1003.7	Added: exception for fixed guideway transit.	Correlation with the new Chapter 49 and Adding exceptions.
New 51-54A-1004	1004.5	Added: areas without fixed seating.	
	1004.5.1	Added: Increased occupant load.	
	Table 1004.5	Added: Billiard table/Game table, Fixed guideway transit and passenger rail systems platform.	
New 51-54A-1006	1006.2.1	Added: Egress based on occupant load and common path of egress travel distance.	
	1006.2.1.1	Added: Three or more exits or exit access doorways.	
51-54A-1008	1008.2.3	Exit Discharge.	Editorial. Correlating with IBC.

WAC	Section	Changes in 2018	Discussion
51-54A-1009	1009.8.1	Added: That provides two-way communication with an approved supervising station or 9-1-1.	Modifying amendment to align with model code.
51-54A-1010	1010.2.4	Renumbered.	Aligning section number to the model code and correlating language with IBC amendment.
	1010.2.14	Renumbered.	Aligning section number to the model code.
	1010.1.10	Struck.	Covered in the model code.
	1010.2.2.4.1	Renumbered.	Matching the model code.
	1010.3.4	Added: security grills.	Correlation with the new Chapter 49.
	1010.3.4.1	Added: Fixed transit and passenger rail systems.	
New 51-54A-1019	1019	Added: Exit access stairways and ramps.	Added to IFC to align language with IBC.
51-54A-1020	1020.6	Renumbered from 1020.5.	Editorial to match model code.
New 51-54A-1023	1023.12	Added: smokeproof enclosures.	Correlating with new amendments from Chapter 4 and IBC.
51-54A-1103	1103.2	Added: Emergency responder communication enhancement in existing buildings.	Needed in Chapter 11 to address amended changes to Chapter 5.
	1103.5.6	Renumbered: Nightclubs.	Editorial to match the model code.
	1103.9	NFPA 720 2015 struck replaced with 72.	Updated to current reference standard.
51-54A-1104	1104.1	Struck: Section 1030 and replaced with 1031.	Editorial to match model code.
51-54A-1204	1204.1 - 1204.6	Reserved.	Code section moved in model code.
New 51-54A-1205	1205.1 - 1205.6	Renumbered.	Editorial section numbering to align with model code.
New 51-54A-1207	1207.1.4	Adding hazards mitigation analysis.	Provides guidance when using the new lithium battery sections of the code.
New 51-54A-2404	2404.2.1 - 2404.3.5	New amendment for spray finish enclosures.	Adding safety and reference standards to membrane enclosures for spray finishing.
New 51-54A-3303 thru 51-54A-3312	3303.1.1 - 3312.1	Struck old language and replaced with more clarifying and enforceable language.	2021 code language had editorial mistakes. New language is from the ICC approved 2024 IFC language.
51-54A 3601	3601.3	Struck 105.6 added 105.5.	Editorial.
51-54A-3604	3604.2	Added: boatyards. Deleted outlets and replaced with hose connection.	Editorial.
	3604.4	Deleted outlets, added hose connection, added portable to fire extinguishers.	Editorial.
51-54A-3900	3901.1 - 3903.5.2	Deleted and reserved.	Covered in model code.
51-54A-3904	NA	Deleted Systems and equipment from reserved title.	Editorial.
New 51-54A-4900	4901.1 - 4901.17	Section moved to Chapter 49 and new reference standard NFPA 130 added.	Updated reference standards and chapter renumbering as to not conflict with the model code.
51-54A-5003	Table 5003.11.1	Deleted and reserved.	Covered in the model code.
51-54A-8000	Referenced standards	NFPA 13-19 - Removed 9.3.6.3(5).	Sprinklers in elevator pit were deemed unnecessary.
		NFPA 33 added membrane enclosures and updated 96-07 to 96-21.	Editorial.
		UL 142A-2018 added section for above ground tanks.	Editorial.
		UL 2272-2016 added Electrical Systems for Personal E-Mobility Devices.	Reference for new amendment.
		UL2849-2020 Electrical Systems for eBikes.	
51-54A-8200	ALL	Deleted and reserved.	The state is adopting the Urban International Wildland Code and the amendments will be modified and put in the new code.

* Note: Those not listed on the table above remain as adopted in 2018.

Reasons Supporting Proposal: RCW 19.27.031 and 19.27.074.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074.

Statute Being Implemented: RCW 19.27.031, 19.27.074.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: SBCC, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Ray Shipman, 1500 Jefferson Street S.E., Olympia, WA 98504, 360-407-8047; Enforcement: Local jurisdictions having authority.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Stoyan Bumbalov, 1500 Jefferson Street S.E., Olympia, WA 98504, phone 360-407-9277, email SBCC@des.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule; and rule content is explicitly and specifically dictated by statute.

The proposed rule does impose more-than-minor costs on businesses. There are costs imposed by the proposed rules, but the costs do not fall disproportionately on small businesses. These rules will not affect the distribution of impacted work, whether by small businesses or not, doing the work. The rules do not affect employment, reporting, or recordkeeping.

Small Business Economic Impact Statement (RCW 19.85.040)

Description: SBCC is filing a proposed rule to adopt the updated 2021 edition of IFC (chapter 51-54A WAC). Since 1985, SBCC has been responsible to update to new editions of the building code per RCW 19.27.074. IFC is updated every three years by ICC. The code development process conducted by the model code organization is open to all interest groups within the design and construction industry and from governmental organizations. See ICC website for more information about the model code development process.

The administrative compliance requirements are under the authority of the local government, RCW 19.27.050. Compliance activities including permit issuance, plan review and approval, and inspections occur at the local level. Requirements for construction document submittal and other reporting requirements are determined by the local jurisdiction and are consistent with previously established policies. The proposed amendments to chapter 51-54A WAC include specific technical requirements for building construction to be consistent with national standards.

Professional Services: Washington has had a statewide building code in effect since 1974. The local enforcement authority having jurisdiction administers the codes through the building and/or fire departments. Administrative procedures for state building code compliance are established and will not be changed by the adoption of the update to the current building codes. Small businesses will employ the same types of professional services for the design and construction of buildings and systems to comply with the state building code.

The proposed rule updates the state building code and does not require additional equipment, supplies, labor, or other services.

Services needed to comply with the building code are existing within the construction industry as required by the local authority having jurisdiction.

Costs of Compliance for Businesses: SBCC is required to adopt and maintain the state building code, as provided in chapters 19.27, 19.27A, and 70.92 RCW, and the state legislature. The primary objective of SBCC is to encourage consistency in the building code throughout the state of Washington and to maintain the building code consistent with the state's interest as provided in RCW 19.27.020. An objective of statewide adoption is to minimize state amendments to the model codes. SBCC accepts statewide code amendment proposals from stakeholders to amend IFC to meet the legislative goals. The statewide code adoption process is defined in chapter 51-04 WAC and SBCC bylaws. All proposals must be submitted in writing on the appropriate form with the indicated supporting documentation. Each proponent must identify where a proposed amendment has an economic impact and estimate the costs and savings of the proposal on construction practices, users and/or the public, the enforcement community, and operation and maintenance.

The cost of compliance incurred by Washington businesses includes training and educational materials. IFC 2021 model codes cost $111 + tax, shipping, and handling. This publication is also available on ICC website. ICC offers training for continuing education credits to architects, engineers, and building inspectors.

For the 2021 code adoption cycle, SBCC received 51 proposals. IFC technical advisory group (TAG) recommended approval of 50 proposals as submitted or as modified. One proposal was recommended **not** for approval. Eight proposals were withdrawn by the proponent. Eight proposals were identified by the TAG as having a cost (increase or decrease) for compliance on businesses. SBCC recommended filing the proposed rule to allow input through the public hearing process.

1. Section IFC 3303.5 (21-GP1-019): This proposal adds an exception to Section 3303.5 Fire safety requirements for buildings of Types IV-A, IV-B and IV-C construction. The added Exception 2 will eliminate the need for noncombustible protection on the top surface of mass timber floor assemblies before erecting additional floor levels. Oral testimony from a fire protection engineer in support of the proposal at the committee action hearings also stated that protecting the top surface of floors is not necessary, from a fire standpoint. Heat travels upward, so the floor surface does not have the same exposure as vertical surfaces or ceilings above. This proposal will **decrease** the cost of construction for taller mass timber buildings by increased efficiency of construction sequencing and reduced construction time.

2. Section 903.3.1.2 (21-GP1-020): Undoes a change that was made to 2021 IFC and IBC (FS117-18), returning the language in the section to the 2018 text, and aligns the code with the scoping provisions of NFPA 13R. The 2021 change unnecessarily limits the applicability of NFPA 13R systems, particularly for podium buildings, triggering a requirement for a full NFPA 13 system in more buildings. If adopted by SBCC, the 2021 IFC/IBC requirement would decrease affordability for residential construction, since a full NFPA 13 system would be required in shorter buildings. The new proposal will **decrease** construction cost.

According to a November 2020 article on the National Fire Sprinkler Association website:

• The National Multifamily Housing Council members estimate a NFPA 13 system costs "an average of $1 to $2 more per square foot than NFPA 13R."

• "NFPA Journal notes that installing an NFPA 13 system can cost four to six times more than an NFPA 13R system and include a four to six times greater construction turnaround time."

3. Section 105 and 301.2 and new 321322.1 through 321322.4.3.3, 403.10.6 and revision to table 903.2.11.6. Lithium batteries (21-GP1-023): There currently are no specific requirements in IFC that regulate the storage of lithium-ion and lithium metal batteries. Lithium-ion and lithium metal batteries can create challenging fire hazards. This proposal includes requirements that regulate the collection and storage of these batteries so as to reduce the probability of an event and mitigate any adverse impact on the affected facility and public safety. The requirements are intended to cover all types of lithium-ion and lithium metal batteries (e.g., new, used, waste, refurbished), used batteries being collected for recycling or disposal, and batteries at recycling and disposal facilities. The proposal has the potential to **increase** the costs associated with the collection and storage of these batteries. One hour of plan review and one hour of inspection time is estimated per permit application.

4. *Chapter 80, Reference* Standards (21-GP1-035): The requirement for fire sprinklers in elevator pits produces a cost of approximately $10,000-$15,000 as well as maintenance of the system and associated devices. The removal of this requirement will result in a **decreased** construction cost for a system that has a marginal effect on the life safety improvement in the building. The cost for the shunt trip is approximately $6,000-$10,000. Relays are about $350 each, and monitoring modules are about $500 each. Including wiring, label and markup, the cost is approximately $10,000-$15,000 to install an elevator shunt trip. There are additional costs to install heat detection for operating the shunt trip at the top of shaft and elevator equipment room of around $2,000-$3,000 depending upon the building. Fire sprinklers would also need to be provided to meet NFPA 13 at a cost of $2,000-$5,000 depending upon the building. This is a conservative projection of the cost, and it could be more or less depending upon the particular building.

5. Chapter 2 Definitions, Sections: 902, 904.1.1, 904.1.1.1, 904.1.1.2, 904.1.1.3 (21-GP1-050): This proposal is an existing Washington state amendment with proposed changes to align certifications for not only service personnel, but designers and installers as well. The proposed amendment utilizes nationally recognized NICET certifications for Special Hazards Suppression Systems which encompasses NFPA 11, 12, 12A, 13, 16, 17, 17A, 25, 70, 72, 68, 69, 750, and 2001. This proposed amendment also aligns with NICET certifications for Section 903 "Automatic Sprinkler Systems" and Section 907 "Fire Alarm and Detection Systems." The exception allows current ICC/NAFED certification holders to continue to provide installation and service to Kitchen Fire Suppression systems which was originally the intent of this Washington state amendment. The proposal also includes a new definition for Special Hazards Suppression Systems. This code clarification would bring consistency across all jurisdictions and will result in an **increased** cost. Level 1 application cost: $230.00, 140 minute exam time limit. Level 2 application cost: $300.00, 170 minute exam time limit. Total labor to achieve level 2 = 5.2 hours, Our average technician wage is $38.00 per hour. The total would be approximately $727.60 per employee needing certification.

6. Sections IFC 1207.1.4 Hazard Mitigation Analysis (21-GP1-071): This proposal adds a condition #4 to 1207.1.4. *(Where flammable gases can be produced under abnormal conditions.)* Recent editions and revisions to IFC and NFPA 855 are adding a situation that would trigger an hazard mitigation analysis (HMA) in addition to the three currently listed. Specifically, an HMA shall be required when an energy story systems battery technology emits flammable gases during abnormal conditions. This provision will require system designers to carefully consider the hazards specific to lithium-ion battery technology. The economic impact will be increased due to the cost of services for the analysis and will scale with the complexity and size of the system. This mitigation analysis for lithium batteries is new and an accurate cost is impossible at this time to formulate.

7. Sections IFC 903.2.1.3 and 4901.1, Chapter 10 (various sections) (21-GP1-068), (21-GP1-075): The code proposals are addressing fixed guideway and passenger rail systems. Proposal 21-GP1-068 is intended to correlate IBC/IFC requirements for fire protection to NFPA 130 requirements. The primary purpose is to clarify the requirements for fire protection at open stations. IFC Chapter 9 requires fire protection in Group A3 occupancies and levels from the Group A3 occupancy to the level of exit discharge. However, for open stations, NFPA 130 only requires fire protection in areas with combustible loading. The code and standard are in conflict, but pursuant to Chapter 1 of IFC, the code language prevails. Some jurisdictions have required fire protection at the platform level and at the plaza level while others have not. This code clarification would bring consistency across all jurisdictions and will result in **significant decrease** in building cost. For justification, the proponent uses an estimate for elevated station in design in North Seattle, which shows a **significant decrease** in building costs of $225,348. Proposal 21-GP1-075 is drawn from NFPA 130 amendments by the City of Bellevue and the City of Seattle for means of egress for light rail stations. The intent is to provide clarity for more consistent application of IFC and NFPA 130 in the future as light rail service expands and extends into new jurisdictions. The proposal clarifies conflicts between IFC and NFPA 130; there is no associated cost with the adoption.

Loss of Sales or Revenue: The proposed rules make the state code for building construction consistent with national standards. Businesses with new products or updated test or design standards are recognized in the updated building code.

The update will result in some cost outlay for some small businesses for specific building projects for a transition period. Other small businesses would see an increase in revenue. The amendments to the fire code affect over 25,000 small businesses in the state where construction activity occurs. The primary intent of the amendments is to improve the safety features in buildings and provide consistency and fairness across the state for a predictable business environment. The amendments should result in enhanced safety and value in buildings.

Cost of Compliance for Small Businesses: Determine whether the proposed rule will have a disproportionate cost impact on small businesses, compare the cost of compliance for small business with the cost of compliance for the 10 percent of businesses that are the largest businesses.

The majority of businesses affected by the updates to the fire code are small businesses; over 95 percent of those listed in the construction and related industries have under 50 employees. The costs

per employee are comparable between the largest businesses and the majority of small businesses. The cost to comply with the updated codes is not a disproportionate impact on small business.

Reducing the Costs of the Rule on Small Businesses: SBCC conducted a detailed review process, including participation at the national code development hearings, to document significant economic impacts of the proposed code amendments.

Small Businesses Involved in the Development of the Rule: For IFC, SBCC conducted five open public meetings of the building code technical advisory group, available via telephone conference bridge and over the internet, and allowed comment on every item on every agenda. For IFC, SBCC appointed 11 representatives of all segments of the business and construction community to serve on the technical advisory groups.

List of Industries: Below is a list of industries required to comply with the building code:

Note: Data is blank in some fields to protect data source.
Data Source: Economic Census of the United States.

2017 Industry NAICS Code	NAICS Code Title	Minor Cost Estimate	1% of Avg Annual Payroll	0.3% of Avg Annual Gross Business Income
236115	New Single-Family Housing Construction (except For-Sale Builders)	$2,508.04	$1,919.03 2020 Dataset pulled from USBLS	$2,508.04 2020 Dataset pulled from DOR
236116	New Multifamily Housing Construction (except For-Sale Builders)	$32,067.43	$17,160.94 2020 Dataset pulled from USBLS	$32,067.43 2020 Dataset pulled from DOR
236118	Residential Remodelers	$1,457.74	$1,457.74 2020 Dataset pulled from USBLS	$901.20 2020 Dataset pulled from DOR
236210	Industrial Building Construction	$59,169.45	$59,169.45 2020 Dataset pulled from ESD	$53,925.71 2020 Dataset pulled from DOR
236220	Commercial and Institutional Building Construction	$41,552.81	$18,126.81 2020 Dataset pulled from ESD	$41,552.81 2020 Dataset pulled from DOR
238110	Poured Concrete Foundation and Structure Contractors	$3,442.28	$5,027.07 2019 Dataset pulled from CBP	$3,442.28 2020 Dataset pulled from DOR
238120	Structural Steel and Precast Concrete Contractors	$15,401.97	$20,212.19 2019 Dataset pulled from CBP	$15,401.97 2020 Dataset pulled from DOR
238130	Framing Contractors	$2,234.30	$3,139.71 2019 Dataset pulled from CBP	$2,234.30 2020 Dataset pulled from DOR
238140	Masonry Contractors	$1,900.60	$3,582.13 2019 Dataset pulled from CBP	$1,900.60 2020 Dataset pulled from DOR
238150	Glass and Glazing Contractors	$5,255.36	$9,574.95 2019 Dataset pulled from CBP	$5,255.36 2020 Dataset pulled from DOR
238160	Roofing Contractors	$3,589.99	$5,007.86 2019 Dataset pulled from CBP	$3,589.99 2020 Dataset pulled from DOR
238170	Siding Contractors	$1,905.61	$2,485.86 2019 Dataset pulled from CBP	$1,905.61 2020 Dataset pulled from DOR

238190	Other Foundation; Structure; and Building Exterior Contractors	$4,622.07	$4,141.38 2019 Dataset pulled from CBP	$4,622.07 2020 Dataset pulled from DOR
238210	Electrical Contractors and Other Wiring Installation Contractors	$5,941.60	$9,599.33 2019 Dataset pulled from CBP	$5,941.60 2020 Dataset pulled from DOR
238220	Plumbing; Heating; and Air Conditioning Contractors	$5,353.76	$11,047.00 2019 Dataset pulled from CBP	$5,353.76 2020 Dataset pulled from DOR
238290	Other Building Equipment Contractors	$4,335.21	$16,142.07 2019 Dataset pulled from CBP	$4,335.21 2020 Dataset pulled from DOR
238310	Drywall and Insulation Contractors	$3,725.66	$9,461.67 2019 Dataset pulled from CBP	$3,725.66 2020 Dataset pulled from DOR
238990	All Other Specialty Trade Contractors	$3,585.74	$3,677.28 2019 Dataset pulled from CBP	$3,585.74 2020 Dataset pulled from DOR
321213	Engineered Wood Member (except Truss) Manufacturing	$44,480.76	$44,480.76 2020 Dataset pulled from ESD	$41,772.84 2020 Dataset pulled from DOR
321214	Truss Manufacturing	$28,620.35	$23,341.04 2020 Dataset pulled from ESD	$28,620.35 2020 Dataset pulled from DOR
321219	Reconstituted Wood Product Manufacturing	$30,305.17	$10,139.90 2020 Dataset pulled from USBLS	$30,305.17 2020 Dataset pulled from DOR
321911	Wood Window and Door Manufacturing	$45,151.12	$18,811.08 2020 Dataset pulled from ESD	$45,151.12 2020 Dataset pulled from DOR
321992	Prefabricated Wood Building Manufacturing	$5,391.09	$5,391.09 2020 Dataset pulled from ESD	$4,888.53 2020 Dataset pulled from DOR
327310	Cement Manufacturing	$50,878.29	$44,741.20 2020 Dataset pulled from ESD	$50,878.29 2020 Dataset pulled from DOR
327320	Ready-Mix Concrete Manufacturing	$64,317.30	$46,126.21 2020 Dataset pulled from ESD	$64,317.30 2020 Dataset pulled from DOR
327331	Concrete Block and Brick Manufacturing	$15,030.60	$15,030.60 2020 Dataset pulled from ESD	$10,431.02 2020 Dataset pulled from DOR
332312	Fabricated Structural Metal Manufacturing	$22,220.31	$16,337.10 2020 Dataset pulled from USBLS	$22,220.31 2020 Dataset pulled from DOR
332321	Metal Window and Door Manufacturing	$26,369.28	$14,505.40 2020 Dataset pulled from ESD	$26,369.28 2020 Dataset pulled from DOR
332322	Sheet Metal Work Manufacturing	$23,337.23	$23,337.23 2020 Dataset pulled from ESD	$16,556.52 2020 Dataset pulled from DOR
335121	Residential Electric Lighting Fixture Manufacturing	$2,011.37	$2,011.37 2020 Dataset pulled from USBLS	$1,502.01 2020 Dataset pulled from DOR

335122	Commercial; Industrial; and Institutional Electric Lighting Fixture Manufacturing	$6,357.34	Redacted 2020 Dataset pulled from USBLS	$6,357.34 2020 Dataset pulled from DOR
335129	Other Lighting Equipment Manufacturing	$6,281.32	$6,281.32 2020 Dataset pulled from ESD	$2,494.40 2020 Dataset pulled from DOR
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	$24,486.53	$16,589.10 2020 Dataset pulled from ESD	$24,486.53 2020 Dataset pulled from DOR
541310	Architectural Services	$9,221.65	$9,221.65 2020 Dataset pulled from ESD	$3,738.99 2020 Dataset pulled from DOR
541330	Engineering Services	$14,801.92	$14,801.92 2020 Dataset pulled from USBLS	$7,177.43 2020 Dataset pulled from DOR
541350	Building Inspection Services	$1,868.52	$1,868.52 2020 Dataset pulled from ESD	$475.93 2020 Dataset pulled from DOR
561621	Security Systems Services (except Locksmiths)	$9,759.28	$9,759.28 2020 Dataset pulled from ESD	$6,117.04 2020 Dataset pulled from DOR

Estimate of the Number of Jobs That Will Be Created or Lost: The adoption of the latest code edition is not expected to significantly impact the number of jobs in the construction industry. These rules are likely to be job-neutral overall, i.e., they will not result in any job gains or losses. The scheduled effective date of the new edition is July 1, 2023. Building permits issued prior to that date will be vested under the 2018 building code. Permits issued for projects under the 2018 code edition will generally start with the 2021 construction season.

The public may obtain a copy of the small business economic impact statement or the detailed cost calculations by contacting Stoyan Bumbalov, 1500 Jefferson Street S.E., Olympia, WA 98504, phone 360-407-9277, email Stoyan.Bumbalov@des.wa.gov.

December 30, 2021
Andrew S. Klein
Council Chair

OTS-3491.3

Chapter 51-54A WAC
STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((~~2018~~)) 2021 EDITION OF THE INTERNATIONAL FIRE CODE

AMENDATORY SECTION (Amending WSR 19-24-058, filed 11/27/19, effective 7/1/20)

WAC 51-54A-003 International Fire Code. The ((~~2018~~)) 2021 edition of the International Fire Code, published by the International Code Council is hereby adopted by reference with the following additions, deletions, and exceptions.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-24-058, § 51-54A-003, filed 11/27/19, effective 7/1/20; WSR 16-05-065, § 51-54A-003, filed 2/12/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-003, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-058, filed 11/27/19, effective 7/1/20)

WAC 51-54A-007 Exceptions. The exceptions and amendments to the International Fire Code contained in the provisions of chapter 19.27 RCW shall apply in case of conflict with any of the provisions of these rules.

Codes referenced which are not adopted through RCW 19.27.031 or chapter 19.27A RCW shall not apply unless specifically adopted by the authority having jurisdiction. ((~~The 2018 International Wildland Urban Interface Code is included in this code as Section 8200 with amendments found in Appendix Chapter N.~~))

The provisions of this code do not apply to temporary growing structures used solely for the commercial production of horticultural plants including ornamental plants, flowers, vegetables, and fruits. "Temporary growing structure" means a structure that has the sides and roof covered with polyethylene, polyvinyl, or similar flexible synthetic material and is used to provide plants with either frost protection or increased heat retention. A temporary growing structure is not considered a building for purposes of this code.

The provisions of this code do not apply to the construction, alteration, or repair of temporary worker housing except as provided by rule adopted under chapter 70.114A RCW or chapter 37, Laws of 1998 (2SSB 6168). "Temporary worker housing" means a place, area, or piece of land where sleeping places or housing sites are provided by an employer for his or her employees or by another person, including a temporary worker housing operator, who is providing such accommodations for employees, for temporary, seasonal occupancy, and includes "labor camps" under RCW 70.54.110.

The manufacture, storage, handling, sale and use of fireworks shall be governed by chapter 70.77 RCW and by chapter 212-17 WAC and local ordinances consistent with chapter 212-17 WAC.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-24-058, § 51-54A-007, filed 11/27/19, effective 7/1/20. Statutory Authority: Chapter 19.27 RCW and RCW 19.27.031. WSR 17-10-028, § 51-54A-007, filed 4/25/17, effective 5/26/17. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-05-065, § 51-54A-007, filed 2/12/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-007, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-11-066, filed 5/14/21, effective 6/14/21)

WAC 51-54A-008 Implementation. The *International Fire Code* adopted by chapter 51-54A WAC shall become effective in all counties and cities of this state on ((~~February 1, 2021~~)) July 1, 2023.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-11-066, § 51-54A-008, filed 5/14/21, effective 6/14/21; WSR 19-24-058, § 51-54A-008, filed 11/27/19, effective 7/1/20; WSR 16-03-055, § 51-54A-008, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-008, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0105 Permits.

((~~SECTION 105 SCOPE AND GENERAL REQUIREMENTS~~))

((~~105.6.30~~)) 105.5.32 Mobile food preparation vehicles. A permit is required for mobile preparation vehicles equipped with appliances that produce smoke or grease-laden vapors or utilize LP-gas systems or CNG systems.

((~~105.7.26~~)) 105.6.25 Underground supply piping for automatic sprinkler system. A construction permit is required for the installation of the portion of the underground water supply piping, public or private, supplying a water-based fire protection system. The permit shall apply to all underground piping and appurtenances downstream of the first control valve on the lateral piping or service line from the distribution main to one foot above finished floor of the facility with the fire protection system. Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.

EXCEPTIONS: 1. When the underground piping is installed by the aboveground piping contractor.
2. Underground piping that serves a fire protection system installed in accordance with NFPA 13D.

105.5.14.1 Lithium batteries. An operational permit is required for an accumulation of more than 15 cubic feet (0.42 m) of lithium-ion and lithium metal batteries, where required by Section 322.1.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0105, filed 1/20/21, effective 2/20/21; WSR 19-24-058, § 51-54A-0105, filed 11/27/19, effective 7/1/20. Statutory Authority: Chapter 19.27 RCW and RCW 19.27.031. WSR 17-10-028, § 51-54A-0105, filed 4/25/17, effective 5/26/17. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-0105, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0105, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0202 General definitions.

SECTION 202 GENERAL DEFINITIONS

ADULT FAMILY HOME. A dwelling, licensed by ((~~Washington~~)) the state of Washington department of social and health services, in which a person or persons provide personal care, special care, room and board to more than one but not more than six adults who are not related by blood or marriage to the person or persons providing the services. An existing adult family home may provide services to up to eight adults upon approval from the department of social and health services under RCW 70.128.066 and in accordance with Section 903.

ALERT SIGNAL. A distinctive signal indicating the need for trained personnel and occupants to initiate a specific action, such as shelter-in-place.

ALERT SYSTEM. Approved devices, equipment and systems or combinations of systems used to transmit or broadcast an alert signal.

ASSISTED LIVING FACILITY. A home or other institution, licensed by the state of Washington, providing housing, basic services and assuming general responsibility for the safety and well-being of residents under chapters 18.20 RCW and 388-78A WAC. These facilities may provide care to residents with symptoms consistent with dementia requiring additional security measures.

CHILD CARE. For the purposes of these regulations, child care is the care of children during any period of a 24-hour day.

CHILD CARE, FAMILY HOME. A child care facility, licensed by Washington state, located in the dwelling of the person or persons under whose direct care and supervision the child is placed, for the care of ((~~twelve~~)) 12 or fewer children, including children who reside at the home.

CLUSTER. Clusters are multiple *portable school classrooms* separated by less than the requirements of the building code for separate buildings.

COVERED BOAT MOORAGE. A pier or system of floating or fixed access ways to which vessels on water may be secured and any portion of which are covered by a roof.

ELECTRICAL CODE. The National Electrical Code, promulgated by the National Fire Protection Association, as adopted by rule or local ordinance under the authority of chapter 19.28 RCW.

EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM (ERCES). An infrastructure solution installed within a building to enhance the communications capabilities for first responders that utilizes solutions such as a signal booster, voting receiver, base station, or other technology capable of enhancing the radio frequency (RF) to ensure effective public safety communications.

FREQUENCY. The particular waveband at which a communications system broadcasts or transmits.

FREQUENCY LICENSE HOLDER(S). The person(s) or entity(s) that are issued the license from the frequency licensing authority of United States or other country of jurisdiction for the frequencies being used by both the in-

building emergency responder communications enhancement system and the emergency services communications system that it enhances.

FREQUENCY LICENSING AUTHORITY. The government authority in a country or territory that issues frequency licenses for the use of communications frequencies by authorized entities and individuals.

GRAVITY-OPERATED DROP OUT VENTS. Automatic smoke and heat vents containing heat-sensitive glazing designed to shrink and drop out of the vent openings when exposed to fire.

HOSPICE CARE CENTER. A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

MOBILE FOOD ((~~PREPERATION [PREPARATION]~~)) PREPARATION VEHICLE. Mobile food preparation vehicles that are equipped with appliances that produce smoke or grease-laden vapors or utilize LP-gas systems or CNG systems for the purpose of preparing and serving food to the public. Vehicles intended for private recreation shall not be considered mobile food preparation vehicles.

MOTOR VEHICLE. Includes, but not limited to, a vehicle, machine, tractor, trailer or semitrailer, or any combination thereof, propelled or drawn by mechanical power and designed for use upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service. The term "motor vehicle" also includes freight containers or cargo tanks used, or intended for use, in connection with motor vehicles.

NIGHTCLUB. An A-2 Occupancy use under the 2006 International Building Code in which the aggregate area of concentrated use of unfixed chairs and standing space that is specifically designated and primarily used for dancing or viewing performers exceeds ((~~three hundred fifty~~)) 350 square feet, excluding adjacent lobby areas. "Nightclub" does not include theaters with fixed seating, banquet halls, or lodge halls.

OCCUPANCY CLASSIFICATION. For the purposes of this code, certain occupancies are defined as follows:

Institutional Group I-1. Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than 16 persons excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions indicated below. This group shall include, but not be limited to, the following: Assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC shall be classified as Group I-1, Condition 2.

Group I-2. This occupancy shall include buildings and structures used for medical care on a 24-hour basis for more than five persons who are incapable of self-preservation. This group shall include, but not be limited to, the following:

Foster care facilities
Detoxification facilities
Hospice care centers
Hospitals
Nursing homes

Psychiatric hospitals

Five or fewer persons receiving care. A facility such as the above with five or fewer persons receiving such care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

Family home child care. Family home child care licensed by Washington state for the care of ((~~twelve~~)) 12 or fewer children shall be classified as Group R-3 or shall comply with the *International Residential Code*.

Adult care facility. A facility that provides accommodations for less than 24 hours for more than ((~~five~~)) 5 unrelated adults and provides supervision and personal care services shall be classified as Group I-4.

EXCEPTION: Where the occupants are capable of responding to an emergency situation without physical assistance from the staff, the facility shall be classified as Group R-3.

Child care facility. Child care facilities that provide supervision and personal care on a less than 24-hour basis for more than ((~~five~~)) 5 children 2 1/2 years of age or less shall be classified as Group I-4.

EXCEPTIONS: 1. A child day care facility that provides care for more than five but no more than 100 children 2 1/2 years or less of age, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.
2. Family child care homes licensed by Washington state for the care of 12 or fewer children shall be classified as Group R-3.

Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code*. This group shall include:

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient) with more than 10 occupants

Congregate living facilities (transient) with more than 10 occupants

Hotels (transient)

Motels (transient)

R-2 Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

Apartment houses

Boarding houses (nontransient) with more than 16 occupants

Congregate living facilities (nontransient) with more than 16 occupants

Convents

Dormitories

Fraternities and sororities

Hotels (nontransient)

Live/work units

Monasteries

Motels (nontransient)

Vacation timeshare properties

R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, or I, including:

Buildings that do not contain more than two dwelling units.

Boarding houses (nontransient) with 16 or fewer occupants.

Boarding houses (transient) with 10 or fewer occupants.

Care facilities that provide accommodations for five or fewer persons receiving care.

Congregate living facilities (nontransient) with 16 or fewer occupants.

Congregate living facilities (transient) with 10 or fewer occupants.

Care facilities within a dwelling. Care facilities for five or fewer persons receiving care that are within a single-family dwelling are permitted to comply with the *International Residential Code* provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

Adult family homes, family home child care. Adult family homes and family home child care facilities that are within a single-family home are permitted to comply with the *International Residential Code*.

Foster family care homes. Foster family care homes licensed by Washington state are permitted to comply with the *International Residential Code*, as an accessory use to a dwelling, for six or fewer children including those of the resident family.

R-4 Classification is not adopted. Any reference in this code to R-4 does not apply.

PORTABLE SCHOOL CLASSROOM. A prefabricated structure consisting of one or more rooms with direct exterior egress from the classroom(s). The structure is transportable in one or more sections, and is designed to be used as an educational space with or without a permanent foundation. The structure shall be capable of being demounted and relocated to other locations as needs arise.

POWERED MICROMOBILITY DEVICES. Motorized bicycles, motorized scooters, and other personal mobility devices powered by a rechargeable battery. The term does not include motor vehicles that are required to be registered with the department of motor vehicles for the state or jurisdiction.

RECALL SIGNAL. An electrically or mechanically operated signal used to recall occupants after an emergency drill or to terminate a shelter-in-place event that shall be distinct from any alarm or alert signal used to initiate an emergency plan, or other signals.

SHELTER-IN-PLACE. An emergency response used to minimize exposure of facility occupants to chemical or environmental hazards by taking refuge in predetermined interior rooms or areas where actions are taken to isolate the interior environment from the exterior hazard.

SPECIAL HAZARDS SUPPRESSION SYSTEMS. Wet-chemical systems (NFPA 17A), Dry-chemical systems (NFPA 17), Foam systems (NFPA 11), Carbon dioxide systems (NFPA 12), Halon systems (NFPA 12A), Clean-agent systems (NFPA 2001), Automatic water mist systems (NFPA 750), Aerosol fire-extinguishing systems (NFPA 2010), and Explosion prevention systems (NFPA 69).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0202, filed 1/20/21, effective 2/20/21; WSR 19-24-058, § 51-54A-0202, filed 11/27/19, effective 7/1/20; WSR 16-03-055, § 51-54A-0202, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-090, § 51-54A-0202, filed 12/1/14, effective 5/1/15. Statutory Authority: RCW 19.27A.031,

19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0202, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-54A-0301 Permits.

301.2 Permits. Permits shall be required as set forth in Section 105.5 for the activities or uses regulated by Sections 306, 307, 308, 315, 320, and 322.

[]

NEW SECTION

WAC 51-54A-0302 Definitions.

302.1 Definitions. The following terms are defined in Chapter 2:

3D PRINTER;
ADDITIVE MANUFACTURING;
BONFIRE;
HI-BOY;
HIGH-VOLTAGE TRANSMISSION LINE;
MOBILE FOOD PREPARATION VEHICLE;
OPEN BURNING;
PORTABLE OUTDOOR FIREPLACE;
POWERED INDUSTRIAL TRUCK;
RECREATIONAL FIRE;
SKY LANTERN.

[]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0308 Open flames.

((~~**308.1.4 Open-flame cooking devices.** This section is not adopted.~~))

308.1.7 Religious ceremonies. Participants in religious ceremonies shall not be precluded from carrying hand-held candles. See RCW 19.27.031(3).

308.1.7.1 Aisles and exits. Candles shall be prohibited in areas where occupants stand, or in an aisle or exit.

EXCEPTION: Candles used in religious ceremonies.

308.1.9 Decorative open flame tables. Gas-fired portable or fixed open flame fire tables and fireplaces are required to be provided with ((~~*fire code official*~~)) approved ((~~design or~~)) protection devices to prevent occupants from using flame, and from flame being exposed to combustible material. A fire extinguisher shall be located within 75 feet of travel distance or ((~~a distance~~)) as approved ((~~by the fire *code official*~~)). Where located indoors, the supply gas valve ((~~will~~))

shall be interlocked with building fire alarm and/or fire sprinklers, where provided.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0308, filed 1/20/21, effective 2/20/21; WSR 16-03-055, § 51-54A-0308, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0308, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0314 Indoor displays.

((**~~314.1 General.~~** ~~Indoor displays constructed within any occupancy shall comply with Sections 314.2 through 314.4.~~

~~314.2 Fixtures and displays.~~ ~~Fixtures and displays of goods for sale to the public shall be arranged so as to maintain free, immediate and unobstructed access to exits as required by Chapter 10.~~

~~314.3 Highly combustible goods.~~ ~~The display of highly combustible goods including, but not limited to, fireworks, flammable or combustible liquids, liquefied flammable gases, oxidizing materials, pyroxylin plastics and agricultural goods, in main exit access aisles, corridors, covered and open malls, or within 5 feet (1524 mm) of entrances to exits and exterior exit doors is prohibited where a fire involving such goods would rapidly prevent or obstruct egress.~~))

314.4 Vehicles. Liquid- or gas-fueled vehicles, boats, aircraft or other motorcraft shall not be located indoors except as follows:

1. The engine starting system is made inoperable((~~,~~)) or ignition batteries are disconnected except where the fire code official requires that the batteries remain connected to maintain safety features.

2. Fuel in fuel tanks does not exceed ((~~one-quarter tank or 5 gallons (19 L) (whichever is least).~~)) any of the following:

2.1. Class I, II, and III liquid fuel does not exceed one-quarter tank or 5 gallons (19 L), whichever is less.

2.2. LP gas does not exceed one-quarter tank or 6.6 gallons (25 L), whichever is less.

2.3. CNG does not exceed one-quarter tank or 630 cubic feet (17.8 m^3), whichever is less.

2.4. Hydrogen does not exceed one-quarter tank or 2000 cubic feet (0.57 m^3), whichever is less.

3. Fuel tanks and fill openings are closed and sealed to prevent tampering.

4. Vehicles, aircraft, boats or other motorcraft equipment are not fueled or defueled within the building.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0314, filed 1/20/21, effective 2/20/21; WSR 19-24-058, § 51-54A-0314, filed 11/27/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-058, filed 11/27/19, effective 7/1/20)

WAC 51-54A-0315 ((~~General storage.~~)) Reserved.

((~~**Table 315.7.6(1)**~~
~~**Separation Distance Between Pallet Stack and Building**~~

~~Wall Construction~~	~~Opening Type~~	~~Wood Pallet Separation Distance (feet)~~		
		~~≤ 50 Pallets~~	~~51 to 200 Pallets~~	~~>200 Pallets~~
~~Masonry~~	~~None~~	~~2~~	~~2~~	~~2~~
~~Masonry~~	~~Fire-rated glazing with open sprinklers~~	~~2~~	~~5~~	~~20~~
~~Masonry~~	~~Fire-rated glazing~~	~~5~~	~~10~~	~~20~~
~~Masonry~~	~~Plain glass with open sprinklers~~	~~5~~	~~10~~	~~20~~
~~Noncombustible~~	~~None~~	~~5~~	~~10~~	~~20~~
~~Wood with open sprinklers~~	~~———~~	~~5~~	~~10~~	~~20~~
~~Wood~~	~~None~~	~~15~~	~~30~~	~~90~~
~~Any~~	~~Plain glass~~	~~15~~	~~30~~	~~90~~

~~For SI: 1 foot = 304.8 mm~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-24-058, § 51-54A-0315, filed 11/27/19, effective 7/1/20.]

NEW SECTION

WAC 51-54A-0321 Artificial combustible vegetation.

321.1 Artificial combustible vegetation on roofs and near buildings. Artificial combustible vegetation exceeding 6 feet (1829 mm) in height and permanently installed outdoors within 5 feet (1524 mm) of a building or on the roof of a building shall comply with Section 807.4.1. The placement of artificial combustible vegetation shall also comply with Sections 806.3 and 807.4.2.

EXCEPTIONS: 1. Artificial decorative vegetation located more than 30 feet (9144 mm) from the exterior wall of a building.
2. Artificial decorative vegetation used at structures regulated by the International Residential Code.

[]

NEW SECTION

WAC 51-54A-0322 General.

322.1 General. The storage of lithium-ion and lithium metal batteries shall comply with Section 322.

EXCEPTIONS: 1. New or refurbished batteries installed in the equipment, devices, or vehicles they are designed to power.
2. New or refurbished batteries packed for use with the equipment, devices, or vehicles they are designed to power.
3. Batteries in original retail packaging that are rated at 300 watt-hours or less for lithium-ion batteries or contain 25 grams or less of lithium metal for lithium metal batteries.

4. Temporary storage of batteries or battery components during the battery manufacturing process prior to completion of final quality control checks.
5. Temporary storage of batteries during the vehicle manufacturing or repair process.

322.2 Permits. Permits shall be required for an accumulation of more than 15 cubic feet (0.42 m) of lithium-ion and lithium metal batteries, other than batteries listed in the exceptions to Section 322.1, as set forth in Section 105.5.14.1.

322.3 Fire safety plan. A fire safety plan shall be provided in accordance with Section 403.10.6. In addition, the fire safety plan shall include emergency response actions to be taken upon detection of a fire or possible fire involving lithium-ion or lithium metal battery storage.

322.4 Storage requirements. Lithium-ion and lithium metal batteries shall be stored in accordance with Section 322.4.1, 322.4.2, or 322.4.3, as applicable.

322.4.1 Limited indoor storage in containers. Not more than 15 cubic feet (0.42 m) of lithium-ion or lithium metal batteries shall be permitted to be stored in containers in accordance with the following:

1. Containers shall be open-top and constructed of noncombustible materials or shall be approved for battery collection.
2. Individual containers and groups of containers shall not exceed a capacity of 7.5 cubic feet (0.21 m).
3. A second container or group of containers shall be separated by not less than 3 feet (914 mm) of open space, or 10 feet (3048 mm) of space that contains combustible materials.
4. Containers shall be located not less than 5 feet (1524 mm) from exits or exit access doors.

322.4.2 Indoor storage areas. Indoor storage areas for lithium-ion and lithium metal batteries, other than those complying with Section 322.4.1, shall comply with Sections 322.4.2.1 through 322.4.2.6.

322.4.2.1 Technical opinion and report. Where required by the *fire code official* a technical opinion and report complying with Section 104.8.2 shall be prepared to evaluate the fire and explosion risks associated with the indoor storage area and to make recommendations for fire and explosion protection. The report shall be submitted to the fire code official and shall require the fire code official's approval prior to issuance of a permit. In addition to the requirements of Section 104.8.2, the technical opinion and report shall specifically evaluate the following:

1. The potential for deflagration of flammable gases released during a thermal runaway event.
2. The basis of design for an automatic sprinkler system or other approved fire suppression system. Such design basis shall reference relevant full-scale fire testing or another approved method of demonstrating sufficiency of the recommended design.

322.4.2.2 Construction requirements. Where indoor storage areas for lithium-ion and lithium metal batteries are located in a building with other uses, battery storage areas shall be separated from the remainder of the building by 2-hour rated fire barriers or horizontal assemblies. Fire barriers shall be constructed in accordance with Section 707 of the International Building Code, and horizontal assemblies shall be constructed in accordance with Section 711 of the International Building Code.

EXCEPTIONS: 1. Where battery storage is contained in one or more approved prefabricated portable structures providing a complete two-hour fire resistance rated enclosure, fire barriers and horizontal assemblies are not required.
2. Where battery storage is limited to new batteries in packaging that has been demonstrated to and approved by the fire code official as sufficient to isolate a fire in packaging to the package interior, fire barriers and horizontal assemblies are not required.

322.4.2.3 Fire protection systems. Indoor storage areas for lithium-ion and lithium metal batteries shall be protected by an automatic sprinkler system complying with Section 903.3.1.1 or an approved alternative fire suppression system. The system design shall be based on recommendations in the approved technical opinion and report required by Section 322.4.2.1.

322.4.2.4 Fire alarm systems. Indoor storage areas for lithium-ion and lithium metal batteries shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use air-aspirating smoke detection, radiant energy-sensing fire detection, or both.

322.4.2.5 Explosion control. Where the approved technical opinion and report required by Section 322.4.2.1 recommends explosion control, explosion control complying with Section 911 shall be provided.

322.4.2.6 Reduced requirements for storage of partially charged batteries. Indoor storage areas for lithium-ion and lithium metal batteries with a demonstrated state of charge not exceeding 30 percent shall not be required to comply with Section 322.4.2.1, 322.4.2.2, or 322.4.2.5, provided that procedures for limiting and verifying that the state of charge will not exceed 30 percent have been approved.

322.4.3 Outdoor storage. Outdoor storage of lithium-ion or lithium metal batteries shall comply with Sections 322.4.3.1 through 322.4.3.3.

322.4.3.1 Distance from storage to exposures. Outdoor storage of lithium-ion or lithium metal batteries, including storage beneath weather protection in accordance with Section 414.6.1 of the International Building Code, shall comply with one of the following:

1. Battery storage shall be located not less than 20 feet (6096 mm) from any building, lot line, public street, public alley, public way, or means of egress.

2. Battery storage shall be located not less than 3 feet (914 mm) from any building, lot line, public street, public alley, public way, or means of egress, where the battery storage is separated by a 2-hour fire-resistance rated assembly without openings or penetrations and extending 5 feet (1524 mm) above and to the sides of the battery storage area.

3. Battery storage shall be located not less than 3 feet (914 mm) from any building, lot line, public street, public alley, public way, or means of egress, where batteries are contained in approved prefabricated portable structures providing a complete 2-hour fire-resistance rated enclosure.

322.4.3.2 Storage area size limits and separation. Outdoor storage areas for lithium-ion or lithium metal batteries, including storage beneath weather-protection in accordance with Section 414.6.1 of the International Building Code, shall not exceed 900 sq. ft (83.6 m). The height of battery storage in such areas shall not exceed 10 feet (3048 mm). Multiple battery storage areas shall be separated from each other by not less than 10 feet (3048 mm) of open space.

322.4.3.3 Fire detection. Outdoor storage areas for lithium-ion or lithium metal batteries, regardless of whether such areas are open,

under weather protection or in a prefabricated portable structure, shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use radiant energy-sensing fire detection.

[]

NEW SECTION

WAC 51-54A-0323 Powered micromobility devices and powered industrial trucks.

323.1 General. Lithium-ion and lithium metal battery powered micromobility devices and powered industrial trucks shall be operated and maintained in accordance with this section.

EXCEPTIONS: 1. Storage, repair and charging in residential occupancies of powered mobility devices, provided that such devices are for personal use by its *owner*.
2. Charging of a single powered mobility device in any occupancy by its *owner*.

323.1.1 Prohibited locations. The use of a residential occupancy as a business for the charging of commercially owned powered mobility devices or powered industrial trucks as part of a rental or sales service shall not be permitted.

323.2 Battery chargers and equipment. Powered micromobility devices and powered industrial trucks shall be charged in accordance with their listing and the manufacturer's instructions using only the original equipment manufacturer-supplied charging equipment or charging equipment in accordance with the listing and manufacturer's instructions.

323.3 Listing. Powered micromobility devices shall be listed and labeled in accordance with UL 2272 or UL 2849, as applicable.

323.4 Battery charging areas. Where approved, powered micromobility devices and powered industrial trucks shall be permitted to be charged in a room or area that complies with all of the following:

1. Only listed devices utilizing listed charging equipment shall be permitted to be charged.
2. Is provided with sufficient electrical receptacles to allow the charging equipment for each device to be directly connected to a receptacle. Extension cords and relocatable power taps shall not be used.
3. Storage of combustible materials, combustible waste or hazardous materials shall not be permitted.
4. The charging operation shall not be conducted in or obstruct any required means of egress.
5. Removable storage batteries shall not be stacked or charged in an enclosed cabinet unless the cabinet is specially designed and approved for such purpose.
6. A minimum distance of 18 inches (457.2 mm) shall be maintained between each removable storage battery during charging operations unless each battery is isolated from neighboring batteries by an approved fire-resistant material.
7. A minimum of 18 inches (457.2 mm) shall be maintained between the locations of the batteries on each powered micromobility devices or powered industrial truck during charging operations.

8. The indoor room or area shall be protected by a fire alarm system utilizing air-aspirating smoke detectors or radiant energy-sensing fire detection.

323.5 Fire safety plan. A fire safety plan shall be provided in accordance with Section 403.10.6. In addition, the fire safety plan shall include emergency response actions to be taken upon detection of a fire or possible fire involving lithium-ion or lithium metal battery storage.

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AMENDATORY SECTION (Amending WSR 16-03-055, filed 1/16/16, effective 7/1/16)

WAC 51-54A-0402 Definitions. The following terms are defined in Chapter 2:

ALARM SIGNAL;

ALERT SIGNAL;

ALERT SYSTEM;

EMERGENCY EVACUATION DRILL;

LOCKDOWN;

SHELTER-IN-PLACE;

RECALL SIGNAL.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-0402, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0402, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-055, filed 1/16/16, effective 7/1/16)

WAC 51-54A-0403 Emergency preparedness requirements.

403.3.1 Fire evacuation plan. The fire safety and evacuation plan required by Section 404 shall include a description of special staff actions. This shall include a description for stabilizing patients in a staged evacuation or full evacuation in conjunction with the entire building, if part of a multitenant facility.

((~~403.5.4~~)) 403.4.3 Assembly points and fire operations. Assembly points shall not be in areas likely to be utilized for fire service operations.

((~~403.10.2~~)) 403.9.2 Group R-2 occupancies. Group R-2 occupancies shall comply with Sections ((~~403.10.2.1 through 403.10.2.4~~)) 403.9.2.1 through 403.9.2.4.

((~~403.10.2.4~~)) 403.9.2.4 Group R-2 assisted living and residential care facilities. Assisted living and residential care facilities li-

censed by the state of Washington shall comply with Section ((~~403.8.1~~)) 403.7.1 as required for Group I-1 Condition 2 occupancies.

((~~403.10.3~~)) 403.9.3 Group R-4 occupancies. This section not adopted.

403.10.6 Buildings with lithium-ion or lithium metal battery storage. An approved fire safety plan in accordance with Section 404 shall be prepared and maintained for buildings with lithium-ion or lithium metal battery storage.

((~~403.12.3~~)) 403.11.3 Crowd managers for gatherings exceeding 1,000 people. Where facilities or events involve a gathering of more than 1,000 people, or as required by the fire *code official*, crowd managers shall be provided in accordance with Sections ((~~403.12.3.1 through 403.12.3.3~~)) 403.11.3.1 through 403.11.3.3.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-0403, filed 1/16/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0406 Employee training and response procedures.

406.1 General. Employees in the occupancies listed in Section 403 shall be trained in the emergency procedures described in their emergency plans. Training shall be based on these plans and as described in Sections 406.2 ((~~[and 406.3][through 406.3.4]~~)) through 406.3.4.

406.2 Frequency. Employees shall receive training in the contents of the emergency plans and their duties as part of new employee orientation and at least annually thereafter. Records shall be kept and made available to the fire code official upon request.

406.3 Employee training program. Employees shall be trained in fire prevention, evacuation, sheltering-in-place, and fire safety in accordance with Sections 406.3.1 through ((~~[406.3.3][406.3.4]~~)) 406.3.4.

406.3.4 Emergency lockdown training. This section is not adopted.

406.3.5 Emergency shelter-in-place training. Where a facility has a shelter-in-place plan, employees shall be trained on the alert and recall signals, communication system, location of emergency supplies, the use of the incident notification and alarm system, and their assigned duties and procedures in the event of an alarm or emergency.

((~~[**406.4 Emergency lockdown training.** This section is not adopted.]~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0406, filed 1/20/21, effective 2/20/21. Statutory Authority: RCW 19.27.035 and 19.27.074. WSR 21-02-059, § 51-54A-0406, filed 1/4/21, effective 2/4/21. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-0406, filed 12/18/19, effective 7/1/20; WSR 16-03-055, § 51-54A-0406, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0406, filed 2/1/13, effective 7/1/13.]

Reviser's note: RCW 34.05.395 requires the use of underlining and deletion marks to indicate amendments to existing rules, and deems ineffectual changes not filed by the agency in this manner. The bracketed material in the above section does not appear to conform to the statutory requirement.

NEW SECTION

WAC 51-54A-0501 General.

501.3.1 Site safety plan. The *owner* or *owner's* authorized agent shall be responsible for the development, implementation, and maintenance of an *approved* written *site safety plan* in accordance with Section 3303.

[]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0510 Emergency responder ((~~radio~~)) communication coverage.

510.1 Emergency responder communication coverage in new buildings. Approved in-building, *emergency responder communications enhancement system (ERCES)* for emergency responders shall be provided in all new buildings. In-building ERCES within the building shall be based on the existing coverage levels of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building. The two-way emergency responder communications coverage system where required, shall be of a type determined by the fire code official and the frequency license holder(s). This section shall not require improvement of the existing public safety communication systems.

EXCEPTIONS:
1. Where approved by the building official and the fire code official, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained instead of an approved communication coverage system.
2. Where it is determined by the *fire code official* that the communication coverage system is not needed.
3. In facilities where emergency responder communication coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the *fire code official* shall have the authority to accept an automatically activated *emergency responder communication coverage system.*

510.2 Emergency responder communication enhancement system in existing buildings. Existing buildings shall be provided with approved in-building, emergency responder communications enhancement system for emergency responders as required in Chapter 11.

510.3 Permit required. A construction permit for the installation of or modification to in-building, emergency responder communication enhancement systems and related equipment is required as specified in Section 105.6.4. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

510.4 Technical requirements. Equipment required to provide in-building, emergency responder communication enhancement system shall be *listed* in accordance with UL 2524. Systems, components and equipment required to provide the in-building, emergency responder communication enhancement system shall comply with Sections 510.4.1 through 510.4.2.8.

510.4.1 Emergency responder communication enhancement system signal strength. The building shall be considered to have an acceptable in-building, emergency responder communication enhancement system where signal strength measurements in 95 percent of all areas and 99 percent of areas designated as critical areas by the fire code official on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 through 510.4.1.3.

510.4.1.1 Minimum signal strength into building. The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the *fire code official*. The inbound signal level shall be a minimum of -95 dBm ((~~throughout the coverage area~~)) in 95 percent of the coverage area and 99 percent in *critical areas* and sufficient to provide not less than a delivered audio quality (DAQ) of 3.0 or an equivalent signal-to-interference-plus-noise ratio (SINR) applicable to the technology for either analog or digital signals.

510.4.2 System design. The in-building, *emergency responder communication enhancement system* shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.8 and NFPA 1221.

510.4.2.1 Amplification systems and components. Buildings and structures that cannot support the required level of in-building, *emergency responder communication system* shall be equipped with systems and components to enhance the radio signals and achieve the required level of in-building, *emergency responder communication enhancement system* specified in Sections 510.4.1 through 510.4.1.3. In-building, *emergency responder communication enhancement systems* utilizing radio-frequency-emitting devices and cabling shall be approved by the *fire code official*. Prior to installation, all RF-emitting devices shall have the certification of the radio licensing authority and be suitable for public safety use.

510.4.2.2 Technical criteria. The fire code official shall maintain a document providing the specific technical information and requirements for the in-building, emergency responder communication enhancement system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, the effective radiated power of radio sites, the maximum propagation delay in microseconds, the applications being used and other supporting technical information necessary for system design.

510.4.2.3 Standby power. In-building, emergency responder communication enhancement systems coverage systems shall be provided with dedicated standby batteries or provided with 2-hour standby batteries and connected to the facility generator power system in accordance with Section 1203. The standby power supply shall be capable of operating the in-building, *emergency responder communication enhancement system* at 100 percent system capacity for a duration of not less than 12 hours.

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be a National Electrical Manufacturer's Association (NEMA) 4, ((~~IP65-type~~)) IP66-type waterproof cabinet or equivalent.

EXCEPTION: Listed battery systems that are contained in integrated battery cabinets.

2. Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet, IP65-type waterproof cabinet or equivalent.

EXCEPTION: Listed battery systems that are contained in integrated battery cabinets.

3. Equipment shall have FCC or other radio licensing authority certification and be suitable for public safety use prior to installation.

4. Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20 dB greater than the system gain under all operating conditions.

5. Bi-directional amplifiers ((~~(BDAs) active RF emitting devices used in emergency responder radio coverage systems shall have oscillation prevention built-in oscillation detection and control circuitry~~)) (BDA) used for in-building, emergency responder communication enhancement systems shall be fitted with anti-oscillation detection and control circuitry and per-channel AGC.

6. The installation of amplification systems or enhancement systems that operate on or provide the means to cause interference on any in-building, *emergency responder* ((~~radio coverage~~)) *communication enhancement system* network((~~s~~)) shall be coordinated and approved by the fire code official.

7. Only channelized signal boosters shall be permitted.

EXCEPTION: Broadband BDAs may be utilized when specifically authorized in writing by the *frequency license holder*.

510.4.2.5 System monitoring. The in-building, *emergency responder communication enhancement system* shall include automatic supervisory and trouble signals that are monitored by a supervisory service and are annunciated by the *fire alarm system* in accordance with NFPA 72. The following conditions shall be separately annunciated by the *fire alarm system*, or, if the status of each of the following conditions is individually displayed on a dedicated panel on the in-building, *emergency responder communication enhancement system*, a single automatic supervisory signal may be annunciated on the *fire alarm system* indicating deficiencies of the in-building, *emergency responder communication enhancement system*:

1. Loss of normal AC power supply.
2. System battery charger(s) failure.
3. Malfunction of the donor antenna(s).
4. Failure of active RF-emitting device(s).
5. Low-battery capacity at 70 percent reduction of operating capacity.
6. Active system component malfunction.
7. Malfunction of the communications link between the *fire alarm system* and the in-building, *emergency responder communication enhancement system*.
8. Oscillation of active RF-emitting device(s).

510.4.2.6 Additional frequencies and change of frequencies. The in-building, *emergency responder communication coverage enhancement system* shall be capable of modification or expansion in the event frequency changes are required by the FCC or other radio licensing authority, or additional frequencies are made available by the FCC or other radio licensing authority.

510.4.2.7 Design documents. The *fire code official* shall have the authority to require "as-built" design documents and specifications for in-building, *emergency responder communication enhancement systems*. The documents shall be in a format acceptable to the *fire code official*.

510.4.2.8 Radio communication antenna density. Systems shall be engineered to minimize the near-far effect. In-building, emergency responder communication enhancement system designs shall include sufficient antenna density to address reduced gain conditions.

EXCEPTION: Systems where all portable devices within the same band use active power control features.

510.5 Installation requirements. The installation of the in-building, emergency responder communication enhancement system shall be in accordance with NFPA 1221 and Sections 510.5.1 through 510.5.7.

510.5.1 Mounting of the donor antenna(s). To maintain proper alignment with the system designed donor site, donor antennas shall be permanently affixed on the highest possible position on the building or where *approved* by the *fire code official*. A clearly visible sign stating "MOVEMENT OR REPOSITIONING OF THIS ANTENNA IS PROHIBITED WITHOUT APPROVAL FROM THE FIRE CODE OFFICIAL." shall be posted. The antenna installation shall be in accordance with the applicable requirements in the *International Building Code* for weather protection of the building envelope.

510.5.3 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead acceptance test personnel shall include both of the following:

1. A valid FCC-issued general radio telephone operators license.

2. Certification of in-building system training issued by an *approved* organization or *approved* school, or a certificate issued by the manufacturer of the equipment being installed.

((~~510.5.3~~)) 510.5.4 Acceptance test procedure. Where an in-building *emergency responder* ((~~radio coverage~~)) *communication enhancement system* is required, and upon completion of installation, the building *owner* shall have the radio system tested to verify that two-way coverage on each floor of the building is ((~~not less than 95 percent~~)) in accordance with Section 510.4.1. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas, with a maximum test area size of 6,400 square feet. Where the floor area exceeds 128,000 square feet, the floor shall be divided into as many approximately equal test areas as needed, such that no test area exceeds the maximum square footage allowed for a test area.

2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system or equipment approved by the *fire code official*.

3. Coverage testing of signal strength shall be conducted using a calibrated spectrum analyzer for each of the test grids. A diagram of this testing shall be created for each floor where coverage is provided, indicating the testing grid used for the test in Section 510.5.4(1), and including signal strengths and frequencies for each test area. Indicate all critical areas.

4. Functional talk-back testing shall be conducted using two calibrated portable radios of the latest brand and model used by the agency's radio communications system or other equipment approved by the *fire code official*. Testing shall use digital audible quality (DAQ) metrics, where a passing result is a DAQ of 3 or higher. Communications between handsets shall be tested and recorded in the grid square diagram required by Section 510.5.3(2); each grid square on each floor; between each critical area and a radio outside the building; between each critical area and the fire command center or fire alarm control panel; between each landing in each stairwell and the fire command center or fire alarm panel.

5. Failure of more than ((~~one~~)) 5 percent of the test areas on any floor shall result in failure of the test.

EXCEPTION: Critical areas shall be provided with 99 percent floor area coverage.

((~~4.~~)) 6. In the event that two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than two nonadjacent test areas shall not result in failure of the test. If the system fails the 40 area test, the system shall be altered to meet the 95 percent coverage requirement.

((~~5.~~)) 7. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered to be a failure of that test area. Additional test locations shall not be permitted.

((~~6.~~)) 8. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building *owner* so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building *owner* shall be required to rerun the acceptance test to reestablish the gain values.

((~~7.~~)) 9. As part of the installation, a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and at subsequent annual inspections.

((~~8. Systems incorporating Class B signal-booster devices or Class B broadband fiber remote devices~~)) 10. Systems shall be tested using two portable radios simultaneously conducting subjective voice quality checks. One portable radio shall be positioned not greater than 10 feet (3048 mm) from the indoor antenna. The second portable radio shall be positioned at a distance that represents the farthest distance from any indoor antenna. With both portable radios simultaneously keyed up on different frequencies within the same band, subjective audio testing shall be conducted and comply with DAQ levels as specified in Sections 510.4.1.1 and 510.4.1.2.

11. **Documentation maintained on premises.** At the conclusion of the testing, and prior to issuance of the building certificate of occupancy, the building owner or owner's representative shall place a copy of the following records in the Distributed Antenna System enclosure or the building engineer's office. The records shall be available to the fire code official and maintained by the building owner for the life of the system:

a. A certification letter stating that the *emergency responder enhancement coverage system* has been installed and tested in accordance with this code, and that the system is complete and fully functional.

b. The grid square diagram created as part of testing in Sections 510.5.3(2) and 510.5.3(3).

c. Data sheets and/or manufacturer specifications for the *emergency responder enhancement coverage system* equipment; back up battery; and charging system (if utilized).

d. A diagram showing device locations and wiring schematic.

e. A copy of the electrical permit.

510.5 Installation requirements. The installation of the public safety radio coverage system shall be in accordance with NFPA 1221 and Sections 510.5.1 through ((~~510.5.5~~)) 510.5.7.

510.5.5 ((~~Mounting of the donor antenna(s).~~ ~~To maintain proper alignment with the system designed donor site, donor antennas shall be permanently affixed on the highest possible position on the building or where approved by the fire code official. A clearly visible sign stating "movement or repositioning of this antenna is prohibited without approval from the fire code official." The antenna installation shall be in accordance with the applicable requirements in the International Building Code for weather protection of the building envelope.~~)) **FCC compliance.** The in-building, *emergency responder communication enhancement system* installation and components shall comply with all applicable federal regulations including, but not limited to, FCC 47 C.F.R. Part 90.219.

510.5.6 Wiring. The backbone, antenna distribution, radiating, or any fiber optic cables shall be rated as plenum cables. The backbone cables shall be connected to the antenna distribution, radiating, or copper cables using hybrid coupler devices of a value determined by the overall design. Backbone cables shall be routed through an enclosure that matches the building's required fire-resistance rating for shafts or interior exit stairways. The connection between the backbone cable and the antenna cables shall be made within an enclosure that matches the building's fire-resistance rating for shafts or interior exit stairways, and passage of the antenna distribution cable in and out of the enclosure shall be protected as a penetration per the *International Building Code.*

510.5.7 Identification signs. *Emergency responder enhancement systems* shall be identified by an approved sign located on or near the fire alarm control panel or other approved location stating "This building is equipped with an *Emergency Responder Enhancement Coverage System.* Control Equipment located in ..... or as approved by the *Fire Code Official*." A sign stating "*Emergency Responder Enhancement Coverage System Equipment*" shall be placed on or adjacent to the door of the room containing the main system components.

510.6 Maintenance. The in-building, *emergency responder communication enhancement system* shall be maintained operational at all times in accordance with Sections 510.6.1 through 510.6.4.

510.6.1 Testing and proof of compliance. The *owner* of the building or *owner's* authorized agent shall have the in-building, two-way *emergency responder* ((~~radio~~)) *communication coverage system* inspected and tested annually or where structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following items 1. through 7.:

1. In-building coverage test as ((~~described in Section 510.5.3 or as required by the fire code official.~~)) required by the *fire code official* as described in Section 510.5.4 or 510.6.1.1.

EXCEPTION: Group R Occupancy annual testing is not required within dwelling units.

2. Signal boosters shall be tested to verify that the ((~~gain~~)) gain/output level is the same as it was upon initial installation and acceptance or set to optimize the performance of the system.

3. Backup batteries and power supplies shall be tested under load of a period of 1 hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.

4. All other active components shall be checked to verify operation within the manufacturers specification.

5. If a fire alarm system is present in the building, a test shall be conducted to verify that the fire alarm system is properly supervising the emergency responder communication coverage system as required in 510.4.2.5. The test is performed by simulating alarms to the fire alarm control panel. The certifications in 510.5.2 are sufficient for the personnel performing this testing.

6. At the conclusion of testing, a record of the inspection and maintenance along with an updated grid diagram of each floor showing tested strengths in each grid square and each critical area shall be added to the documentation maintained on the premises in accordance with Section 510.5.3.

7. At the conclusion of the testing, a report, which shall verify compliance with Section ((~~510.5.3~~)) 510.6.1, shall be submitted to the *fire code official*.

510.6.1.1 Alternative in-building coverage test. When the comprehensive test documentation required by Section 510.5.3 is available, or the most recent full five-year test results are available if the system is older than six years, the in-building coverage test required by the fire code official in Section 510.6.1(1), may be conducted as follows:

1. Functional talk-back testing shall be conducted using two calibrated portable radios of the latest brand and model used by the agency's radio communications system or other equipment approved by the fire code official. Testing shall use digital audible quality (DAQ) metrics, where a passing result is a DAQ of 3 or higher. Communications between handsets in the following locations shall be tested: Between the fire command center or fire alarm control panel and a location outside the building; between the fire alarm control panel and each landing in each stairwell.

2. Coverage testing of signal strength shall be conducted using a calibrated spectrum analyzer for:

a. Three grid areas per floor. The three grid areas to be tested on each floor are the three grid areas with poorest performance in the acceptance test or the most recent annual test, whichever is more recent;

b. Each of the critical areas identified in acceptance test documentation required by Section 510.5.3, or as modified by the fire code official; and

c. One grid square per serving antenna.

3. The test area boundaries shall not deviate from the areas established at the time of the acceptance test, or as modified by the *fire code official*. The building shall be considered to have acceptable emergency responder communication coverage when the required signal strength requirements in Sections 510.4.1.1 and 510.4.1.2 are located in 95 percent of all areas on each floor of the building and 99 percent in critical areas, and any nonfunctional serving antenna are repaired to function within normal ranges. If the documentation of the acceptance test or most recent previous annual test results are not available or acceptable to the fire code official, the radio coverage verification testing described in Section 510.5.3 shall be conducted.

510.6.2 Additional frequencies. The building *owner* shall modify or expand the in-building, *emergency responder communication enhancement system* at their expense in the event frequency changes are required by the FCC or other radio licensing authority, or additional frequencies

are made available by the FCC or other radio licensing authority. Prior approval of an in-building, *emergency responder communication enhancement system* on previous frequencies does not exempt this section.

510.6.3 Nonpublic safety system. Where other nonpublic safety amplification systems installed in buildings reduce the performance or cause interference with the in-building, emergency responder communication enhancement system, the nonpublic safety amplification system shall be corrected or removed.

510.6.4 Field testing. *Agency* personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage or to disable a system adversely impacting the *emergency responder communication enhancement system* in the region.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0510, filed 1/20/21, effective 2/20/21; WSR 19-24-058, § 51-54A-0510, filed 11/27/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-0605 ((~~Reserved.~~)) Fuel fired appliances.

605.4.1.1 Approval. Outdoor fuel oil storage tanks shall be in accordance with UL 142, UL 142A, or UL 2085.

605.4.2.1 Approval. Indoor fuel oil storage tanks shall be in accordance with UL 80, UL 142, UL 142A, or UL 2085.

605.4.2.2 Quantity limits. One or more fuel oil storage tanks containing Class II or III combustible liquid shall be permitted in a building. The aggregate capacity of all tanks shall not exceed the following:

1. 660 gallons (2,498 L) in unsprinklered buildings, where stored in a tank complying with UL 80, UL 142, UL 142A, or UL 2085.

2. 1,320 gallons (4,996 L) in buildings equipped with an automatic sprinkler system in accordance with Section 903.3.1.1, where stored in a tank complying with UL 142 or UL 142A. The tank shall be listed as a secondary containment tank, and the secondary containment shall be monitored visually or automatically.

3. 3,000 gallons (11,356 L) in buildings equipped with an automatic sprinkler system in accordance with Section 903.3.1.1, where stored in protected above-ground tanks complying with UL 2085 and Section 5704.2.9.7. The tank shall be listed as a secondary containment tank, as required by UL 2085, and the secondary containment shall be monitored visually or automatically.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-0605, filed 12/18/19, effective 7/1/20. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 17-18-060, § 51-54A-0605, filed 9/1/17, effective 10/2/17. Statutory Authority: Chapter 19.27 RCW and RCW 19.27.031. WSR 17-10-028, § 51-54A-0605, filed 4/25/17, effective 5/26/17. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-0605, filed 1/16/16, effective 7/1/16. Statutory Authority: Chapters 19.27A and

34.05 RCW. WSR 13-24-076, § 51-54A-0605, filed 12/2/13, effective 4/1/14. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0605, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-54A-0606 Section 606—Commercial cooking equipment and systems.

606.2 Where required. A Type I hood shall be installed at or above all commercial cooking appliances and domestic cooking appliances used for commercial purposes that produce grease laden vapors.

EXCEPTIONS:
1. Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1 of the *International Mechanical Code*, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4, and 507.5 of the *International Mechanical Code*.
2. Factory-built commercial cooking recirculating systems that are listed and labeled in accordance with UL 710B, and installed in accordance with Section 304.1 of the *International Mechanical Code*, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4, and 507.5 of the *International Mechanical Code*. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1 of the *International Mechanical Code*. For the purpose of determining the floor area required to be ventilated, each individual appliance shall be considered as occupying not less than 100 square feet (9.3 m^2).
3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.
4. A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m^3 or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m^3/s) in accordance with UL 710B.
5. A Type I hood shall not be required to be installed in an R-2 occupancy with not more than 16 residents.

606.2.1 Domestic cooking appliances used for commercial purposes. Domestic cooking appliances utilized for commercial purposes shall be provided with Type I, Type II, or residential hoods as required for the type of appliances and processes in accordance with Table 606.2.1 and Sections 507.2 and 507.3 of the *International Mechanical Code*.

Table 606.2.1
Type of Hood Required for Domestic Cooking Appliances in the Following Spaces[a,b]

Type of Space	Type of Cooking	Type of Hood
Church	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood
	2. Roasting, pan frying, and deep frying	Type I hood
Community or party room in apartment and condominium	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying, and deep frying	Type I hood
Day care	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood[d]

Type of Space	Type of Cooking	Type of Hood
	2. Roasting, pan frying, and deep frying	Type I hood
Dormitory, assisted living facility, nursing home	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood
	2. Roasting, pan frying, and deep frying	Type I hood
Office lunch room	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying, and deep frying	Type I hood

[a] Commercial cooking appliances shall comply with Section 507.2 of the *International Mechanical Code*.

[b] Requirements in this table apply to electric or gas fuel appliances only. Solid fuel appliances or charbroilers require Type I hoods.

[c] Residential hood shall ventilate to the outside.

[d] Type II hood required when more than one appliance is used.

606.3 Operations, inspection, and maintenance. Commercial cooking systems shall be operated, inspected, and maintained in accordance with Sections 606.3.1 through 606.3.4 and Chapter 12 of NFPA 96.

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AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0607 ((~~Section 607 Commercial kitchen hoods.~~)) Reserved.

((~~**[M]607.2 Where required.** A Type I hood shall be installed at or above all commercial cooking appliances and domestic cooking appliances used for commercial purposes that produce grease laden vapors.~~

~~EXCEPTIONS:~~ ~~1. Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1 of the *International Mechanical Code*, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5 of the *International Mechanical Code*.~~

~~2. Factory-built commercial cooking recirculating systems that are listed and labeled in accordance with UL 710B, and installed in accordance with Section 304.1 of the *International Mechanical Code*, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5 of the *International Mechanical Code*. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1 of the *International Mechanical Code*. For the purpose of determining the floor area required to be ventilated, each individual appliance shall be considered as occupying not less than 100 square feet (9.3 m^2).~~

~~3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.~~

~~4. A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m^3 or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m^3/s) in accordance with UL 710B.~~

~~5. A Type I hood shall not be required to be installed in an R-2 occupancy with not more than 16 residents.~~

~~**607.2.1 Domestic cooking appliances used for commercial purposes.** Domestic cooking appliances utilized for commercial purposes shall be~~

provided with Type I, Type II, or residential hoods as required for the type of appliances and processes in accordance with Table 607.2.1 and Sections 507.2 and 507.3 of the *International Mechanical Code*.

Table 607.2.1
Type of Hood Required for Domestic Cooking Appliances in the Following Spaces[a,b]

Type of Space	Type of Cooking	Type of Hood
Church	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood
	2. Roasting, pan frying, and deep frying	Type I hood
Community or party room in apartment and condominium	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying, and deep frying	Type I hood
Day care	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying, and deep frying	Type I hood
Dormitory, assisted living facility, nursing home	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood
	2. Roasting, pan frying, and deep frying	Type I hood
Office lunch room	1. Boiling, steaming, and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying, and deep frying	Type I hood

[a] Commercial cooking appliances shall comply with Section 507.2 of the *International Mechanical Code*.
[b] Requirements in this table apply to electric or gas fuel appliances only. Solid fuel appliances or charbroilers require Type I hoods.
[c] Residential hood shall ventilate to the outside.
[d] Type II hood required when more than one appliance is used.

607.3 Operations, inspection, and maintenance. Commercial cooking systems shall be operated, inspected, and maintained in accordance with Sections 607.3.1 through 607.3.4 and Chapter 11 of NFPA 96.))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0607, filed 1/20/21, effective 2/20/21; WSR 20-01-162, § 51-54A-0607, filed 12/18/19, effective 7/1/20.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-0701 ((~~General.~~)) Reserved.

((~~**701.6 Owner's responsibility.** The owner shall maintain an inventory of all required fire-resistance-rated construction, construction installed to resist the passage of smoke and the construction included in Sections 703 through 707 and Sections 602.4.1 and 602.4.2 of the *International Building Code*. Such construction shall be visually inspected by the owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-0701, filed 12/18/19, effective 7/1/20. Statutory Authority: RCW 19.27.031, 19.27.074 and chapter 19.27 RCW. WSR 19-02-086, § 51-54A-0701, filed 1/2/19, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 16-03-055, filed 1/16/16, effective 7/1/16)

WAC 51-54A-0901 General.

901.4.2 Nonrequired fire protection systems and life safety systems. A *fire protection* and *life safety system* or portion thereof not required by this code or the *International Building Code* shall be allowed to be furnished for partial or complete protection provided such installed system meets the applicable requirements of this code and the *International Building Code*. Such systems or portion of system shall be provided with signage stating "NON-REQUIRED SYSTEM." Signage shall be durable and permanent in nature, with contrasting color and background, and with lettering of not less than 1 inch in height. Location of such signage shall be approved.

901.8.2 Removal of existing occupant-use hose lines. The fire *code official* is authorized to permit the removal of existing occupant-use hose lines where all of the following conditions exist:

1. Installation is not required by this code, the *International Building Code*, or a previously approved alternative method.
2. The hose line would not be utilized by trained personnel or the fire department.
3. The remaining outlets are compatible with local fire department fittings.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-0901, filed 1/16/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0903 Automatic sprinkler systems.

903.2 Where required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

EXCEPTIONS:
1. Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided that those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour *fire barriers* constructed in accordance with Section 707 of the *International Building Code* or not less than 2-hour *horizontal assemblies* constructed in accordance with Section 711 of the *International Building Code,* or both.
2. Bottom of the elevator hoistway in an enclosed and noncombustible elevator shaft.

903.2.1.3 Group A-3. An automatic sprinkler system shall be provided throughout stories containing Group A-3 occupancies and throughout all stories from the Group A-3 occupancy to and including the levels of exit discharge serving that occupancy where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m^2).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

EXCEPTION: For fixed guideway transit and passenger rail system stations, an automatic sprinkler system shall be provided in accordance with Section 4901.

903.2.1.6 Assembly occupancies on roofs. Where an occupied roof has an assembly occupancy with an occupant load exceeding 100 for Group A-2, and 300 for other Group A occupancies, the building shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

EXCEPTION: Open parking garages of Type I or Type II construction.

903.2.1.8 Nightclub. An automatic sprinkler system shall be provided throughout Group A-2 nightclubs as defined in this code.

903.2.3 Group E. An automatic sprinkler system shall be provided for fire areas containing Group E occupancies where the fire area has an occupant load of 51 or more, calculated in accordance with Table ((~~1004.1.2~~)) 1004.5.

EXCEPTIONS:
1. Portable school classrooms with an occupant load of 50 or less calculated in accordance with Table ((~~1004.1.2~~)) 1004.5, provided that the aggregate area of any cluster of portable classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or
2. Portable school classrooms with an occupant load from 51 through 98, calculated in accordance with Table ((~~1004.1.2~~)) 1004.5, and provided with two means of direct independent exterior egress from each classroom in accordance with Chapter 10, and one exit from each class room shall be accessible, provided that the aggregate area of any cluster of portable classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or
3. Fire areas containing day care and preschool facilities with a total occupant load of 100 or less located at the level of exit discharge where every room in which care is provided has not fewer than one exit discharge door.

903.2.6 Group I. An *automatic sprinkler system* shall be provided throughout buildings with a Group I *fire area*.

EXCEPTIONS:
1. An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.
2. Where new construction or additions house less than ((~~sixteen~~)) 16 persons receiving care, an automatic sprinkler system installed in accordance with Section 903.2.8.3 shall be permitted for Group I-1, Condition 2, assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC.

903.2.6.1 Group I-4. An automatic sprinkler system shall be provided in fire areas containing Group I-4 occupancies where the fire area has an occupant load of 51 or more, calculated in accordance with Table ((~~1004.1.2~~)) 1004.5.

EXCEPTIONS:
1. An automatic sprinkler system is not required where Group I-4 day care facilities with a total occupant load of 100 or less, and located at the level of exit discharge and where every room where care is provided has not fewer than one exterior exit door.

2. In buildings where Group I-4 day care is provided on levels other than the level of exit discharge, an automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the level of exit discharge and all floors below the level of exit discharge other than areas classified as an open parking garage.

903.2.8 Group R. An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area.

EXCEPTION: Group R-1 if all of the following conditions apply:
1. The Group R fire area is no more than 500 square feet and is used for recreational use only.
2. The Group R fire area is on only one story.
3. The Group R fire area does not include a basement.
4. The Group R fire area is no closer than 30 feet from another structure.
5. Cooking is not allowed within the Group R fire area.
6. The Group R fire area has an occupant load of no more than ((~~8~~)) eight.
7. A hand-held (portable) fire extinguisher is in every Group R fire area.

((~~**903.2.9 Group S-1.** An *automatic sprinkler system* shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:~~

~~1. A Group S-1 *fire area* exceeds 12,000 square feet (1115 m^2).~~

~~2. A Group S-1 *fire area* is located more than three stories above grade plane.~~

~~3. The combined area of all Group S-1 *fire areas* on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).~~

~~4. A Group S-1 *fire area* used for the storage of commercial motor vehicles where the *fire area* exceeds 5,000 square feet (464 m^2).~~

~~**903.2.9.3 Group S-1 Upholstered furniture and mattresses.** An automatic sprinkler system shall be provided throughout a Group S-1 fire where the area used for the storage of upholstered furniture exceeds 2,500 square feet (232 m^2).~~

~~EXCEPTION: Self-service storage facilities no greater than one story above grade plane where all storage spaces can be accessed directly from the exterior.~~))

903.2.8.5 Adult family home. An adult family home with a capacity of seven or eight that serves residents who require assistance during an evacuation must install an automatic sprinkler system that meets the requirements of NFPA 13D.

903.2.11.1.3 Basements. Where any portion of a basement is located more than 75 feet (22,860 mm) from openings required by Section 903.2.11.1, or where new walls, partitions or other similar obstructions are installed that increase the exit access travel distance to more than 75 feet, the basement shall be equipped throughout with an approved automatic sprinkler system.

903.2.11.5 Commercial cooking operations. An *automatic sprinkler system* shall be installed in commercial kitchen exhaust hood and duct systems where an *automatic sprinkler system* is used to comply with Section 904.

EXCEPTION: An *automatic fire sprinkler system* is not required to protect the ductwork that is in excess of 75 feet when the commercial kitchen exhaust hood is protected by a system listed per UL 300.

Table 903.2.11.6
Additional Required Fire Protection Systems

Note: Add section and subject to existing model code table.

Section	Subject
321.2	Lithium-ion and lithium metal battery storage

903.2.11.7 Relocatable buildings within buildings. Relocatable buildings or structures located within a building with an approved fire sprinkler system shall be provided with fire sprinkler protection within the occupiable space of the building and the space underneath the relocatable building.

EXCEPTIONS: 1. Sprinkler protection is not required underneath the building when the space is separated from the adjacent space by construction resisting the passage of smoke and heat and combustible storage will not be located there.
2. If the building or structure does not have a roof or ceiling obstructing the overhead sprinklers.
3. Construction trailers and temporary offices used during new building construction prior to occupancy.
4. Movable shopping mall kiosks with a roof or canopy dimension of less than 4 feet on the smallest side.

903.3.1.2 NFPA 13R sprinkler systems. *Automatic sprinkler systems* in Group R occupancies up to and including four stories in height in buildings not exceeding 60 feet (18,288 mm) in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R. The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 of the *International Building Code* shall be measured from the horizontal assembly creating separate buildings.

903.3.5.3 Underground portions of fire protection system water supply piping. The portion of the installation or modification of an underground water main, public or private, dedicated to supplying a water-based fire protection system shall be in accordance with NFPA 24 and chapter 18.160 RCW. Piping and appurtenances downstream of the first control valve on the lateral or service line from the distribution main to one-foot above finished floor shall be approved by the fire *code official*. Such underground piping shall be installed by a fire sprinkler system contractor licensed in accordance with chapter 18.160 RCW and holding either a Level U or a Level 3 license. For underground piping supplying systems installed in accordance with Section 903.3.1.2, a Level 2, 3, or U licensed contractor is acceptable.

EXCEPTIONS: 1. Portions of underground piping supplying automatic sprinkler systems installed in accordance with ((~~NFPA 13D~~)) Section 903.3.1.3.
2. Portions of underground water mains serving sprinkler systems that are designed and installed in accordance with Section 903.3.1.2 and are less than four inches (100 mm) in nominal diameter.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0903, filed 1/20/21, effective 2/20/21; WSR 19-24-058, § 51-54A-0903, filed 11/27/19, effective 7/1/20. Statutory Authority: Chapter 19.27 RCW and RCW 19.27.031. WSR 17-10-028, § 51-54A-0903, filed 4/25/17, effective 5/26/17. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-0903, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-090, § 51-54A-0903, filed 12/1/14, effective 5/1/15. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0903, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-058, filed 11/27/19, effective 7/1/20)

WAC 51-54A-0904 Alternative automatic fire-extinguishing systems.

(Effective July 1, 2024.)

904.1.1 Certification of ((~~service~~)) personnel for alternative fire-extinguishing equipment. ((~~Service~~)) Personnel performing system de-

sign, installation ((~~or conducting system~~)), maintenance, programming or testing on automatic fire-extinguishing systems, other than automatic sprinkler systems, shall possess the appropriate ((~~ICC/NAFED~~)) National Institute for Certification in Engineering Technologies (NICET) *Special Hazards Suppression Systems* certification.

EXCEPTION: A current ICC/NAFED certification for preengineered kitchen fire extinguishing system technician is allowed in lieu of NICET Level II or higher in *Special Hazards Suppression Systems* for the design, installation, inspection/testing or maintenance on preengineered kitchen suppression systems.

904.1.1.1 ((~~Preengineered kitchen fire-extinguishing systems.~~ ~~A current ICC/NAFED certification for preengineered kitchen fire-extinguishing systems is required when performing design, installation, inspection/testing or maintenance on kitchen suppression systems.~~

~~904.1.1.2 Engineered fire suppression systems.~~ ~~A current ICC/NAFED certification for engineered fire suppression systems is required when performing design, installation, inspection/testing or maintenance on kitchen suppression systems.~~

~~904.1.1.3 Preengineered industrial fire-extinguishing system.~~ ~~A current ICC/NAFED certification for preengineered industrial fire-extinguishing system is required when performing design, installation, inspection/testing or maintenance on kitchen suppression systems.~~

~~904.12 Commercial cooking systems.~~ ~~The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Preengineered automatic dry and wet chemical extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Other types of automatic fire-extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions. Signage shall be provided on the exhaust hood or system cabinet, indicating the type and arrangement of cooking appliances protected by the automatic fire-extinguishing system. Signage shall indicate appliances from left to right, be durable, and the size, color, and lettering shall be approved. Automatic fire-extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows:~~

~~1. Carbon dioxide extinguishing systems, NFPA 12;~~
~~2. *Automatic sprinkler systems*, NFPA 13;~~
~~3. Foam-water sprinkler systems or foam-water spray systems, NFPA 16;~~
~~4. Dry-chemical extinguishing systems, NFPA 17;~~
~~5. Wet-chemical extinguishing systems, NFPA 17A.~~

~~EXCEPTION: Factory-built commercial cooking recirculating systems that are tested in accordance with UL 710B and *listed, labeled* and installed in accordance with Section 304.1 of the *International Mechanical Code*.~~))

Design. All construction documents shall be reviewed by a NICET Level III in special hazard suppression systems or a licensed professional engineer (PE) in the state of Washington prior to being submitted for permitting. The reviewing professional shall submit a stamped, signed, and dated letter; or a verification method approved by the *fire code official* indicating the system has been reviewed and meets or exceeds the design requirements of the state of Washington and the local jurisdiction.

904.1.1.2 Installation. Installation not defined as "electrical construction trade" by chapter 19.28 RCW or "Fire Protection Sprinkler Fitting" by chapter 18.270 RCW, shall be completed by or directly supervised by a NICET Level II or higher in *special hazards suppression systems*. Supervision shall consist of a person being on the same job site and under the control of a NICET Level II or higher in *special hazards suppression systems*.

904.1.1.3 Testing/maintenance. Inspection, testing, commissioning, maintenance, and programming not defined as "electrical construction trade" by chapter 19.28 RCW or "Fire Protection Sprinkler Fitting" by chapter 18.270 RCW, shall be completed by a NICET Level II or higher in *special hazards suppression systems*.

904.13 Commercial cooking systems. The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Preengineered automatic dry- and wet-chemical extinguishing systems shall be tested in accordance with UL 300 and *listed* and *labeled* for the intended application. Other types of automatic fire-extinguishing systems shall be *listed* and *labeled* for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, NFPA 96, its listing and the manufacturer's installation instructions. Additional protection is not required for ductwork beyond 75 feet when hood suppression system complies with UL 300. Signage shall be provided on the exhaust hood or system cabinet, indicating the type and arrangement of cooking appliances protected by the automatic fire-extinguishing system. Signage shall indicate appliances from left to right, be durable, and the size, color, and lettering shall be approved. Automatic fire-extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows:

1. Carbon dioxide extinguishing systems, NFPA 12.
2. *Automatic sprinkler systems*, NFPA 13.
3. Automatic water mist systems, NFPA 750.
4. Foam-water sprinkler system or foam-water spray systems, NFPA 16.
5. Dry-chemical extinguishing systems, NFPA 17.
6. Wet-chemical extinguishing systems, NFPA 17A.

EXCEPTIONS:
1. Factory-built commercial cooking recirculating systems that are tested in accordance with UL 710B and listed, labeled and installed in accordance with Section 304.1 of the *International Mechanical Code*.
2. Protection of duct systems beyond 75 feet when the commercial kitchen exhaust hood is protected by a system listed in accordance with UL 300.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-24-058, § 51-54A-0904, filed 11/27/19, effective 7/1/20; WSR 16-03-055, § 51-54A-0904, filed 1/16/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0907 Fire alarm and detection systems.

907.2.3 Group E. Group E occupancies shall be provided with a manual fire alarm system that initiates the occupant notification signal utilizing one of the following:

1. An emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6; or

2. A system developed as part of a safe school plan adopted in accordance with RCW 28A.320.125 or developed as part of an emergency response system consistent with the provisions of RCW 28A.320.126. The system must achieve all of the following performance standards:

2.1 The ability to broadcast voice messages or customized announcements;

2.2 Includes a feature for multiple sounds, including sounds to initiate a lock down;

2.3 The ability to deliver messages to the interior of a building, areas outside of a building as designated pursuant to the safe school plan, and to personnel;

2.4 The ability for two-way communications;

2.5 The ability for individual room calling;

2.6 The ability for a manual override;

2.7 Installation in accordance with NFPA 72;

2.8 Provide 15 minutes of battery backup for alarm and 24 hours of battery backup for standby; and

2.9 Includes a program for annual inspection and maintenance in accordance with NFPA 72.

EXCEPTIONS:
1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.
2. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, such as individual portable school classroom buildings; provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.
3. Where an existing approved alarm system is in place, an emergency voice/alarm system is not required in any portion of an existing Group E building undergoing any one of the following repairs, alteration or addition:
3.1 Alteration or repair to an existing building including, without limitation, alterations to rooms and systems, and/or corridor configurations, not exceeding 35 percent of the fire area of the building (or the fire area undergoing the alteration or repair if the building is comprised of two or more fire areas); or
3.2 An addition to an existing building, not exceeding 35 percent of the fire area of the building (or the fire area to which the addition is made if the building is comprised of two or more fire areas).
4. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
4.1 Interior corridors are protected by smoke detectors.
4.2 Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
4.3 Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
5. Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:
5.1 The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
5.2 The emergency voice/alarm communication system will activate on sprinkler waterflow.
5.3 Manual activation is provided from a normally occupied location.

907.2.3.1 Sprinkler systems or detection. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

907.2.6.1 Group I-1. An automatic smoke detection system shall be installed in *corridors*, waiting areas open to *corridors* and *habitable spaces* other than *sleeping units* and kitchens. The system shall be activated in accordance with Section 907.4.

EXCEPTIONS:
1. For Group I-1 Condition 1 occupancies, smoke detection in *habitable spaces* is not required where the facility is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. Smoke detection is not required for exterior balconies.

907.2.6.4 Group I-4 occupancies. A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group I-4 occupancies. When automatic sprinkler systems or

smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

EXCEPTIONS: 1. A manual fire alarm system is not required in Group I-4 occupancies with an occupant load of 50 or less.
2. Emergency voice alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group I-4 occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

907.2.11.1 Group R-1. Single or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:

1. In sleeping areas.

2. In each *loft* constructed in accordance with Section 420.13 of the *International Building Code*.

3. In every room in the path of the means of egress from the sleeping area to the door leading from the sleeping unit.

4. In each story within the sleeping unit, including basements. For sleeping units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

907.2.11.2 Groups R-2, R-3, and I-1. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, and I-1 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.

2. In each room used for sleeping purposes.

3. In each *loft* constructed in accordance with Section 420.13.

4. In each story within a *dwelling unit*, including *basements* but not including crawl spaces and uninhabitable attics. In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

907.5.2.1.2 Maximum sound pressure. The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. For systems operating in public mode, the maximum sound pressure level shall not exceed 30 dBA over the average ambient sound level. Where the average ambient noise is greater than 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

((~~907.10.1~~)) 907.8.4.1 Testing/maintenance: All inspection, testing, maintenance and programing not defined as "*electrical construction trade*" by chapter 19.28 RCW shall be completed by a NICET II or ESA/NTS Certified Fire Alarm Technician (CFAT) Level II Fire in fire alarms (effective July 1, 2018).

907.11 NICET: National Institute for Certification in Engineering Technologies and ESA/NTS: Electronic Security Association/National Training School.

907.11.1 Scope. This section shall apply to new and existing fire alarm systems.

907.11.2 Design review: All construction documents shall be reviewed by a NICET III, an ESA/NTS Certified Fire Alarm Designer (CFAD) Level III Fire in fire alarms, or a licensed professional engineer (PE) in Washington prior to being submitted for permitting. The reviewing professional shall submit a stamped, signed, and dated letter; or a veri-

fication method approved by the local authority having jurisdiction indicating the system has been reviewed and meets or exceeds the design requirements of the state of Washington and the local jurisdiction (effective July 1, 2018).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0907, filed 1/20/21, effective 2/20/21; WSR 20-01-162, § 51-54A-0907, filed 12/18/19, effective 7/1/20. Statutory Authority: RCW 19.27.031, 19.27.074 and chapter 19.27 RCW. WSR 19-02-086, § 51-54A-0907, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27.074 and 19.27.550. WSR 18-01-104, § 51-54A-0907, filed 12/19/17, effective 7/1/18. Statutory Authority: Chapter 19.27 RCW and RCW 19.27.031. WSR 17-10-028, § 51-54A-0907, filed 4/25/17, effective 5/26/17. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-0907, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-091, § 51-54A-0907, filed 12/1/14, effective 5/1/15. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0907, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-0909 ((~~Reserved.~~)) Section 909—Smoke control systems.

909.21.12 Hoistway venting. Hoistway venting need not be provided for pressurized elevator shafts.

909.21.13 Machine rooms. Elevator machine rooms shall be pressurized in accordance with this section unless separated from the hoistway shaft by construction in accordance with Section 707 of the *International Building Code*.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-0909, filed 1/20/21, effective 2/20/21; WSR 20-01-162, § 51-54A-0909, filed 12/18/19, effective 7/1/20; WSR 16-03-055, § 51-54A-0909, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0909, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-54A-0913 Section 913—Fire pumps.

913.2.1 Protection of fire pump rooms and access. Fire pumps shall be located in rooms that are separated from all other areas of the building by 2-hour fire barriers constructed in accordance with Section 707 of the *International Building Code* or 2-hour horizontal assemblies constructed in accordance with Section 711 of the *International Building Code*, or both. Fire pump rooms not directly accessible from the outside shall be accessible through an enclosed passageway from an interior exit stairway or exterior exit. The enclosed passageway shall

have a *fire-resistance rating* not less than the *fire-resistance rating* of the fire pump room (see NFPA 20 Section 4.14.2.1.2).

[]

AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-0915 Carbon monoxide detection.

((~~**915.1 General.** Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6. Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the *International Fire Code*.~~))

915.1.1 Where required. Carbon monoxide detection shall be provided in Group I and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

EXCEPTIONS: 1. R-2 occupancies, with the exception of R-2 college dormitories, are required to install carbon monoxide detectors without exception.
2. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and assisted living facilities and residential treatment facilities licensed by the state of Washington, which do not themselves contain a fuel-burning appliance, a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that they comply with the exceptions of Section 915.1.4.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each level of the dwelling. Where a fuel-burning appliance or a fuel-burning fireplace is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

((~~**915.2.2 Sleeping units.** Carbon monoxide detection shall be installed in *sleeping units*.~~

~~EXCEPTION: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a fuel-burning appliance or fuel-burning fireplace and is not served by a forced air furnace.~~))

915.2.3 Group E occupancies. When required by Section 915.1 in new buildings, or by Chapter 11 of the *International Fire Code*, carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.

EXCEPTIONS: 1. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 50 or less.
2. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies where an exception contained in Section 915.1 applies, or in Group E occupancies where signals are transmitted to an off-site service monitored by a third party, such as a service that monitors fire protection systems in the building.

915.5.1 General. Carbon monoxide detection systems shall comply with NFPA 72. Carbon monoxide detectors shall be listed in accordance with UL 2075.

915.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 915.2. These locations supersede the locations specified in NFPA 72.

915.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 72. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-0915, filed 12/18/19, effective 7/1/20; WSR 16-03-055, § 51-54A-0915, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-0915, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-0918 Alerting systems.

918.1 General. An approved alerting system shall be provided in buildings and structures as required in Chapter 4 and this section, unless other requirements are provided by another section of this code.

EXCEPTION: Approved alerting systems in existing buildings, structures or occupancies.

918.2 Power source. Alerting systems shall be provided with power supplies in accordance with Section ((~~4.4.1~~)) 10.6 of NFPA 72 and circuit disconnecting means identified as "EMERGENCY ALERTING SYSTEM."

EXCEPTION: Systems which do not require electrical power to operate.

918.3 Duration of operation. The alerting system shall be capable of operating under nonalarm condition (quiescent load) for a minimum of 24 hours and then shall be capable of operating during an emergency condition for a period of 15 minutes at maximum connected load.

918.4 Combination system. Alerting system components and equipment shall be allowed to be used for other purposes.

918.4.1 System priority. The alerting system use shall take precedence over any other use.

918.4.2 Fire alarm system. Fire alarm systems sharing components and equipment with alerting systems must be in accordance with Section ((~~6.8.4~~)) 23.8.4 of NFPA 72.

918.4.2.1 Signal priority. Recorded or live alert signals generated by an alerting system that shares components with a fire alarm system shall, when actuated, take priority over fire alarm messages and signals.

918.4.2.2 Temporary deactivation. Should the fire alarm system be in the alarm mode when such an alerting system is actuated, it shall temporarily cause deactivation of all fire alarm-initiated audible messages or signals during the time period required to transmit the alert signal.

918.4.2.3 Supervisory signal. Deactivation of fire alarm audible and visual notification signals shall cause a supervisory signal for each notification zone affected in the fire alarm system.

918.5 Audibility. Audible characteristics of the alert signal shall be in accordance with Section ((~~7.4.1~~)) 18.4.1 of NFPA 72 throughout the area served by the alerting system.

EXCEPTION: Areas served by approved visual or textual notification, where the visible notification appliances are not also used as a fire alarm signal((~~, are not required to be provided with audibility complying with Section 916.6~~)).

918.6 Visibility. Visible and textual notification appliances shall be permitted in addition to alert signal audibility.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-0918, filed 12/18/19, effective 7/1/20.]

NEW SECTION

WAC 51-54A-1003 General means of egress.

1003.7 Elevators, escalators, and moving walks. Elevators, escalators, and moving walks shall not be used as a component of a required means of egress from any other part of the building.

EXCEPTIONS: 1. Elevators used as an accessible means of egress in accordance with Section 1009.4.
2. Escalators used as a means of egress for fixed transit and passenger rail system accordance with Section 4901.

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NEW SECTION

WAC 51-54A-1004 Occupant load.

1004.5 Areas without fixed seating. The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.5. For areas without fixed seating, the occupant load shall be not less than that number determined by dividing the floor area under consideration by the occupant load factor assigned to the function of the space as set forth in Table 1004.5. Where an intended function is not listed in Table 1004.5, the *fire code official* shall establish a function based on a listed function that most nearly resembles the intended function.

EXCEPTION: Where approved by the fire code official, the actual number of occupants for whom each occupied space, floor, or building is designed, although less than those determined by calculation, shall be permitted to be used in the determination of the design occupant load.

1004.5.1 Increased occupant load. The occupant load permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table 1004.5, provided that all other requirements of the code are met based on such modified number and the occupant load does not exceed one occupant per 7 square feet (0.65 m^2) of occupiable floor space. Where required by the *fire code official*, an approved aisle, seating or fixed equipment diagram substantiating any increase in occupant load shall be submitted. Where required by the *fire code official*, such diagram shall be posted.

Table 1004.5
Maximum Floor Area Allowances Per Occupant

Function of Space	Occupant Load Factor[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	

Function of Space	Occupant Load Factor[a]
Baggage claim Baggage handling Concourse Waiting areas	20 gross 300 gross 100 gross 15 gross
Assembly Gaming floors (keno,slots, etc.) Exhibit gallery and museum Billiard table/game table area	 11 gross 30 net 50 gross
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats Concentrated (chairs only - Not fixed) Standing space Unconcentrated (tables and chairs)	 7 net 5 net 15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway and for additional areas	7 net
Business areas Concentrated business use areas	150 gross See Section 1004.8
Courtrooms - Other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational Classroom area Shops and other vocational room areas	 20 net 50 net
Exercise rooms	50 gross
Fixed guideway transit and passenger rail systems Platform Concourse/lobby	 100 gross (See Section 4901)
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	 240 gross 100 gross 120 gross
Kitchens, commercial	200 gross
Library Reading rooms Stack area	 50 net 100 gross
Locker rooms	50 gross
Mall buildings - Covered and open	See Section 402.8.2 of the IBC
Mercantile Storage, stock, shipping areas	 60 gross 300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools Rink and pool Decks	 50 gross 15 gross
Stages and platforms	15 net
Warehouses	500 gross
For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2	

[a] Floor area in square feet per occupant.

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NEW SECTION

WAC 51-54A-1005 Means of egress sizing.

1005.1 General. All portions of the *means of egress* system shall be sized in accordance with this section.

EXCEPTIONS: 1. Aisles and aisle access ways in rooms or spaces used for assembly purposes complying with Section 1030.
2. The capacity in inches, of means of egress components for fixed guideway transit and passenger rail stations, shall meet the requirements of Section 4901.

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NEW SECTION

WAC 51-54A-1006 Number of exits and exit access doorways.

1006.2.1 Egress based on occupant load and common path of egress travel distance. Two *exits* or *exit* access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1. The cumulative *occupant load* from adjacent rooms, areas or spaces shall be determined in accordance with Section 1004.2.

EXCEPTIONS: 1. The number of *exits* from foyers, lobbies, vestibules or similar spaces need not be based on cumulative *occupant loads* for areas discharging through such spaces, but the capacity of the *exits* from such spaces shall be based on applicable cumulative occupant loads.
2. Care suites in Group I-2 occupancies complying with Section 407.4 of the *International Building Code.*
3. Unoccupied mechanical rooms and penthouses are not required to comply with the common path of egress travel distance measurement.
4. The common path of travel for fixed transit and passenger rail system stations shall be in accordance with Section 4901.

1006.2.1.1 Three or more exits or exit access doorways. Three *exits* or *exit* access doorways shall be provided from any space with an occupant load of 501 to 1,000. Four exits or exit access doorways shall be provided from any space with an occupant load greater than 1,000.

EXCEPTION: The number of required exits for fixed transit and passenger rail systems may be reduced by one at open stations.

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AMENDATORY SECTION (Amending WSR 16-03-055, filed 1/16/16, effective 7/1/16)

WAC 51-54A-1008 ((~~Reserved.~~)) Means of egress illumination.

1008.2.3 Exit discharge. This subsection is not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-1008, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-1008, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-1009 Accessible means of egress.

1009.1 Accessible means of egress required. Accessible *means of egress* shall comply with this section. Accessible spaces shall be provided with not less than one accessible *means of egress*. Where more than one *means of egress* is required by Section 1006.2 or 1006.3 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two *accessible means of egress*.

EXCEPTIONS:
1. One *accessible means of egress* is required from an *accessible* mezzanine level in accordance with Section 1009.3, 1009.4 or 1009.5.
2. In assembly areas with ramped *aisles* or stepped *aisles* one *accessible means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section ((~~1029.8~~)) 1030.8.
3. In parking garages, *accessible means of egress* are not required to serve parking areas that do not contain accessible parking spaces.

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

EXCEPTIONS:
1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* that provide a direct path of egress travel to grade or the level of exit discharge conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.
6. Two-way communication systems are not required in Group I-2 or I-3 facilities.

1009.8.1 System requirements. Two-way communication systems shall provide communication between each required location and the *fire command center* or a central control point location *approved* by the fire department. Where the central control point is not a *constantly attended location*, ((~~a~~)) the two-way communication system shall have a timed automatic telephone dial-out capability ((~~to a monitoring location~~)) that provides two-way communication with an approved supervising station. The two-way communication system shall include both audible and visible signals. The two-way communication system shall have a battery backup or an approved alternate source of power that is capable of 90 minutes use upon failure of the normal power source.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-1009, filed 12/18/19, effective 7/1/20; WSR 16-03-055, § 51-54A-1009, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-1009, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-1010 Doors, gates and turnstiles.

((~~1010.1.9.4~~)) 1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.

2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M, and S, and in places of religious worship, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:

2.1. The locking device is readily distinguishable as locked;

2.2. A readily visible sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and

2.3. The use of the key-operated locking device is revocable by the building official for due cause.

3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.

4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices are openable from the inside without the use of a key or a tool.

5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

6. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.

7. Approved, listed locks without delayed egress shall be permitted in Group I-1 condition 2 assisted living facilities licensed under chapter 388-78A WAC and Group I-1 Condition 2 residential treatment facilities licensed under chapter 246-337 WAC by the state of Washington, provided that:

((~~6.1.~~)) 7.1. The clinical needs of one or more patients require specialized security measures for their safety.

((~~6.2.~~)) 7.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.

((~~6.3.~~)) 7.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.

((~~6.4.~~)) 7.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.

((~~6.5.~~)) 7.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

((~~6.6. Emergency lighting shall be provided at the door~~)) 8. Other than egress courts, where occupants must egress from an exterior space through the building for means of egress, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:

8.1. The occupant load of the occupied exterior area shall not exceed 300 as determined by IBC Section 1004.

8.2. The maximum occupant load shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the exit access doorways.

8.3. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.

8.4. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.

8.5. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) sq. ft. in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.

8.6. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating: THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED. The letters on the sign shall be not less than 1 inch high on a contrasting background.

9. Locking devices are permitted on doors to balconies, decks, or other exterior spaces serving individual dwelling or sleeping units.

10. Locking devices are permitted on doors to balconies, decks, or other exterior spaces of 250 square feet or less, serving a private office space.

((~~1010.1.9.7~~)) 1010.2.14 Controlled egress doors in Groups I-1 and I-2. Electric locking systems, including electromechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with all of the following:

1. The doors shall unlock ((~~upon~~)) on actuation of the automatic sprinkler system or automatic ((~~fire~~)) smoke detection system.

2. The door((~~s~~)) locks shall unlock ((~~upon~~)) on loss of power controlling the lock or lock mechanism.

3. The door locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.

4. A building occupant shall not be required to pass through more than one door equipped with a controlled egress locking system before entering an exit.

5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.

6. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

7. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.

8. Emergency lighting shall be provided at the door.

9. The door locking system units shall be listed in accordance with UL 294.

EXCEPTIONS:
1. Items 1 through 4 and 6 shall not apply to doors to areas where persons, which because of clinical needs, require restraint or containment as part of the function of a psychiatric treatment area.
2. Items 1 through 4 and 6 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

((**~~1010.1.10 Panic and fire exit hardware.~~** ~~Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.~~

EXCEPTIONS: 1. A main exit of a Group A occupancy shall have locking devices in accordance with Section 1010.1.9.4, Item 2.
2. Doors provided with panic hardware serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.10.

1010.1.10.3 Electrical rooms and working clearances. Exit and exit access doors serving electrical rooms and working spaces shall swing in the direction of egress travel and shall be equipped with panic hardware or fire exit hardware where such rooms or working spaces contain one or more of the following:

1. Equipment operating at more than 600 volts, nominal.

2. Equipment operating at 600 volts or less, nominal and rated at 800 amperes or more, and where the equipment contains overcurrent devices, switching devices or control devices.

EXCEPTION: Panic and fire exit hardware is not required on exit and exit access doors serving electrical equipment rooms and working spaces where such doors are not less than twenty-five feet (7.6 m) from the nearest edge of the electrical equipment.))

1010.3.4 Security grilles. In Groups B, F, M and S, horizontal sliding or vertical security grilles are permitted at the main exit and shall be openable from the inside without the use of a key or special knowledge or effort during periods that the space is occupied. The grilles shall remain secured in the full-open position during the period of occupancy by the general public. Where two or more *exits* or *access* to *exits* are required, not more than one-half of the *exits* or *exit access* doorways shall be equipped with horizontal sliding or vertical security grilles.

1010.3.4.1 Fixed transit and passenger rail systems. In fixed transit and passenger rail system stations horizontal and vertical security grilles are permitted at station entrances as a component in the means of egress when the station is under constant supervision by on-site security personnel and an exit door with panic hardware that swings in the direction of egress, with a minimum clear width of 32 inches, provided within 10 feet of the gate. The security grilles shall remain secured in the full-open position during the period of occupancy by the general public.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-1010, filed 1/20/21, effective 2/20/21; WSR 19-24-058, § 51-54A-1010, filed 11/27/19, effective 7/1/20; WSR 16-03-055, § 51-54A-1010, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-1010, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-055, filed 1/16/16, effective 7/1/16)

WAC 51-54A-1012 Ramps.

1012.1 Scope. The provisions of this section shall apply to ramps used as a component of a means of egress.

EXCEPTIONS: 1. Other than ramps that are part of the accessible routes providing access in accordance with Sections 1108.2 through ((~~1108.2.4 and 1108.2.6,~~)) 1108.6 of the *International Building Code* ramped aisles within assembly rooms or spaces shall conform with the provisions in Section ((~~1029.13~~)) 1030.
2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections ((~~1010.4 through 1010.10~~)) 1012.3 through 1012.10 of the *International Building Code* when they are not an accessible route serving accessible parking spaces or other required accessible elements.

4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections ((~~1010.5, 1010.6, and 1010.9~~)) 1012.5, 1012.6, and 1012.9 of the *International Building Code*. A landing complying with Sections ((~~1010.7.1 and 1010.7.4~~)) 1012.6.1 and 1012.6.4 of the *International Building Code* shall be provided at any change of direction in the accessible means of egress.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-1012, filed 1/16/16, effective 7/1/16.]

NEW SECTION

WAC 51-54A-1017 Exit access travel distance.

Table 1017.2
Exit Access Travel Distance[a]

Occupancy	Without Sprinkler System (feet)	With Sprinkler System (feet)
A, E, F-1, M, R, S-1	200[e]	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[d]
H-2	Not Permitted	100[d]
H-3	Not Permitted	150[d]
H-4	Not Permitted	175[d]
H-5	Not Permitted	200[c]
I-Z, I-3	Not Permitted	200[c]
I-4	150	200[c]

For SI: 1 foot = 304.8 mm.

[a] See the following sections for modifications to exit access travel distance requirements:
- Section 402.8 of the *International Building Code*: For the distance limitation in malls.
- Section 407.4 of the *International Building Code*: For the distance limitation in Group I-2.
- Sections 408.6.1 and 408.8.1 of the *International Building Code*: For the distance limitations in Group I-3.
- Section 411.2 of the *International Building Code*: For the distance limitation in special amusement areas.
- Section 412.6 of the *International Building Code*: For the distance limitations in aircraft manufacturing facilities.
- Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.
- Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.
- Section 1006.3.4: For buildings with one exit.
- Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.
- Section 1030.7: For increased limitation in assembly seating.
- Section 3103.4 of the *International Building Code*: For temporary structures.
- Section 3104.9 of the *International Building Code*: For pedestrian walkways.
- Section 4901: For fixed guideway and passenger rail stations.

[b] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.

[c] Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

[d] Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.

[e] Group R-3 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

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NEW SECTION

WAC 51-54A-1019 Section 1019—Exit access stairways and ramps.

1019.3 Occupancies other than Groups I-2 and I-3. In other than Groups I-2 and I-3 occupancies, floor openings containing exit access stairways or ramps shall be enclosed with a shaft enclosure constructed in accordance with Section 713 of the *International Building Code*.

EXCEPTIONS:
1. Exit access stairways and ramps that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2, or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
3. Exit access stairways serving and contained within a Group R-3 congregate residence are not required to be enclosed.
4. Exit access stairways and ramps in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. Exit access stairways and ramps within an atrium complying with the provisions of Section 404 of the International Building Code.
6. Exit access stairways and ramps in open parking garages that serve only the parking garage.
7. Exit access stairways and ramps serving smoke-protected or open-air assembly seating complying with the exit access travel distance requirements of Section 1030.7.
8. Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums, and sports facilities.
9. Exterior exit access stairways or ramps between occupied roofs.

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AMENDATORY SECTION (Amending WSR 16-03-055, filed 1/16/16, effective 7/1/16)

WAC 51-54A-1020 Corridors.

((~~1020.5~~)) 1020.6 Air movement in corridors. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

EXCEPTIONS:
1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
3. Where located within tenant spaces of ((~~one thousand~~)) 1,000 square feet (93 m^2) or less in area, utilization of corridors for conveying return air is permitted.
4. Incidental air movement from pressurized rooms within health care facilities, provided that a corridor is not the primary source of supply or return to the room.
5. Where such air is part of an engineered smoke control system.
6. Air supplied to corridors serving residential occupancies shall not be considered as providing ventilation air to the dwelling units subject to the following:
6.1. The air supplied to the corridor is ((~~one hundred~~)) 100 percent outside air; and
6.2. The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and
6.3. For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors which shall be spaced at no more than ((~~thirty~~)) 30 feet (9144 mm) on center along the corridor; or
6.4. For high-rise buildings, corridor smoke detector activation will close required smoke/fire dampers at the supply inlet to the corridor at the floor receiving the alarm.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-1020, filed 1/16/16, effective 7/1/16.]

NEW SECTION

WAC 51-54A-1023 Section 1023—Interior exit stairways and ramps.

1023.12 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2 or 412.2.2.1, of the *International Building Code*, interior exit stairways and ramps shall be smokeproof enclosures in accordance with Section 909.20 of the *International Building Code*. Where interior exit stairways and ramps are pressurized in accordance with Section 909.20.5 of the *International Building Code*, the smoke control pres-

surization system shall comply with the requirements specified in Section 909.6.3 of the *International Building Code*.

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AMENDATORY SECTION (Amending WSR 16-03-055, filed 1/16/16, effective 7/1/16)

WAC 51-54A-1103 Fire safety requirements for existing buildings.

1103.2 Emergency responder communication enhancement in existing buildings. Existing buildings other than Group R-3, that do not have approved in-building, emergency response communication enhancement system for emergency responders in the building based on existing coverage levels of the public safety communication systems, shall be equipped with such coverage according to one of the following:

1. Where an existing wired communication system cannot be repaired or is being replaced, or where not approved in accordance with Section 510.1, Exception 1.

2. Within a time frame established by the adopting authority.

EXCEPTION: Where it is determined by the fire code official that the in-building, emergency responder communication enhancement system is not needed.

1103.4.3 More than five stories. In other than Group I occupancies, interior vertical openings connecting more than five stories shall be protected by fire-resistant and smoke-rated construction.

EXCEPTIONS:
1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection for escalators shall be in accordance with Section 1103.4.8.

((~~1103.5.5~~)) 1103.5.6 Nightclub. An automatic sprinkler system shall be provided throughout A-2 nightclubs as defined in this code. No building shall be constructed for, used for, or converted to occupancy as a nightclub except in accordance with this section.

1103.9 Carbon monoxide alarms. Existing Group I or Group R occupancies shall be provided with single station carbon monoxide alarms in accordance with Section 915.4.3. An inspection will occur when alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA ((~~720-2015~~)) 72 and the manufacturer's instructions.

EXCEPTIONS:
1. For other than R-2 occupancies, if the building does not contain a fuel-burning appliance, a fuel-burning fireplace, or an attached garage.
2. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, or electrical permits.
3. Installation, alteration or repairs of noncombustion plumbing or mechanical systems.
4. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and assisted living facilities and residential treatment facilities licensed by the state of Washington which do not themselves contain a fuel-burning appliance, a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that:
4.1. The sleeping units or dwelling unit is not adjacent to any room which contains a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and
4.2. The sleeping units or dwelling unit is not connected by duct work or ventilation shafts with a supply or return register in the same room to any room containing a fuel-burning appliance, a fuel-burning fireplace, or to an attached garage; and
4.3. The building is provided with a common area carbon monoxide detection system.
5. An open parking garage, as defined in the International Building Code, or enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-1103, filed 1/16/16, effective 7/1/16. Statutory Authority:

Chapters 19.27, 19.27A, and 34.05 RCW. WSR 13-24-017, § 51-54A-1103, filed 11/21/13, effective 4/1/14. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-1103, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-05-065, filed 2/12/16, effective 7/1/16)

WAC 51-54A-1104 Means of egress for existing buildings.

1104.1 General. Means of egress in existing buildings shall comply with Section ((~~1030~~)) 1031 and 1104.2 through 1104.25.

EXCEPTION: Means of egress conforming to the requirements of the building code under which they were constructed and Section ((~~1030~~)) 1031 shall not be required to comply with 1104.2 through 1104.22 and 1104.25.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-05-065, § 51-54A-1104, filed 2/12/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-1104, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-1204 ((~~Section 1204—Solar photovoltaic power systems.~~)) Reserved.

((~~**1204.1 General.** Installation, modification, or alteration of solar photovoltaic power systems shall comply with this section. Due to the emerging technologies in the solar photovoltaic industry, it is understood fire code officials may need to amend prescriptive requirements of this section to meet the requirements for firefighter access and product installations. Section 104.9 Alternative materials and methods of this code shall be considered when approving the installation of solar photovoltaic power systems. Solar photovoltaic power systems shall be installed in accordance with Sections 605.11.1 through 605.11.2, the *International Building Code* and chapter 19.28 RCW.~~

~~**1204.2.1 Solar photovoltaic systems for Group R-3 residential and buildings built under the *International Residential Code*.** Solar photovoltaic systems for Group R-3 residential and buildings built under the *International Residential Code* shall comply with Sections 1204.2.1.1 through 1204.2.1.3.~~

~~EXCEPTIONS: 1. Residential dwellings with an approved automatic fire sprinkler system installed.~~
~~2. Residential dwellings with approved mechanical or passive ventilation systems.~~
~~3. Where the fire code official determines that the slope of the roof is too steep for emergency access.~~
~~4. Where the fire code official determines that vertical ventilation tactics will not be utilized.~~
~~5. These requirements shall not apply to roofs where the total combined area of the solar array does not exceed thirty-three percent as measured in plan view of the total roof area of the structure, where the solar array will measure 1,000 sq. ft. or less in area, and where a minimum eighteen inches unobstructed pathway shall be maintained along each side of any horizontal ridge.~~

~~**1204.6 Size of solar photovoltaic array.**~~

~~1. Each photovoltaic array shall be limited to 150 feet (45,720 mm) by 150 feet (45,720 mm). Multiple arrays shall be separated by a 3-foot wide (914 mm) clear access pathway.~~

~~2. Panels/modules shall be located up to the roof ridge where an alternative ventilation method approved by the fire *code official* has determined vertical ventilation techniques will not be employed.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-1204, filed 1/20/21, effective 2/20/21; WSR 20-01-162, § 51-54A-1204, filed 12/18/19, effective 7/1/20.]

NEW SECTION

WAC 51-54A-1205 Section 1205—Solar photovoltaic power systems.

1205.1 General. Installation, modification, or alteration of solar photovoltaic power systems shall comply with this section. Due to the emerging technologies in the solar photovoltaic industry, it is understood fire code officials may need to amend prescriptive requirements of this section to meet the requirements for firefighter access and product installations. Section 104.10 Alternative materials and methods of this code shall be considered when approving the installation of solar photovoltaic power systems. Solar photovoltaic power systems shall be installed in accordance with Sections 1205.2.1 through 1205.6, the *International Building Code*, and chapter 19.28 RCW.

1205.2.1 Solar photovoltaic systems for Group R-3 residential and buildings built under the *International Residential Code*. Solar photovoltaic systems for Group R-3 residential and buildings built under the *International Residential Code* shall comply with Sections 1205.2.1.1 through 1205.2.1.3.

EXCEPTIONS:
1. Residential dwellings with an approved automatic fire sprinkler system installed.
2. Residential dwellings with approved mechanical or passive ventilation systems.
3. Where the fire code official determines that the slope of the roof is too steep for emergency access.
4. Where the fire code official determines that vertical ventilation tactics will not be utilized.
5. These requirements shall not apply to roofs where the total combined area of the solar array does not exceed 33 percent as measured in plan view of the total roof area of the structure, where the solar array will measure 1,000 sq. ft. or less in area, and where a minimum 18 inches unobstructed pathway shall be maintained along each side of any horizontal ridge.

1205.6 Size of solar photovoltaic array.

1. Each photovoltaic array shall be limited to 150 feet (45,720 mm) by 150 feet (45,720 mm). Multiple arrays shall be separated by a 3-foot wide (914 mm) clear access pathway.

2. Panels/modules shall be located up to the roof ridge where an alternative ventilation method approved by the fire *code official* has determined vertical ventilation techniques will not be employed.

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NEW SECTION

WAC 51-54A-1207 Electrical energy storage systems.

1207.1.4 Hazard mitigation analysis. Failure modes and effects analysis (FMEA) or other *approved* hazard mitigation analysis shall be provided in accordance with Section 104.8.2 under any of the following conditions:

1. Where ESS technologies not specifically identified in Table 1207.1.1 are provided.

2. More than one ESS technology is provided in a room or enclosed area where there is a potential for adverse interaction between technologies.

3. Where allowed as a basis for increasing maximum allowable quantities. See Section 1207.5.2.

4. Where flammable gases can be produced under abnormal conditions.

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NEW SECTION

WAC 51-54A-2404 Spray finishing.

2404.2.1 Prohibited enclosures for spray application operations. Inflatable or portable enclosures shall not be used for spray application of flammable finishes.

EXCEPTION: Enclosures for the spray application of flammable finishes in marinas, dry docking areas, or construction areas shall comply with Section 2404.3.5.

2404.3.5 Membrane enclosures. The design, construction, protection, operation and maintenance of membrane enclosures shall be in accordance with NFPA 33.

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NEW SECTION

WAC 51-54A-3303 Administrative safety controls.

3303.1.1 Components of site safety plans. Site safety plans shall include the following as applicable:

1. Name and contact information of site safety director.

2. Documentation of the training of the site safety director and fire watch personnel.

3. Procedures for reporting emergencies.

4. Fire department vehicle access routes.

5. Location of fire protection equipment, including portable fire extinguishers, standpipes, fire department connections, and fire hydrants.

6. Smoking and cooking policies, designated areas to be used where approved, and signage locations in accordance with Section 3305.7.

7. Location and safety considerations for temporary heating equipment.

8. Hot work permit plan.

9. Plans for control of combustible waste material.

10. Locations and methods for storage and use of flammable and combustible liquids and other hazardous materials.

11. Provisions for site security.

12. Changes that affect this plan.

13. Other site-specific information required by the fire code official.

3303.2.1 Training. Training of fire watch and other responsible personnel in the use of fire protection equipment shall be the responsibility of the site safety director. Records of training shall be kept and made a part of the written plan for the site safety plan.

3303.3 Daily fire safety inspection. The site safety director shall be responsible for completion of a daily fire safety inspection at the project site. Each day, all building and outdoor areas shall be inspected to ensure compliance with the inspection list in this section. The results of each inspection shall be documented and maintained on-site until a certificate of occupancy has been issued. Documentation shall be immediately available on-site for presentation to the fire code official upon request.

1. Any contractors entering the site to perform hot work each day have been instructed in the hot work safety requirements in Chapter 35, and hot work is performed only in areas approved by the site safety director.

2. Temporary heating equipment is maintained away from combustible materials in accordance with the equipment manufacturer's instructions.

3. Combustible debris, rubbish and waste material is removed from the building in areas where work is not being performed.

4. Temporary wiring does not have exposed conductors.

5. Flammable liquids and other hazardous materials are stored in locations that have been approved by the site safety director when not involved in work that is being performed.

6. Fire apparatus access roads required by Section 3307 are maintained clear of obstructions that reduce the width of the usable roadway to less than 20 feet (6096 mm).

7. Fire hydrants are clearly visible from access roads and are not obstructed.

8. The location of fire department connections to standpipe and in-service sprinkler systems are clearly identifiable from the access road and such connections are not obstructed.

9. Standpipe systems are in service and continuous to the highest work floor, as specified in Section 3307.5.

10. Portable fire extinguishers are available in locations required by Sections 3306.6 and 3305.10.2.

3303.5 Fire watch. Where required by the *fire code official* or the site safety plan established in accordance with Section 3303.1, a fire watch shall be provided for building demolition and for building construction.

EXCEPTION: New construction that is built under the IRC.

3303.5.1 Fire watch during construction. A fire watch shall be provided during nonworking hours for new construction that exceeds 40 feet (12,192 mm) in height above the lowest adjacent grade at any point along the building perimeter, for new multistory construction with an aggregate area exceeding 50,000 square feet (4645 m) per story or as required by the fire code official.

3303.5.2 Fire watch personnel. Fire watch personnel shall be provided in accordance with this section.

3303.5.2.1 Duties. The primary duty of fire watch personnel shall be to perform constant patrols and watch for the occurrence of fire. The

combination of fire watch duties and site security duties is acceptable.

3303.5.2.2 Training. Personnel shall be trained to serve as an on-site fire watch. Training shall include the use of portable fire extinguishers. Fire extinguishers and fire reporting shall be in accordance with Sections 3303.6 and 3306.6.

3303.5.2.3 Means of notification. Fire watch personnel shall be provided with not fewer than one approved means for notifying the fire department.

3303.5.3 Fire watch location and records. The fire watch shall include areas specified by the site safety plan established in accordance with Section 3303.

3303.5.4 Fire watch records. Fire watch personnel shall keep a record of all time periods of duty, including the log entry for each time the site was patrolled and each time a structure was entered and inspected. Records shall be made available for review by the fire code official upon request.

3303.6 Emergency telephone. Emergency telephone facilities with ready access shall be provided in an approved location at the construction site, or an approved equivalent means of communication shall be provided. The street address of the construction site and the emergency telephone number of the fire department shall be posted adjacent to the telephone. Alternatively, where an equivalent means of communication has been approved, the site address and fire department emergency telephone number shall be posted at the main entrance to the site, in guard shacks, and in the construction site office.

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AMENDATORY SECTION (Amending WSR 19-24-058, filed 11/27/19, effective 7/1/20)

WAC 51-54A-3304 Precautions against fire.

((~~**3304.5.1 Fire watch during construction.** Where required by the fire code official, a fire watch shall be provided during nonworking hours for new construction that exceeds 40 feet (12,192 mm) in height above the lowest adjacent grade.~~

~~EXCEPTIONS: 1. New construction that is built under the IRC.~~
~~2. New construction less than 5 stories and 50,000 square feet per story.~~))

3304.1 Combustible debris, rubbish, and waste. Combustible debris, rubbish, and waste material shall comply with the requirements of Sections 3304.1.1 through 3304.2.

3304.1.1 Combustible waste material accumulation. Combustible debris, rubbish, and waste material shall not be accumulated within buildings.

3304.1.2 Combustible waste material removal. Combustible debris, rubbish, and waste material shall be removed from buildings at the end of each shift of work.

3304.1.3 Rubbish containers. Where rubbish containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m) are used for temporary storage of combustible debris, rubbish, and waste material, they shall

have tight-fitting or self-closing lids. Such rubbish containers shall be constructed entirely of materials that comply with either of the following:

1. Noncombustible materials.

2. Materials that meet a peak rate of heat release not exceeding 300 kW/m when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m in the horizontal orientation.

3304.2 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-24-058, § 51-54A-3304, filed 11/27/19, effective 7/1/20.]

NEW SECTION

WAC 51-54A-3305 Ignition source controls.

3305.1 Listed. Temporary heating devices shall be listed and labeled. The installation, maintenance and use of temporary heating devices shall be in accordance with the listing and the manufacturer's instructions.

3305.1.1 Oil-fired heaters. Oil-fired heaters shall comply with Section 605.

3305.1.2 LP-gas heaters. Fuel supplies for liquefied-petroleum gas-fired heaters shall comply with Chapter 61 and the International Fuel Gas Code.

3305.1.3 Refueling. Refueling operations for liquid-fueled equipment or appliances shall be conducted in accordance with Section 5705. The equipment or appliance shall be allowed to cool prior to refueling.

3305.1.4 Installation. Clearance to combustibles from temporary heating devices shall be maintained in accordance with the labeled equipment. When in operation, temporary heating devices shall be fixed in place and protected from damage, dislodgement or overturning in accordance with the manufacturer's instructions.

3305.1.5 Supervision. The use of temporary heating devices shall be supervised and maintained only by competent personnel.

3305.2 Smoking. Smoking shall be prohibited except in approved areas. Signs shall be posted in accordance with Section 310. In approved areas where smoking is permitted, approved ashtrays shall be provided in accordance with Section 310.

3305.5 Cutting and welding. Welding, cutting, open torches and other hot work operations and equipment shall comply with Chapter 35.

3305.6 Electrical. Temporary wiring for electrical power and lighting installations used in connection with the construction, alteration or demolition of buildings, structures, equipment or similar activities shall comply with NFPA 70.

3305.7 Cooking. Cooking shall be prohibited except in approved designated cooking areas separated from combustible materials by a minimum of 10 feet (3048 mm). Signs with a minimum letter height of 3 inches

(76 mm) and a minimum brush stroke of one-half inch (13 mm) shall be posted in conspicuous locations in designated cooking areas and state:

Designated cooking area;
Cooking outside of a designated area;
Cooking area is prohibited.

3305.8 General. Portable generators used at construction and demolition sites shall comply with Section 1204.

3305.9 Hot work operations. The site safety director shall ensure hot work operations and permit procedures are in accordance with Chapter 35.

3305.10 Safeguarding roof operations general. Roofing operations utilizing heat-producing systems or other ignition sources shall be conducted in accordance with Sections 3305.10.1 and 3305.10.2 and Chapter 35.

3305.10.1 Asphalt and tar kettles. Asphalt and tar kettles shall be operated in accordance with Section 303.

3305.10.2 Fire extinguishers for roofing operations. Fire extinguishers shall comply with Section 906. There shall be not less than one multiple-purpose portable fire extinguisher with a minimum 3-A 40-B:C rating on the roof being covered or repaired.

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NEW SECTION

WAC 51-54A-3306 Fire protection systems and devices.

3306.1 Fire protection devices. The site safety director shall ensure that all fire protection equipment is maintained and serviced in accordance with this code. Fire protection equipment shall be inspected in accordance with the fire protection program.

3306.2 Impairment of fire protection systems. The site safety director shall ensure impairments to any fire protection system are in accordance with Section 901.

3306.3 Smoke detectors and smoke alarms. Smoke detectors and smoke alarms located in an area where airborne construction dust is expected shall be covered to prevent exposure to dust or shall be temporarily removed. Smoke detectors and alarms that were removed shall be replaced upon conclusion of dust-producing work. Smoke detectors and smoke alarms that were covered shall be inspected and cleaned, as necessary, upon conclusion of dust-producing work.

3306.4 Temporary covering of fire protection devices. Coverings placed on or over fire protection devices to protect them from damage during construction processes shall be immediately removed upon the completion of the construction processes in the room or area in which the devices are installed.

3306.5 Automatic sprinkler system. In buildings where an automatic sprinkler system is required by this code or the International Building Code, it shall be unlawful to occupy any portion of a building or structure until the automatic sprinkler system installation has been tested and approved, except as provided in Section 105.3.4.

3306.5.1 Operation of valves. Operation of sprinkler control valves shall be allowed only by properly authorized personnel and shall be accompanied by notification of duly designated parties. Where the sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work period to ascertain that protection is in service.

3306.6 Portable fire extinguishers. Structures under construction, alteration or demolition shall be provided with not less than one approved portable fire extinguisher in accordance with Section 906 and sized for not less than ordinary hazard as follows:

1. At each stairway on all floor levels where combustible materials have accumulated.
2. In every storage and construction shed.
3. Additional portable fire extinguishers shall be provided where special hazards exist including, but not limited to, the storage and use of flammable and combustible liquids.

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NEW SECTION

WAC 51-54A-3307 Fire department site and water supply.

3307.1 Required access. Approved vehicle access for fire fighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet (30,480 mm) of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

3307.1.2 Key boxes. Key boxes shall be provided as required by Chapter 5.

3307.1.3 Stairways required. Where building construction exceeds 40 feet (12,192 mm) in height above the lowest level of fire department vehicle access, a temporary or permanent stairway shall be provided. As construction progresses, such stairway shall be extended to within one floor of the highest point of construction having secured decking or flooring.

3307.1.4 Maintenance. Required means of egress and required accessible means of egress shall be maintained during construction and demolition, remodeling or alterations and additions to any building.

EXEMPTION: Approved temporary means of egress and accessible means of egress systems and facilities.

3307.2 Water supply for fire protection. An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible building materials arrive on the site, on commencement of vertical combustible construction and on installation of a standpipe system in buildings under construction, in accordance with Sections 3307.2.1 through 3307.4.

EXCEPTION: The fire code official is authorized to reduce the fire-flow requirements for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

3307.2.1 Combustible building materials. When combustible building materials of the building under construction are delivered to a site, a minimum fire flow of 500 gallons per minute (1893 L/m) shall be provided. The fire hydrant used to provide this fire-flow supply shall be within 500 feet (152 m) of the combustible building materials, as measured along an approved fire apparatus access lane. Where the site configuration is such that one fire hydrant cannot be located within 500 feet (152 m) of all combustible building materials, additional fire hydrants shall be required to provide coverage in accordance with this section.

3307.2.2 Vertical construction of Types III, IV, and V construction. Prior to commencement of vertical construction of Type III, IV, or V buildings that utilize any combustible building materials, the fire flow required by Sections 3307.2.2.1 through 3307.2.2.3 shall be provided, accompanied by fire hydrants in sufficient quantity to deliver the required fire flow and proper coverage.

3307.2.2.1 Fire separation up to 30 feet. Where a building of Type III, IV, or V construction has a fire separation distance of less than 30 feet (9144 mm) from property lot lines, and an adjacent property has an existing structure or otherwise can be built on, the water supply shall provide either a minimum of 500 gallons per minute (1893 L/m) or the entire fire flow required for the building when constructed, whichever is greater.

3307.2.2.2 Fire separation of 30 feet up to 60 feet. Where a building of Type III, IV, or V construction has a fire separation distance of 30 feet (9144 mm) up to 60 feet (18,288 mm) from property lot lines, and an adjacent property has an existing structure or otherwise can be built on, the water supply shall provide a minimum of 500 gallons per minute (1893 L/m) or 50 percent of the fire flow required for the building when constructed, whichever is greater.

3307.2.2.3 Fire separation of 60 feet or greater. Where a building of Type III, IV, or V construction has a fire separation of 60 feet (18,288 mm) or greater from a property lot line, a water supply of 500 gallons per minute (1893 L/m) shall be provided.

3307.3 Vertical construction, Type I and II construction. If combustible building materials are delivered to the construction site, water supply in accordance with Section 3307.2.1 shall be provided. Additional water supply for fire flow is not required prior to commencing vertical construction of Type I and II buildings.

3307.4 Standpipe supply. Regardless of the presence of combustible building materials, the construction type or the fire separation distance, where a standpipe is required in accordance with Section 3307, a water supply providing a minimum flow of 500 gallons per minute (1893 L/m) shall be provided. The fire hydrant used for this water supply shall be located within 100 feet (30,480 mm) of the fire department connection supplying the standpipe.

3307.5 Standpipes. In buildings required to have standpipes by Section 905.3.1, not less than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet (12,192 mm) in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at locations adjacent to stairways complying with Section 3307.1.3. As construction progresses, such standpipes

shall be extended to within one floor of the highest point of construction having secured decking or flooring.

3307.5.1 Buildings being demolished. Where a building is being demolished and a standpipe is existing within such a building, such standpipe shall be maintained in an operable condition so as to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished.

3307.5.2 Detailed requirements. Standpipes shall be installed in accordance with the provisions of Section 905.

EXCEPTION: Standpipes shall be either temporary or permanent in nature, and with or without a water supply, provided that such standpipes comply with the requirements of Section 905 as to capacity, outlets, and materials.

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AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-3308 ((~~Owner's responsibility for fire protection.~~)) Motorized construction equipment.

((~~**3308.9 Fire safety requirements for buildings of Types IV-A, IV-B, and IV-C construction.** Buildings of Types IV-A, IV-B, and IV-C construction designed to be greater than six stories above grade plane shall meet the following requirements during construction unless otherwise approved by the fire code official.~~

~~1. Standpipes shall be provided in accordance with Section 3313.~~

~~2. A water supply for fire department operations, as approved by the fire code official and the fire chief.~~

~~3. Where building construction exceeds six stories above grade plane, at least one layer of noncombustible protection where required by Section 602.4 of the *International Building Code* shall be installed on all building elements more than four floor levels, including mezzanines, below active mass timber construction before erecting additional floor levels.~~

~~EXCEPTION: Shafts and vertical exit enclosures shall not be considered a part of the active mass timber construction.~~

~~4. Where building construction exceeds six stories above grade plane required exterior wall coverings shall be installed on all floor levels more than four floor levels, including mezzanines, below active mass timber construction before erecting additional floor level.~~

~~EXCEPTION: Shafts and vertical exit enclosures shall not be considered a part of the active mass timber construction.~~))

3308.1 Conditions of use. Internal-combustion-powered construction equipment shall be used in accordance with all of the following conditions:

1. Equipment shall be located so that exhausts do not discharge against combustible material.

2. Exhausts shall be piped to the outside of the building.

3. Equipment shall not be refueled while in operation.

4. Fuel for equipment shall be stored in an approved area outside of the building.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-3308, filed 12/18/19, effective 7/1/20. Statutory Authority:

RCW 19.27.031, 19.27.074 and chapter 19.27 RCW. WSR 19-02-086, § 51-54A-3308, filed 1/2/19, effective 7/1/19.]

NEW SECTION

WAC 51-54A-3309 Hazardous materials.

3309.1 Storage of flammable and combustible liquids. Storage of flammable and combustible liquids shall be in accordance with Section 5704.

3309.1.1 Class I and Class II liquids. The storage, use and handling of flammable and combustible liquids at construction sites shall be in accordance with Section 5706.2. Ventilation shall be provided for operations involving the application of materials containing flammable solvents.

3309.1.2 Housekeeping. Flammable and combustible liquid storage areas shall be maintained clear of combustible vegetation and waste materials. Such storage areas shall not be used for the storage of combustible materials.

3309.1.3 Precautions against fire. Sources of ignition and smoking shall be prohibited in flammable and combustible liquid storage areas. Signs shall be posted in accordance with Section 310.

3309.1.4 Handling at point of final use. Class I and II liquids shall be kept in approved safety containers.

3309.1.5 Leakage and spills. Leaking vessels shall be immediately repaired or taken out of service and spills shall be cleaned up and disposed of properly.

3309.2 Storage and handling of flammable gas. The storage, use, and handling of flammable gases shall comply with Chapter 58.

3309.2.1 Cleaning with flammable gas. Flammable gases shall not be used to clean or remove debris from piping open to the atmosphere.

3309.2.2 Pipe cleaning and purging. The cleaning and purging of flammable gas piping systems, including cleaning new or existing piping systems, purging piping systems into service and purging piping systems out of service, shall comply with NFPA 56.

EXCEPTIONS:
1. Compressed gas piping systems other than fuel gas piping systems where in accordance with Chapter 53.
2. Piping systems regulated by the International Fuel Gas Code.
3. Liquefied petroleum gas systems in accordance with Chapter 61.

3309.3 Storage and handling. Explosive materials shall be stored, used and handled in accordance with Chapter 56.

3309.3.1 Supervision. Blasting operations shall be conducted in accordance with Chapter 56.

3309.3.2 Demolition using explosives. Approved fire hoses for use by demolition personnel shall be maintained at the demolition site wherever explosives are used for demolition. Such fire hoses shall be connected to an approved water supply and shall be capable of being brought to bear on post-detonation fires anywhere on the site of the demolition operation.

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NEW SECTION

WAC 51-54A-3310 Additional safeguards for occupied buildings.

3310.1 Storage. Combustible materials associated with construction, demolition, remodeling or alterations to an occupied structure shall not be stored in exits, enclosures for stairways and ramps, or exit access corridors serving an occupant load of 30 or more.

EXCEPTIONS: 1. Where the only occupants are construction workers.
2. Combustible materials that are temporarily accumulated to support work being performed when workers are present.

[]

NEW SECTION

WAC 51-54A-3311 Additional safeguards for Type I and II construction.

3311.1 Separations between construction areas. Separations used in Type I and Type II construction to separate construction areas from occupied portions of the building shall be constructed of materials that comply with one of the following:

1. Noncombustible materials.

2. Materials that exhibit a flame spread index not exceeding 25 when tested in accordance with ASTM E84 or UL 723.

3. Materials exhibiting a peak heat release rate not exceeding 300 kW/m when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m in the horizontal orientation on specimens at the thickness intended for use.

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NEW SECTION

WAC 51-54A-3312 Additional safeguards for Type IV-A, IV-B, and IV-C construction.

3312.1 Fire safety requirements for buildings of Types IV-A, IV-B, and IV-C construction. Buildings of Types IV-A, IV-B, and IV-C construction designed to be greater than six stories above grade plane shall comply with the following requirements during construction unless otherwise approved by the *fire code official*:

1. Standpipes shall be provided in accordance with Section 3307.

2. A water supply for fire department operations, as approved by the *fire code official* and the fire chief.

3. Where building construction exceeds six stories above grade plane and noncombustible protection is required by Section 602.4 of the *International Building Code*, at least one layer of noncombustible protection shall be installed on all building elements on floor levels, including mezzanines, more than four levels below active mass timber construction before additional floor levels can be erected.

EXCEPTIONS: 1. Shafts and vertical exit enclosures shall not be considered part of the active mass timber construction.
2. Noncombustible protection on the top surface of mass timber floor assemblies shall not be required before erecting additional floor levels.

4. Where building construction exceeds six stories above grade plane, required exterior wall coverings shall be installed on floor levels, including mezzanines, more than four levels below active mass timber construction before additional floor levels can be erected.

EXCEPTION: Shafts and vertical exit enclosures shall not be considered part of the active mass timber construction.

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AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-3601 Marinas—Scope.

3601.3 Permits. For permits to operate marine motor fuel-dispensing stations, application of flammable or combustible finishes, and hot works, see Section ((~~105.6~~)) 105.5.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-3601, filed 12/18/19, effective 7/1/20. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-3601, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-3604 Fire protection equipment.

3604.2 Standpipes. Marinas and boatyards shall be equipped throughout with Class I manual, dry standpipe systems in accordance with NFPA 303. Systems shall be provided with ((~~outlets~~)) hose connections located such that no point on the marina pier or float system exceeds 150 feet from a standpipe outlet.

3604.3 Access and water supply. Piers and wharves shall be provided with fire apparatus access roads and water-supply systems with on-site fire hydrants when required and *approved* by the *fire code official*. At least one fire hydrant capable of providing the required fire flow shall be provided within an *approved* distance of standpipe supply connections.

3604.4 Portable fire extinguishers. One 4A40BC rated fire extinguisher shall be provided at each standpipe ((~~outlet~~)) hose connection. Additional portable fire extinguishers, suitable for the hazards involved, shall be provided and maintained in accordance with Section 906.

3604.7 Smoke and heat vents. Approved automatic smoke and heat vents shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m^2) in area, excluding roof overhangs.

EXCEPTION: Smoke and heat vents are not required in areas protected by automatic sprinklers.

3604.7.1 Design and installation. Where smoke and heat vents are required they shall be installed near the roof peak, evenly distributed and arranged so that at least one vent is over each covered berth. The effective vent area shall be calculated using a ratio of one square foot of vent to every fifteen square feet of covered berth area

(1:15). Each vent shall provide a minimum opening size of 4 ft. x 4 ft.

3604.7.1.1 Smoke and heat vents. Smoke and heat vents shall operate automatically by actuation of a heat-responsive device rated at 100°F (56°C) above ambient.

EXCEPTION: Gravity-operated drop out vents.

3604.7.1.2 Gravity-operated drop out vents. Gravity-operated drop out vents shall fully open within 5 minutes after the vent cavity is exposed to a simulated fire represented by a time-temperature gradient that reaches an air temperature of 500°F (260°C) within 5 minutes.

3604.8 Draft curtains. Draft curtains shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m^2) in area, excluding roof overhangs.

EXCEPTION: Draft curtains are not required in areas protected by automatic sprinklers.

3604.8.1 Draft curtain construction. Draft curtains shall be constructed of sheet metal, gypsum board or other approved materials that provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.

3604.8.2 Draft curtain location and depth. The maximum area protected by draft curtains shall not exceed 2,000 sq. ft. (186 m^2) or two slips or berths, whichever is smaller. Draft curtains shall not extend past the piling line. Draft curtains shall have a minimum depth of 4 feet and shall not extend closer than 8 feet (2438 mm) to the walking surface of the pier.

[Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-3604, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-3900 ((~~Marijuana processing or extraction facilities.~~)) Reserved.

((~~**SECTION 3901—ADMINISTRATION**~~

~~**3901.1 Scope.** Facilities used for marijuana processing or extraction that utilize chemicals or equipment as regulated by the International Fire Code shall comply with this chapter and the International Building Code. The extraction process includes the act of extraction of the oils and fats by use of a solvent, desolventizing of the raw material and production of the miscella, distillation of the solvent from the miscella and solvent recovery. The use, storage, transfilling, and handling of hazardous materials in these facilities shall comply with this chapter and the International Building Code.~~

~~**3901.2 Application.** The requirements set forth in this chapter are requirements specific only to marijuana processing and extraction facilities and shall be applied as exceptions or additions to applicable requirements set forth elsewhere in this code.~~

~~**3901.2.1** For the purposes of this chapter, marijuana processing and extraction shall be limited to those processes and extraction methods~~

that utilize chemicals defined as hazardous by the International Fire Code and are regulated as such. Such processes and extraction methods shall meet the requirements of this chapter and other applicable requirements elsewhere in this code and its referenced standards.

EXCEPTION: Provisions of WAC 314-55-104 do not apply to this chapter.

3901.2.2 The use of equipment regulated by the International Fire Code for either marijuana processing or marijuana extraction shall meet the requirements of this chapter and other applicable requirements elsewhere in this code.

3901.3 Multiple hazards. Where a material, its use or the process it is associated with poses multiple hazards, all hazards shall be addressed in accordance with Section 5001.1 and other material specific chapters.

3901.4 Existing buildings or facilities. Existing buildings or facilities used for the processing of marijuana shall comply with this chapter.

3901.5 Permits. Permits shall be required as set forth in Section 105.6 and 105.7.

SECTION 3902—DEFINITIONS

Desolventizing. The act of removing a solvent from a material.

Finding. The results of an inspection, examination, analysis or review.

Marijuana processing. Processing that uses chemicals or equipment as regulated by the International Fire Code; this does not include the harvesting, trimming, or packaging of the plant.

Miscella. A mixture, in any proportion, of the extracted oil or fat and the extracting solvent.

Observation. A practice or condition not technically noncompliant with other regulations or requirements, but could lead to noncompliance if left unaddressed.

Transfilling. The process of taking a gas source, either compressed or in liquid form (usually in bulk containers), and transferring it into a different container (usually a smaller compressed cylinder).

SECTION 3903—PROCESSING OR EXTRACTION OF MARIJUANA

3903.1 Location. Marijuana processing shall be located in a building complying with the International Building Code and this code. Requirements applied to the building shall be based upon the specific needs for mitigation of the specific hazards identified.

3903.2 Systems, equipment, and processes. Systems, equipment, and processes shall be in accordance with Sections 3903.2.1 through 3903.2.7. In addition to the requirements of this chapter, electrical equipment shall be listed or evaluated for electrical fire and shock hazard in accordance with RCW 19.28.010(1).

3903.2.1 Application. Systems, equipment, and processes shall include, but are not limited to, vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps.

3903.2.2 General requirements. In addition to the requirements in Section 3903, systems, equipment, and processes shall also comply with Section 5003.2, other applicable provisions of this code, the Interna-

~~tional Building Code, and the International Mechanical Code. The use of ovens in post-process purification or winterization shall comply with Section 3903.2.7.~~

~~3903.2.3 Systems and equipment.~~ ~~Systems or equipment used for the extraction of oils from plant material shall be listed and approved for the specific use. If the system used for extraction of oils and products from plant material is not listed, then a technical report prepared by a Washington licensed engineer shall be provided to the code official for review and approval.~~

~~3903.2.4 Change of extraction medium.~~ ~~Where the medium of extraction or solvent is changed from the material indicated in the technical report, or as required by the manufacturer, the technical report shall be revised at the cost of the facility owner, and submitted for review and approval by the fire code official prior to the use of the equipment with the new medium or solvent.~~

~~3903.2.5 Required technical report.~~ ~~The technical report documenting the equipment design shall be submitted for review and approval by the fire code official prior to the equipment being installed at the facility.~~

~~3903.2.5.1 Content of technical report and engineering analysis.~~ ~~All, but not limited to, the items listed below shall be included in the technical report.~~

~~1. Manufacturer information.~~

~~2. Engineer of record information.~~

~~3. Date of review and report revision history.~~

~~4. Signature page shall include:~~

~~4.1 Author of the report;~~

~~4.2 Date of report; and~~

~~4.3 Seal, date and signature of engineer of record performing the design.~~

~~5. Model number of the item evaluated. If the equipment is provided with a serial number, the serial number shall be included for verification at the time of site inspection.~~

~~6. Methodology of the design review process used to determine minimum safety requirements. Methodology shall consider the basis of design, and shall include a code analysis and code path to demonstrate the reason why specific codes or standards are applicable or not.~~

~~7. Equipment description. A list of all components and subassemblies of the system or equipment, indicating the material, solvent compatibility, maximum temperature and pressure limits.~~

~~8. A general flow schematic or general process flow diagram (PFD) of the process, including maximum temperatures, pressures and solvent state of matter shall be identified in each step or component. It shall provide maximum operating temperature and pressure in the system.~~

~~9. Analysis of the vessel(s) if pressurized beyond standard atmospheric pressure. Analysis shall include purchased and fabricated components.~~

~~10. Structural analysis for the frame system supporting the equipment.~~

~~11. Process safety analysis of the extraction system, from the introduction of raw product to the end of the extraction process.~~

~~12. Comprehensive process hazard analysis considering failure modes and points of failure throughout the process. This portion of the review should include review of emergency procedure information~~

provided by the manufacturer of the equipment or process and not that of the facility, building or room.

13. Review of the assembly instructions, operational and maintenance manuals provided by the manufacturer.

14. Report shall include findings and observations of the analysis.

15. List of references used in the analysis.

3903.2.6 Building analysis. The technical report, provided by the engineer of record, shall include a review of the construction documents for location, room, space or building and include recommendations to the fire code official.

3903.2.6.1 Site inspection. The engineer of record of the equipment shall inspect the installation of the extraction equipment for conformance with the technical report and provide documentation to the fire code official that the equipment was installed in conformance with the approved design.

3903.2.7 Post-process purification and winterization. Post-processing and winterization involving the heating or pressurizing of the miscella shall be approved and performed in an appliance listed for such use. Domestic or commercial cooking appliances shall not be used. The use of industrial ovens shall comply with Chapter 30.

EXCEPTION: An automatic fire extinguishing system shall not be required for batch-type Class A ovens having less than 3.0 cubic feet of work space.

3903.3 Construction requirements.

3903.3.1 Location. Marijuana extraction shall not be located in any building containing a Group A, E, I or R occupancy.

3903.3.1.1 Extraction room. The extraction equipment and processes utilizing hydrocarbon solvents shall be located in a room or area dedicated to extraction.

3903.3.2 Egress. Doors installed on rooms or areas dedicated to extraction shall be equipped with panic hardware or fire exit hardware.

3903.3.2.1 Facility egress. Egress requirements shall be in compliance with Chapter 10 of the International Building Code.

3903.3.3 Ventilation. Ventilation shall be provided in compliance with Chapter 4 of the International Mechanical Code.

3903.3.4 Control area. Control areas shall comply with Section 5003.8.3.

3903.3.5 Ignition source control. Extraction equipment and processes using flammable or combustible gas or liquid solvents shall be provided with ventilation rates for the room to maintain the concentration of flammable constituents in air below 25 percent of the lower flammability limit of the respective solvent. If not provided with the required ventilation rate, Class I Division II electrical requirements shall apply to the entire room.

3903.3.6 Interlocks. When a hazardous exhaust system is provided, all electrical components within the extraction room or area shall be interlocked with the hazardous exhaust system, and when provided, the gas detection system. When the hazardous exhaust system is not operational, then light switches and electrical outlets shall be disabled. Activation of the gas detection system shall disable all light switches and electrical outlets.

~~**3903.3.7 Emergency power.**~~

~~**3903.3.7.1 Emergency power for extraction process.** Where power is required for the operation of the extraction process, an automatic emergency power source in accordance with Section 5004.7 and 604 shall be provided. The emergency power source shall have sufficient capacity to allow safe shutdown of the extraction process plus an additional 2 hours of capacity beyond the shutdown process.~~

~~**3903.3.7.2 Emergency power for other than extraction process.** An automatic emergency power system in accordance with Section 604 shall be provided when any of the following items are installed:~~

~~1. Extraction room lighting;~~
~~2. Extraction room ventilation system;~~
~~3. Solvent gas detection system;~~
~~4. Emergency alarm systems;~~
~~5. Automatic fire extinguishing systems.~~

~~**3903.3.8 Continuous gas detection system.** For extraction processes utilizing gaseous hydrocarbon-based solvents, a continuous gas detection system shall be provided. The gas detection threshold shall not exceed 25 percent of the LEL/LFL limit of the materials.~~

~~**3903.4 Carbon dioxide enrichment or extraction.** Extraction processes using carbon dioxide shall comply with this section.~~

~~**3903.4.1 Scope.** Carbon dioxide systems with more than 100 pounds of carbon dioxide shall comply with Sections 3903.4 through 3903.4.3. This section is applicable to carbon dioxide systems utilizing compressed gas systems, liquefied-gas systems, dry ice, or on-site carbon dioxide generation.~~

~~**3903.4.2 Permits.** Permits shall be required as set forth in Sections 105.6 and 105.7.~~

~~**3903.4.3 Signage.** At the entrance to each area using or storing carbon dioxide, signage shall be posted indicating the hazard. Signs shall be durable and permanent in nature and not less than 7 inches wide by 10 inches tall. Signs shall bear the warning "DANGER! POTENTIAL OXYGEN DEFICIENT ATMOSPHERE." NFPA 704 signage shall be provided at the building main entry and the rooms where the carbon dioxide is used and stored.~~

~~**3903.5 Flammable or combustible liquid.** The use of a flammable or combustible liquid for the extraction of oils and fats from marijuana shall comply with this section.~~

~~**3903.5.1 Scope.** The use of flammable and combustible liquids for liquid extraction processes where the liquid is boiled, distilled, or evaporated shall comply with this section and NFPA 30.~~

~~**3903.5.2 Location.** The process using a flammable or combustible liquid shall be located within a hazardous exhaust fume hood, rated for exhausting flammable vapors. Electrical equipment used within the hazardous exhaust fume hood shall be listed or approved for use in flammable atmospheres. Heating of flammable or combustible liquids over an open flame is prohibited.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-3900, filed 1/20/21, effective 2/20/21. Statutory Authority: RCW 19.27.031, 19.27.074 and chapter 19.27 RCW. WSR 19-02-086, § 51-54A-3900, filed 1/2/19, effective 7/1/19.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-3904 ((~~Systems and equipment.~~)) Reserved.

((~~Reserved.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-3904, filed 1/20/21, effective 2/20/21; WSR 19-24-058, § 51-54A-3904, filed 11/27/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 21-04-003, filed 1/20/21, effective 2/20/21)

WAC 51-54A-4000 ((~~Fixed guideway transit and passenger rail systems.~~)) Reserved.

((~~**4001.1 Scope.** Fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130.~~))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-04-003, § 51-54A-4000, filed 1/20/21, effective 2/20/21.]

NEW SECTION

WAC 51-54A-4900 Fixed guideway transit and passenger rail systems.

4901.1 Scope NFPA 130. General. Fixed guideway transit and passenger rail systems shall be in accordance with NFPA 13, as modified below.

4901.2 NFPA 130 Section 3.3.44.2. Add new definition as follows:

3.3.44.2 Traction power sub station (TPSS): A TPSS is an electrical substation consisting of switchgear transformers/rectifiers, emergency trip equipment, and other systems that converts AC electric power provided by the electrical power industry for public utility service to DC voltage to supply light rail vehicles with traction current.

4901.3 NFPA 130 Section 5.4.4 Modify NFPA 130 Sections 5.4.4.1 and 5.4.4.1.1 to read as follows:

5.4.4.1 An automatic sprinkler system shall be provided throughout enclosed stations.

EXCEPTIONS:
1. Traction power substation (TPSS) when located in a transformer vault designed in accordance with the NFPA 70.
2. Other high voltage equipment located in a transformer vault designed in accordance with the NFPA 70 when approved by the fire code official.
3. Fire command centers, communication room(s), and signal rooms when protected with clean agent fire suppression and separated from other spaces with two-hour fire rated construction.
4. Other operational critical rooms when protected with clean agent fire suppression and separated from other spaces with two-hour fire rated construction, when approved by the fire code official.

5.4.4.1.1 An automatic sprinkler system shall be provided in areas of open stations used for concessions, markets, storage areas and similar areas with combustible loadings, and in trash rooms, electrical rooms, mechanical rooms, machinery rooms, communication rooms, and other enclosed rooms.

EXCEPTIONS:
1. Stations at grade with less than 1,500 sq. ft. of ancillary area/ancillary space.

2. Fire command centers, communication room(s), and signal rooms when protected with clean agent fire suppression and separated from other spaces with two-hour fire rated construction.
3. Other operational critical rooms when protected with clean agent fire suppression and separated from other spaces with two-hour fire rated construction, when approved by the fire code official.

5.4.4.2 Sprinkler protection shall be permitted to be omitted in areas of open stations separated from the station by a distance of 20 feet.

4901.4 NFPA 130 Section 5.4.5. Modify NFPA 130 Sections 5.4.5.1 as follows:

5.4.5.1 Class I standpipes shall be installed in enclosed stations in accordance with International Fire Code Section 905 except as modified herein.

4901.5 NFPA 130 Section 5.4.6. Modify NFPA 130 Sections 5.4.6 as follows:

5.4.6 Portable fire extinguishers in such number, size, type, and location in accordance with the International Fire Code Section 906.

5.4.6.1 Portable fire extinguishers are not required in public areas of at-grade stations.

4901.6 NFPA 130 Section 5.4.7. Modify NFPA 130 Section 5.4.7 as follows:

5.4.7 Emergency ventilation shall be provided in enclosed stations in accordance with Chapter 7 and the International Building Code Section 909.

4901.6 NFPA 130 Section 5.2.2. Modify NFPA 130 Section 5.2.2.2 as follows:

5.2.2.2 Construction types shall conform to the requirements in the International Building Code, Chapter 6, unless otherwise exempted in this section.

Table 5.2.2.1

Minimum Construction Requirements for New Station Structures

Station Configuration	Construction Type†
Stations erected entirely above grade and in a separate building:	
Open stations	Type IIB
Enclosed stations	Type IIA
Stations erected entirely or partially below grade:	
Open above grade portions of below grade structures*	Type IIA
Below grade portions of structures	Type IB
Below grade structures with occupant loads exceeding 1000	Type IA

* Roofs not supporting an occupancy above are not required to have a fire resistance rating.
† Construction types are in accordance with the International Building Code.

4901.7 NFPA 130 Section 5.2.2. Modify NFPA 130 Section 5.2.4.3 as follows:

5.2.4.3 Ancillary spaces. Fire resistance ratings of separations between ancillary occupancies shall be established as required for accessory occupancies and incidental uses by the International Building Code and in accordance with ASTM E119 and ANSI/UL 263.

4901.8 NFPA 130 Section 5.2.5. Modify NFPA 130 Section 5.2.5.4 as follows:

5.2.5.4 Materials used as interior finish in open stations shall comply with the requirements of the International Building Code, Chapter 8.

4901.9 NFPA 130 Section 5.3.1. Modify NFPA 130 Section 5.3.1.1 as follows:

5.3.1.1 The provisions for means of egress for a station shall comply with the International Building Code, Chapter 10, except as herein modified.

4901.10 NFPA 130 Section 5.3.2. Add a New Section to NFPA 130 Section 5.3.2.2.1 as follows:

5.3.2.2.1 Where station occupancy is anticipated to be greater than design capacity during a major event the operating agency shall initiate approved measures to restrict access to the station, when required by the fire code official, to ensure existing means of egress are adequate as an alternate to account for peak ridership associated with major events.

4901.11 NFPA 130 Section 5.3.4. Modify NFPA 130 Section 5.3.2.4(1) as follows:

(1) The occupant load for that area shall be determined in accordance with the provisions of the International Building Code as appropriate for the use.

4901.12 NFPA 130 Section 5.3.3. Modify NFPA 130 Section 5.3.3.4 as follows:

5.3.3.4 Travel distance. For open stations the maximum travel distance on the platform to a point at which a means of egress route leaves the platform shall not exceed 100 m (325 ft.). For enclosed stations the travel distance to an exit shall not exceed 76 m (250 ft.).

4901.13 NFPA 130 Section 5.3.5. Modify NFPA 130 Section 5.3.5.3(2) as follows:

(2)* Travel speed - 14.6 m/min (48 ft./min) (indicates vertical component of travel speed).

5.3.5.4 Escalators shall not account for more than one-half of the egress capacity at any one level.

4901.14 NFPA 130 Section 5.3.5. Delete NFPA 130 Section 5.3.5.5.

4901.15 NFPA 130 Section 5.3.7. Modify NFPA 130 Section 5.3.7 as follows:

5.3.7* Doors, gates, security grilles and exit hatches.

5.3.7.2.1 Security grilles are allowed when designed and operated in accordance with the International Building Code.

4901.16 NFPA 130 Section 5.3.9. Modify NFPA 130 Section 5.3.9 as follows:

5.3.9* Horizontal exits. Horizontal exits shall comply with the International Building Code Section 1026.

4901.17 NFPA 130 Section 5.3.11. Modify NFPA 130 Section 5.3.11 as follows:

5.3.11.1 Illumination of the means of egress in stations, including escalators that are considered a means of egress, shall be in accordance with the International Building Code Section 1008.

5.3.11.2 Means of egress, including escalators considered as means of egress, shall be provided with a system of emergency lighting in accordance with the International Building Code Section 1008.

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AMENDATORY SECTION (Amending WSR 19-24-058, filed 11/27/19, effective 7/1/20)

WAC 51-54A-5003 ((~~General requirements.~~)) Reserved.

((**~~Table 5003.11.1~~**
~~Maximum Allowable Quantities Per Indoor and Outdoor Control Area in Group M and S Occupancies - Nonflammable Solids, Nonflammable and Combustible Liquids~~ [d,e,f]

~~Conditions~~		~~Maximum Allowable Quantities Per Control Area~~	
~~Materials~~	~~Class~~	~~Solids (pounds)~~	~~Liquids (gallons)~~
~~A. Health-Hazard Materials Nonflammable and Noncombustible Solids and Liquids~~			
~~1. Corrosive~~ [b,c]	~~Not Applicable~~	~~9,750~~	~~975~~
~~2. Highly Toxic~~	~~Not Applicable~~	~~20~~ [b,c]	~~2~~ [b,c]
~~3. Toxics~~ [b,c]	~~Not Applicable~~	~~1,000~~	~~100~~
~~B. Physical-Hazard Materials Nonflammable and Noncombustible Solids and Liquids~~			
~~1. Oxidizer~~ [b,c]	~~4~~	~~Not Allowed~~	~~Not Allowed~~
	~~3~~	~~1,350~~ [g]	~~135~~
	~~2~~	~~2,250~~ [h]	~~225~~
	~~1~~	~~18,000~~ [i,j]	~~1,800~~ [i,j]
~~2. Unstable (Reactives)~~ [b,c]	~~4~~	~~Not Allowed~~	~~Not Allowed~~
	~~3~~	~~550~~	~~55~~
	~~2~~	~~1,150~~	~~115~~
	~~1~~	~~Not Limited~~	~~Not Limited~~

Conditions		Maximum Allowable Quantities Per Control Area	
Materials	Class	Solids (pounds)	Liquids (gallons)
3. Water Reactives	3 b,c	550	55
	2 b,c	1,150	115
	1	Not Limited	Not Limited

For SI: 1 pound = 0.454 kg, 1 gallon = 3.785 L, 1 cubic foot = 0.02832 m^3.
a. Hazard categories are as specified in Section 5001.2.2.
b. Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where note c applies, the increase for both notes shall be applied accumulatively.
c. Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets in accordance with Section 5003.8. Where note b applies, the increase for both notes shall be applied accumulatively.
d. See Table 5003.8.3.2 for design and number of control areas.
e. Maximum allowable quantities for other hazardous material categories shall be in accordance with Section 5003.1.
f. Maximum allowable quantities shall be increased 100 percent in outdoor control areas.
g. Maximum allowable quantities shall be increased to 2,250 pounds where individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.
h. Maximum allowable quantities shall be increased to 4,500 pounds where individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.
i. Quantities are unlimited where protected by an automatic sprinkler system.
j. Quantities are unlimited in an outdoor control area.
k. Maximum allowable quantity of consumer products shall be increased to 10,000 pounds where individual packages are in original sealed containers from the manufacturer and the toxic classification is exclusively based on the LC_{50}.))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 19-24-058, § 51-54A-5003, filed 11/27/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-02-086, filed 1/2/19, effective 7/1/19)

WAC 51-54A-8000 Referenced standards.

NFPA 13-19: Standard for the Installation of Sprinkler Systems (except 9.3.6.3(5)) . . . . . 903.3.1.1, 903.3.2, 903.3.8.2, 903.3.8.5, 904.13, 905.3.4, 907.6.4, 914.3.2, 1019.3, 1103.4.8, 3201.1, 3204.2, 3205.5, Table 3206.2, 3206.4.1, 3206.10, 3207.2, 3207.2.1, 3208.2.2, 3208.2.2.1, 3208.4, 3210.1, 3401.1, 5104.1, 5104.1.1, 5106.5.7, 5704.3.3.9, Table 5704.3.6.3(7), 5704.3.7.5.1, 5704.3.8.4

NFPA 33 Membrane Enclosures 2404.3.5

NFPA ((~~96-07~~)) 96-21 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations . . . . . ((~~609.3~~)) 606.2, 606.3, 904.13

((~~NFPA 720-15 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units . . . . . 1103.9~~))

NFPA ((~~130-17~~)) 130-20 Standard for Fixed Guideway Transit and Passenger Rail Systems . . . . . ((~~3901.1~~)) 4901.1

UL 142A-2018: Special Purpose Above ground Tanks for Specific Flammable or Combustible Liquids 605.4

UL 2272-2016: Electrical Systems for Personal E-Mobility Devices

UL 2849-2020: Electrical Systems for eBikes

[Statutory Authority: RCW 19.27.031, 19.27.074 and chapter 19.27 RCW. WSR 19-02-086, § 51-54A-8000, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-8000, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-8000, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-162, filed 12/18/19, effective 7/1/20)

WAC 51-54A-8200 ((~~International Wildland-Urban Interface Code.~~)) Reserved.

((~~**101.5 Additions or alterations.** Additions or alterations may be made to any building or structure without requiring the existing building or structure to comply with all of the requirements of this code, provided the addition or alteration conforms to that required for a new building or structure.~~

~~EXCEPTION: Provisions of this code that specifically apply to existing conditions are retroactive. See Sections 402.3, 601.1 and Appendix A.~~

~~Additions or alterations shall not cause the existing building or structure to become unsafe. An unsafe condition shall be deemed to have been created if an addition or alteration will cause the existing building or structure to become structurally unsafe or overloaded; will not provide adequate access in compliance with the provisions of this code or will obstruct existing exits or access; will create a fire hazard; will reduce required fire resistance or will otherwise create conditions dangerous to human life.~~

~~**108.3 Site plan.** In addition to the requirements for plans in the *International Building Code*, the code official may require site plans which include topography, width and percent of grade of access roads, landscape and vegetation details, locations of structures or building envelopes, existing or proposed overhead utilities, occupancy classification of buildings, types of ignition resistant construction of buildings, structures and their appendages, roof classification of buildings, and site water supply systems. The code official is authorized to waive or modify the requirement for a site plan.~~

~~**108.4 Vegetation management plans.** When required by the code official or when utilized by the permit applicant pursuant to Section 502, vegetation management plans shall be prepared and shall be submitted to the code official for review and approval as part of the plans required for a permit. See Appendix B.~~

~~**108.7 Vicinity plan.** When required by the code official, the requirements for site plans shall include details regarding the vicinity within 300 feet (91,440 mm) of property lines, including other structures, slope, vegetation, fuel breaks, water supply systems and access roads.~~

402.1.1 Access. New subdivisions, as determined by this jurisdiction, shall be provided with fire apparatus access roads in accordance with the *International Fire Code*.

402.1.2 Water supply. New subdivisions, as determined by this jurisdiction, shall be provided with water supply in accordance with the *International Fire Code*.

402.2 Individual structures. Individual structures shall comply with Sections 402.2.1 and 402.2.2.

402.2.1 Access. Individual structures hereafter constructed or relocated into or within wildland-urban interface areas shall be provided with fire apparatus access in accordance with the *International Fire Code*.

402.2.2 Water supply. Individual structures hereafter constructed or relocated into or within wildland-urban interface areas shall be provided with a conforming water supply in accordance with the *International Fire Code*.

EXCEPTIONS: 1. Structures constructed to meet the requirements for the class of ignition-resistant construction specified in Table N503.1 for a nonconforming water supply.
2. Buildings containing only private garages, carports, sheds and agricultural buildings with a floor area of not more than 600 square feet (56 m^2).

402.3 Existing conditions. Existing address markers, roads and fire protection equipment shall be in accordance with the *International Fire Code*.

Table 503.1
Ignition-Resistant Construction[a]

	Fire Hazard Severity					
	Moderate Hazard		High Hazard		Extreme Hazard	
	Water Supply[b]		Water Supply[b]		Water Supply[b]	
Defensible Space[c]	Conforming	Nonconforming	Conforming	Nonconforming	Conforming	Nonconforming
Nonconforming	IR 2	IR 1	IR 1	IR 1 N.C.	IR 1 N.C.	Not Permitted
Conforming	IR 3	IR 2	IR 2	IR 1	IR 1	IR 1 N.C.
1.5 x Conforming	Not Required	IR 3	IR 3	IR 2	IR 2	IR 1

[a]Access shall be in accordance with Section 402.
[b]Water supply shall be in accordance with Section 402.1.
IR 1 = Ignition-resistant construction in accordance with Section 504.
IR 2 = Ignition-resistant construction in accordance with Section 505.
IR 3 = Ignition-resistant construction in accordance with Section 506.
N.C. = Exterior walls shall have a fire-resistance rating of not less than 1 hour and the exterior surfaces of such walls shall be noncombustible. Usage of log wall construction is allowed.
[c] Conformance based on Section 603.

403 Access. This section not adopted.

404 Water supply. This section not adopted.

APPENDIX B VEGETATION MANAGEMENT PLAN – THIS APPENDIX IS ADOPTED.
APPENDIX D FIRE DANGER RATING SYSTEM – THIS APPENDIX IS ADOPTED.))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-162, § 51-54A-8200, filed 12/18/19, effective 7/1/20. Statutory Authority: Chapter 19.27 RCW and RCW 19.27.031. WSR 17-10-028, § 51-54A-8200, filed 4/25/17, effective 5/26/17. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-8200, filed 1/16/16, effective 7/1/16.]

WSR 22-02-048
PROPOSED RULES
OFFICE OF
FINANCIAL MANAGEMENT
[Filed January 3, 2022, 9:28 a.m.]

Original Notice.

Proposal is exempt under RCW 34.05.310(4) or 34.05.330(1).

Title of Rule and Other Identifying Information: WAC 357-01-023 Anniversary date (general government), 357-01-348 Unbroken service date (general government), 357-28-055 How is the periodic increment date determined for a general government employee?, 357-28-056 How is the periodic increment date determined for a higher education employee?, 357-31-180 When an employee has taken leave without pay during the month is the employee's rate of accrual adjusted for the leave without pay?, 357-31-345 How does leave without pay affect a general government employee's anniversary date, unbroken service date, periodic increment date, and seniority date?, and 357-31-346 Does leave without pay affect a higher education employee's periodic increment date?

Hearing Location(s): On February 10, 2022, at 8:30 a.m., at Office of Financial Management (OFM), audio conference only, Dial-in 888-285-8919, Enter pin 8101730, Code (if asked) 415.

Date of Intended Adoption: February 17, 2022.

Submit Written Comments to: Brandy Chinn, OFM, P.O. Box 47500, Olympia, WA 98501, email brandy.chinn@ofm.wa.gov, fax 360-586-4694, by February 3, 2022.

Assistance for Persons with Disabilities: Contact OFM, TTY 711 or 1-800-833-6384, by February 3, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: To remove the requirement for a general government employer to adjust an employee's anniversary date, unbroken service date, and periodic increment date (PID) for any period of leave without pay (LWOP) which exceeds 15 consecutive calendar days and to remove the requirement for a higher education employer to adjust an employee's vacation leave accrual date and PID for any period of LWOP which exceeds 10 working days.

Reasons Supporting Proposal: Address inequities among state employees, streamline process and application of civil service rules, and reduce significant workload for employers. These changes will result in more equal treatment between certain categories of employees and will result in less manual date adjustments for employers. Removing the requirement to adjust for LWOP will make it easier for employers to administer because they will no longer need to decipher which employees need to have their service dates manually adjusted; easier application of anniversary and PID for transfers between general government nonrepresented and represented employees; and easier application of anniversary and PID for transfers between general government and institutions of higher education.

Statutory Authority for Adoption: Chapter 41.06 RCW.

Statute Being Implemented: Chapter 41.06 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Brandy Chinn, 128 10th Avenue, Olympia, WA 98501, 360-878-2901.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. Rules are related to internal government operations and are not subject to violation by a nongovernmental party. See RCW 34.05.328 (5)(b)(ii) for exemption.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules relate only to internal governmental operations that are not subject to violation by a nongovernment party.

January 3, 2022
Roselyn Marcus
Assistant Director of
Legal and Legislative Affairs

OTS-3356.1

AMENDATORY SECTION (Amending WSR 05-12-093, filed 5/27/05, effective 7/1/05)

WAC 357-01-023 Anniversary date (general government). For employees of general government agencies, anniversary date is the unbroken service date plus prior state service ((~~minus leave without pay when it exceeds fifteen consecutive calendar days as provided in WAC 357-31-345~~)). The anniversary date is used to determine when vacation leave over two hundred forty hours is lost and for computing the rate of vacation leave accrual beginning with the fifth year of total state employment.

[Statutory Authority: Chapter 41.06 RCW. WSR 05-12-093, § 357-01-023, filed 5/27/05, effective 7/1/05.]

AMENDATORY SECTION (Amending WSR 05-12-093, filed 5/27/05, effective 7/1/05)

WAC 357-01-348 Unbroken service date (general government). The date a general government employee began current continuous state service. This date is used for computing the rate of vacation leave accrual through and including the employee's fourth year of continuous service. ((~~The unbroken service date is adjusted by leave without pay when it exceeds fifteen consecutive calendar days as provided in WAC 357-31-345.~~))

[Statutory Authority: Chapter 41.06 RCW. WSR 05-12-093, § 357-01-348, filed 5/27/05, effective 7/1/05.]

OTS-3355.2

AMENDATORY SECTION (Amending WSR 16-05-057, filed 2/12/16, effective 3/14/16)

WAC 357-28-055 How is the periodic increment date determined for a general government employee? (1) For a general government employee appointed to a position before July 1, 2005, the employee's periodic increment date as of June 30, 2005, is retained.

(2) For a general government employee appointed to a position on or after July 1, 2005, whose base salary is set at the minimum of the salary range, the periodic increment date is six months from the date of appointment.

(3) For a general government employee appointed to a position on or after July 1, 2005, whose base salary is set above the minimum but below step L of the salary range, the periodic increment date is twelve months from date of appointment.

(4) A general government employee appointed to a position on or after July 1, 2005, whose base salary is set at step L of the range will not have a periodic increment date set. If the employee later receives a new appointment, the periodic increment date will be set at that time, as described in this section.

(5) Once a general government employee's periodic increment date is set, it remains the same unless:

(a) The periodic increment date is advanced or postponed in accordance with WAC 357-28-070; or

(b) ((~~The periodic increment date is adjusted for leave without pay in accordance with WAC 357-31-345.~~

~~(c)~~)) The periodic increment date is reset in accordance with subsections (2) and (3) of this section when an employee is rehired after a break in service.

[Statutory Authority: Chapter 41.06 RCW. WSR 16-05-057, § 357-28-055, filed 2/12/16, effective 3/14/16; WSR 13-19-043, § 357-28-055, filed 9/13/13, effective 10/18/13. Statutory Authority: RCW 41.06.150. WSR 10-17-062, § 357-28-055, filed 8/13/10, effective 9/15/10. Statutory Authority: Chapter 41.06 RCW. WSR 06-11-048, § 357-28-055, filed 5/11/06, effective 6/12/06; WSR 05-01-205, § 357-28-055, filed 12/21/04, effective 7/1/05.]

AMENDATORY SECTION (Amending WSR 16-05-057, filed 2/12/16, effective 3/14/16)

WAC 357-28-056 How is the periodic increment date determined for a higher education employee? (1) For a higher education employee appointed to a position before July 1, 2005, the employee's periodic increment date as of June 30, 2005, is retained.

(2) For a higher education employee appointed to a position on or after July 1, 2005, whose base salary is set at the minimum of the salary range, the periodic increment date is six months from the date of appointment.

(3) For a higher education employee appointed to a position on or after July 1, 2005, whose base salary is set above the minimum ((~~but~~))

and at or below step L of the salary range, the periodic increment date is twelve months from date of appointment.

(4) Once a higher education employee's periodic increment date is set, it remains the same unless:

(a) The periodic increment date is advanced or postponed in accordance with WAC 357-28-070; or

(b) The employee is appointed to another position with a different salary range maximum. Upon subsequent appointment, the provisions of subsection (2) and (3) of this section apply.

(c) The periodic increment date is reset in accordance with subsections (2) and (3) of this section when an employee is rehired after a break in service.

((~~(d) The periodic increment date is adjusted for leave without pay in accordance with WAC 357-31-346.~~))

[Statutory Authority: Chapter 41.06 RCW. WSR 16-05-057, § 357-28-056, filed 2/12/16, effective 3/14/16; WSR 13-19-043, § 357-28-056, filed 9/13/13, effective 10/18/13; WSR 06-11-048, § 357-28-056, filed 5/11/06, effective 6/12/06.]

OTS-3354.3

AMENDATORY SECTION (Amending WSR 12-04-016, filed 1/24/12, effective 2/24/12)

WAC 357-31-180 When an employee has taken leave without pay during the month is the employee's rate of accrual adjusted for the leave without pay? Leave without pay ((~~taken for military leave of absence without pay, for temporary layoff as provided in WAC 357-46-063, or for scheduled mandatory periods of leave without pay for employees in cyclic year positions do~~)) does not affect the rate at which employees accrue vacation leave. ((~~For all other periods of leave without pay, the following applies:~~

~~(1) When a general government employee takes leave without pay which exceeds fifteen consecutive calendar days, the employee's anniversary date and unbroken service date are adjusted in accordance with WAC 357-31-345. These adjustments affect the rate at which an employee accrues vacation leave.~~

~~(2) When a higher education employee takes more than ten working days of leave without pay, that month does not qualify as a month of employment under WAC 357-31-165. Time spent on temporary layoff as provided in WAC 357-46-063 is considered time in pay status for the purpose of this subsection.~~))

[Statutory Authority: Chapter 41.06 RCW. WSR 12-04-016, § 357-31-180, filed 1/24/12, effective 2/24/12; WSR 10-23-040, § 357-31-180, filed 11/10/10, effective 12/13/10; WSR 05-08-137, § 357-31-180, filed 4/6/05, effective 7/1/05.]

AMENDATORY SECTION (Amending WSR 09-11-068, filed 5/14/09, effective 6/16/09)

WAC 357-31-345 How does leave without pay affect a general government employee's ((~~anniversary date, unbroken service date, periodic increment date, and~~)) seniority date? ((~~(1) For a general government employee, the anniversary date, unbroken service date, and periodic increment date is adjusted for any period of leave without pay which exceeds fifteen consecutive calendar days except when the leave without pay is taken for:~~

~~(a) Military leave of absence without pay as provided in WAC 357-31-370;~~

~~(b) Compensable work-related injury or illness leave;~~

~~(c) Government service leave not to exceed two years and one month;~~

~~(d) Educational leave, contingent upon successful completion of the coursework; and/or~~

~~(e) Voluntarily reducing the effect of an employer's layoff.~~

~~(2) When an employee is on leave without pay for more than fifteen consecutive calendar days and the absence is not due to one of the reasons listed above, the employee's anniversary date, unbroken service date and periodic increment date must be moved forward in an amount equal to the number of calendar days on leave without pay.~~

~~(3) For~~)) A general government employee's ((~~the~~)) seniority date is adjusted for leave without pay in accordance with WAC 357-46-055.

[Statutory Authority: Chapter 41.06 RCW. WSR 09-11-068, § 357-31-345, filed 5/14/09, effective 6/16/09; WSR 05-08-138, § 357-31-345, filed 4/6/05, effective 7/1/05.]

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 357-31-346	Does leave without pay affect a higher education employee's periodic increment date?

WSR 22-02-054
PROPOSED RULES
DEPARTMENT OF
LABOR AND INDUSTRIES
[Filed January 4, 2022, 8:18 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 19-22-062.

Title of Rule and Other Identifying Information: Chapter 296-831 WAC, Adult entertainer safety.

Hearing Location(s): On February 10, 2022, at 9:00 a.m. PST (United States and Canada). Join Zoom meeting at https://lni-wa-gov.zoom.us/join, Meeting ID 848 0524 5551, Passcode AES@2022; or join by phone +1 253 215 8782 US (Tacoma), Meeting ID 848 0524 5551, Passcode 41875688. Virtual meetings and public hearings necessitated by the COVID-19 pandemic have proven effective in allowing greater public access, eliminating the burden of physical travel, and maintaining public safety. Accordingly, no in-person meeting will be held.

The hearing will start at 9:00 a.m. and will continue until all oral comments are received.

Date of Intended Adoption: March 22, 2022.

Submit Written Comments to: Kevin Walder, Department of Labor and Industries (L&I), Division of Occupational Safety and Health (DOSH), P.O. Box 44620, Olympia, WA 98504-4620, email Kevin.Walder@Lni.wa.gov, fax 360-902-5619, by February 17, 2022.

Assistance for Persons with Disabilities: Contact Kevin Walder, administrative regulations analyst, phone 360-902-6681, email Kevin.Walder@Lni.wa.gov, by February 3, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: This rule making will implement the requirements of EHB 1756 (chapter 304, Laws of 2019) codified under RCW 49.17.470.

New chapter 296-831 WAC, Adult entertainer safety:

- Adds requirement that adult entertainment establishments provide panic buttons in specified locations.
  - Panic buttons must be silent (discreet) unless an adult entertainment establishment's safety committee has assessed the premises and operations and have unanimously agreed on the use of an audible alarm.
- Adds requirement that adult entertainment establishments record accusations of customer violence, including assault, sexual assault, or sexual harassment, towards an entertainer.
- Adds requirement that adult entertainment establishments ban customers for three years if an accusation of violence or harassment against the entertainer is supported by a statement made under penalty of perjury or other evidence.
- Includes definitions pertinent to these new requirements.
- Includes notes clarifying requirements.

Reasons Supporting Proposal: L&I DOSH is implementing EHB 1756 (chapter 304, Laws of 2019) codified under RCW 49.17.470. The legislature passed this bill into law in recognition of the fact that adult entertainers encounter unique workplace hazards that warrant specific occupational safety and health rules to best protect them from these hazards.

Statutory Authority for Adoption: Chapter 49.17 RCW; RCW 49.17.470.

Statute Being Implemented: RCW 49.17.470.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: L&I, governmental.

Name of Agency Personnel Responsible for Drafting: Chris Miller, Tumwater, Washington, 360-902-5516; Implementation and Enforcement: Craig Blackwood, Tumwater, Washington, 360-902-5090.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Kevin Walder, L&I, DOSH, P.O. Box 44620, Olympia, WA 98504-4620, phone 360-902-6681, fax 360-902-5619, email Kevin.Walder@Lni.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule; and rules only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. L&I first estimates the total cost for implementing the silent panic button which includes the hardware and labor costs. Second, L&I estimates the cost of recording accusations based on the estimated number of annual accusations. Both cost components are annualized to determine the total annual cost of implementing this rule to affected businesses.

Per-Business Cost vs. Minor Cost Threshold:

Per business average cost - recurring	$108 to $227
Minor cost threshold (1 percent of annual payroll)	$1,860[1]

When compared to the minor cost threshold (one percent of annual payroll), it clearly indicates the average per-business cost of these proposed rule amendments is far below the threshold for affected businesses discussed above.

January 4, 2022
Joel Sacks
Director

OTS-1747.14

Chapter 296-831 WAC
ADULT ENTERTAINER SAFETY

NEW SECTION

WAC 296-831-100 Purpose and scope. This chapter applies to all adult entertainment establishments.

In addition to this chapter, chapter 296-800 WAC Safety and health core rules, chapter 296-24 WAC General safety and health standards, and chapter 296-62 WAC General occupational health standards contain safety and health rules that also apply to adult entertainment establishments. Similarly, other special industry focused chapters (e.g., chapter 296-832 WAC Late night retail worker crime prevention, chapter 296-155 WAC construction, etc.) and special hazard focused chapters (e.g., chapter 296-876 WAC ladders, chapter 296-880 WAC fall protection, etc.) complement the rules found in this chapter and may apply depending on operations being performed.

Note: All of the requirements in this rule work in conjunction with the Accident Prevention Program (APP) rules in WAC 296-800-140 through 296-800-14025 within the safety and health core rules. Therefore, an adult entertainment establishment's fully compliant Accident Prevention Program (APP) will cover the following (in addition to other general safety and health considerations applicable to all businesses):
• Entertainer orientation on panic button location, use, and maintenance, if any;
• How to add a problematic customer to your complaint log/blacklist;
• How to report work-related hazards, injuries, unsafe conditions, or unsafe practices;
• The proper use and care of personal protective equipment (PPE); and
• What to do in an emergency, including how to leave the workplace.
Adult entertainment establishments are also required to regularly hold safety and health meetings for the purpose of communicating and evaluating safety and health issues in the workplace, including the evaluation of your APP to determine whether improvements are necessary to ensure that it is effective in practice. Specific requirements differ somewhat between large and small employers. See WAC 296-800-130 Safety committees/safety meetings—Summary, for details.

[]

NEW SECTION

WAC 296-831-200 Definitions. Note: The definitions below exclusively apply to this chapter.

Adult entertainment. Any exhibition, performance, or dance of any type conducted in premises where such exhibition, performance, or dance involves an entertainer who:

(a) Is unclothed or in such attire, costume, or clothing as to expose to view any portion of the breast below the top of the areola or any portion of the pubic region, anus, buttocks, vulva, or genitals; or

(b) Touches, caresses, or fondles the breasts, buttocks, anus, genitals, or pubic region of another person, or permits the touching, caressing, or fondling of the entertainer's own breasts, buttocks, anus, genitals, or pubic region by another person, with the intent to sexually arouse or excite another person.

Adult entertainment establishment or **establishment.** Any business to which the public, patrons, or members are invited or admitted where an entertainer provides adult entertainment to a member of the public, a patron, or a member.

Entertainer. Any person who provides adult entertainment within an adult entertainment establishment, whether or not a fee is charged or accepted for entertainment and whether or not the person is an employee under RCW 49.17.020.

Panic button. An emergency contact device by which the entertainer may summon immediate on-scene assistance from another entertainer, a security guard, or a representative of the entertainment establishment.

[]

NEW SECTION

WAC 296-831-300 Panic button requirements. (1) Adult entertainment establishments must provide a panic button in each room in the establishment in which an entertainer may be alone with a customer, and in bathrooms and dressing rooms. An entertainer may use the panic button if the entertainer has been harmed, reasonably believes there is a risk of harm, or there is another emergency in the entertainer's presence. The entertainer may cease work and leave the immediate area to await the arrival of assistance.

(2) Panic buttons, and their associated alarm(s), must be silent (discreet) at the entertainer's point of use, while still effectively alerting whomever you have determined to be responsible for responding to emergencies.

Exception: Panic buttons that trigger a recognizable (audible/visual/tactile) alarm at the entertainer's point of use may be used in specific locations within an establishment where alarms are required but only if you have assessed your business operations and alarm system with your required safety and health committee (see WAC 296-800-130 Safety committees/safety meetings—Summary) and the committee has unanimously determined that such an alarm would be more effective for a particular location within your establishment where an alarm is required. In such cases, this determination is limited to a particular location within your establishment and must be documented along with other required safety committee documentation.

(3) Adult entertainment establishments must test and maintain your alarm system regularly to ensure that it will function as intended when needed.

(a) Testing must be performed at least annually, or at whatever interval is recommended by the alarm system manufacturer (this information is typically found in the owner's manual).

(b) Adult entertainment establishments must keep a record that includes the dates of all testing or maintenance performed and any pertinent details such as errors corrected or adjustments made.

Note: Appendix A contains a nonmandatory panic button checklist that adult entertainment establishments can use to assist in identifying panic button and response procedure related hazards in their workplace, and to aid establishments in evaluating what performance criteria will address the violence-based hazards in their establishment.

[]

NEW SECTION

WAC 296-831-310 Install an appropriate entertainer alarm system(s). (1) Adult entertainment establishments must make sure that an alarm system, with a distinctive (not confused with fire alarm, etc.) signal, is installed for the purposes of communicating entertainer violence related emergencies to employer-designated responders.

(2) Adult entertainment establishments must make sure alarm systems:

(a) Communicate the use/triggering of panic buttons.

(b) Identify the location of all panic buttons which have been used/triggered.

(c) Latch, or continue to both communicate the use/triggering of panic buttons, and identify the location of panic buttons which have been used/triggered, without requiring ongoing action(s) of the person

that used the panic button. For example, entertainers must not be required to hold a button down to keep the alarm triggering.

(d) Are recognizable above surrounding noise and/or light levels by establishment designated responder(s) in all relevant portions of the establishment in which designated responders are acting in this role. Areas far enough away from an alarm, or where building materials or walls are in the alarms path, may reduce the effectiveness of the alarm to the point that it is no longer recognizable.

(3) For the purposes of this rule, panic button alarm systems can be categorized based on whether the entertainer's point of use features a silent (discreet), or a recognizable (audible/visual/tactile) alarm from the entertainer's and customer's perspective. Discreet panic buttons reduce the likelihood of escalating a confrontation towards violence, but at the same time prevent other entertainers and personnel in the area from knowing a panic button was used/triggered. **See WAC 296-831-300(2) and the exception immediately following it for specific requirements regarding silent (discreet) vs. recognizable (audible/visual/tactile) alarm systems.** Regardless of which method is used, associated hazards must be further mitigated by implementing either of the below, or a similarly protective, strategy:

(a) A multistage alarm (normally discreet at the panic button point of use, but switches to audible/recognizable at the point of use if the alarm system detects a malfunction that would prevent response actions); or

(b) A multicomponent alarm (discreet at the panic button point of use, but nonaudible alarm components (lights, etc.)) provided within adjacent booths/rooms/etc., and above/adjacent/on the entrance to booth(s)/room(s)/etc., to communicate to designated responders both the use, and location, of a panic button alarm in the area.

[]

NEW SECTION

WAC 296-831-400 Training requirements. (1) Adult entertainment establishments must train entertainers on the following, prior to their work as entertainers (for more information related to customer complaint logs/blacklists see WAC 296-831-500).

(a) The location and type of panic buttons used in the establishment (audible/discreet at the point of use).

(b) How to use panic button(s).

(c) Proper scenarios for use of panic button(s).

(d) What, if any, are the limitations of the panic button(s) and/or alarm system(s) - Under what circumstances could the panic button(s) and alarm system(s) fail and what are entertainers expected to do in these scenarios.

(e) The location and purpose of both the customer complaint log and blacklist.

(f) What scenarios are appropriate for listing customers in both the complaint log and blacklist.

(g) What steps entertainers must take to have customers added to blacklist and/or customer complaint log.

(2) Adult entertainment establishments designate and train responders on the following prior to their work as designated responders

(for more information related to customer complaint logs/blacklists see WAC 296-831-500).

(a) The location and type of panic buttons used in the establishment.

(b) How to recognize panic button alarms?

(c) What, if any, are the limitations of the panic button(s) and/or alarm system(s) - Under what circumstances could the panic button(s) and alarm system(s) fail and what are responders expected to do in these scenarios?

(d) What are the designated responders assigned duties following the use of a panic button?

(e) How do designated responders perform assigned duties following the use of a panic button?

(f) The location and purpose of both the customer complaint log and blacklist.

(g) What scenarios are appropriate for listing customers in both the complaint log and blacklist.

(h) What steps designated responders must take to have customers added to blacklist and/or customer complaint log.

[]

NEW SECTION

WAC 296-831-500 Customer complaint log requirements. (1) Adult entertainment establishments must record the accusations it receives that a customer has committed an act of violence, including assault, sexual assault, or sexual harassment, towards an entertainer. The establishment must make every effort to obtain the customer's name and if the establishment cannot determine the name, it must record as much identifying information about the customer as is reasonably possible. The establishment must retain a record of the customer's identifying information for at least five years after the most recent accusation.

(2) If an accusation is supported by a statement made under penalty of perjury or other evidence, the adult entertainment establishment must decline to allow the customer to return to the establishment (blacklist) for at least three years after the date of the incident. The establishment must share the information about the customer with other establishments with common ownership and those establishments with common ownership must also decline to allow the customer to enter those establishments (blacklist) for at least three years after the date of the incident. No entertainer may be required to provide such a statement.

Note: Appendix B contains a standard declaration template that can be used to make a statement under penalty of perjury.
In addition to statements made under penalty of perjury, any other evidence brought forth to an employer that a customer has committed an act of violence, including assault, sexual assault, or sexual harassment towards an entertainer, should be considered credible and trigger the employer to take action as required under the customer complaint log requirements above unless the employer can provide a rational explanation why they do not deem the evidence credible.

Appendix A

PANIC BUTTON CHECKLIST If the response to *any* of the following questions in this checklist is "NO," and if no other alternative hazard controls are in place for the identified hazard, panic buttons are likely not effective.		
Do panic buttons and panic buttons systems exclusively rely on establishment owned/leased/ etc., equipment or services?	**YES**	**NO**

The above covers the complete chain of events from the initial signaling at the entertainer's point of use through notification and to response from the establishment. The rule does not prohibit entertainer owned devices supplementing the devices provided by establishment (e.g., as a backup method).

Do panic buttons require only a single action to activate (such as a single push/pull/tap, etc.)?	**YES**	**NO**

Panic buttons which require multiple actions (such as using a number pad to unlock/dial a cell phone, or selecting a channel/frequency on a portable radio, or pressing a button and then speaking) would require an entertainer to extend their exposure to a hazard in order to seek relief from it.

Do panic buttons and the associated signal or alarm latch?	**YES**	**NO**

Once triggered, panic buttons alarms continue to both alarm and identify the location of the used panic button(s) without requiring ongoing action of the entertainer. Panic buttons requiring ongoing actions of the entertainer (continued holding/pressing, etc.) would require an entertainer to extend their exposure to a hazard in order to seek relief from it.

Do panic buttons systems resist tampering?	**YES**	**NO**

Once triggered, panic buttons alarms are not easily reset at the panic button (entertainer's point of use) itself, especially using the same action that activated it. Panic buttons which can be readily turned off or reset by customers would delay response actions and allow continued exposure to the hazard.

Do panic buttons reduce or minimize inadvertent activation or false alarms?	**YES**	**NO**

False alarms increase the likelihood of delayed, deprioritized, or ignored alarms. Buttons, switches, etc., which are protected, shouldered, recessed, or flush with top surface/bracket/etc. reduce the likelihood of false alarms.

Do panic buttons systems identify the location of the triggered panic buttons?	**YES**	**NO**

Uncoordinated response to panic buttons increases the likelihood of response actions being delayed or otherwise inadequate.

Do panic buttons trigger distinct alarms?	**YES**	**NO**

If an establishment's panic button response procedures dictate that after the triggering of a panic button, uninvolved entertainers should continue entertaining while the establishment conducts response activities; then panic buttons alarm systems (and response procedures) would need to continue to fully function during an alarm (or multiple alarms). Indistinct alarms, or alarms where the establishment cannot identify/respond to multiple simultaneous alarms, increase the likelihood of response actions being delayed or otherwise inadequate.

Do panic buttons alarms produce recognizable signals to perform actions under the APP, Emergency Action Plan, etc.?	**YES**	**NO**

At the establishment's point of reception, alarms must be recognizable in the conditions under which they will be used. The following can obscure alarms sufficiently enough to make an alarm unrecognizable: - Areas subject to noise/music at volumes equal or above the volume of an alarm; - Areas subject to strobing lighting equal or above the amount of illumination of an alarm; - Areas with sufficient distance, intermediary materials, or the room/building configuration itself, impairs alarm signals to the point that they are no longer recognizable. At the entertainer's point of use, panic buttons may be either discreet, or produce an audible alarm. Discreet panic buttons reduce the likelihood of escalating a confrontation towards violence, but simultaneously prevent other entertainers and personnel in the area from knowing a panic button was triggered. Regardless of which method is used, associated hazards must be further mitigated such as via a multistage alarm (normally discreet, only audible if alarm malfunction, etc.), multicomponent alarm (using notification lights, rather than audible alarms, within adjacent booths/rooms/etc., in conjunction with indicator light(s) outside booth/room/etc., to signal and locate the use of a panic button).

Are panic buttons provided by the establishment in each room in the establishment in which entertainers may be alone with a customer, and in bathrooms and dressing rooms?	**YES**	**NO**

For the purposes of this question, "*alone*" means outside of direct line-of-sight of other establishment personnel, entertainers, employees, etc., such as in private or semi-private booths, rooms, etc.

Are panic buttons that are permanently installed in the workplace, located within immediate reach?	**YES**	**NO**

Panic buttons must be kept free of obstacles blocking their use (doors, furniture, mop buckets, boxes, coat racks, etc.).

Are panic buttons in good working order? If not, are entertainers informed of, and excluded from, areas lacking required panic buttons protection (e.g. during power loss, wireless service loss, etc.)?	**YES**	**NO**

Keep a record of, and inform entertainers of, nonfunctional/improperly working panic buttons until replaced or repaired.
- Use signage or otherwise inform entertainers prior to working; and
- Use written procedures and policies in Accident Prevention Plan that prohibit or restrict access to relevant areas.

Appendix B

Declaration of: _____
(Type or print your name here)

_____ declares as follows:
(Type or print your name)

I am over the age of eighteen, and I am otherwise competent to testify. I make these statements based on personal knowledge and belief.

_____
_____
_____
_____
(Insert your statement here describing what happened)

I declare under penalty of perjury of the laws of the State of Washington the foregoing is true and correct.

DATED this __ day of _____ 20__, in _____, Washington.
(##) (Month) (Year) (Name of city/town)

_____
(Sign above)

_____
(Type or print your name)

[]

WSR 22-02-061
WITHDRAWAL OF PROPOSED RULES
GAMBLING COMMISSION
(By the Code Reviser's Office)
[Filed January 4, 2022, 11:23 a.m.]

WAC 230-03-200, 230-06-054, 230-19-050, 230-19-055, and 230-19-060, proposed by the gambling commission in WSR 21-13-165, appearing in issue 21-13 of the Washington State Register, which was distributed on July 7, 2021, is withdrawn by the office of the code reviser under RCW 34.05.335(3), since the proposal was not adopted within the 180-day period allowed by the statute.

Jennifer C. Meas, Editor
Washington State Register

WSR 22-02-062
WITHDRAWAL OF PROPOSED RULES
HEALTH CARE AUTHORITY
(By the Code Reviser's Office)
[Filed January 4, 2022, 11:25 a.m.]

WAC 182-507-0115 and 182-507-0120, proposed by the health care authority in WSR 21-13-049, appearing in issue 21-13 of the Washington State Register, which was distributed on July 7, 2021, is withdrawn by the office of the code reviser under RCW 34.05.335(3), since the proposal was not adopted within the 180-day period allowed by the statute.

Jennifer C. Meas, Editor
Washington State Register

WSR 22-02-065
PROPOSED RULES
DEPARTMENT OF
FISH AND WILDLIFE
[Filed January 5, 2022, 8:54 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 20-22-110.

Title of Rule and Other Identifying Information: Commercial shellfish; the department is amending several regulations in chapters 220-320, 220-340, and 220-352 WAC that pertain to commercial crab, shrimp, sea cucumber, sea urchin, scallop, squid, and razor clam fisheries, including: Amending WAC 220-320-010 Shellfish—Classification, 220-320-110 Puget Sound commercial crab regions, 220-320-120 Puget Sound shrimp districts, 220-340-020 Shellfish—Unlawful acts—Commercial, 220-340-030 Shellfish harvest logs, 220-340-060 Commercial shellfish pot gear—Escape mechanism required, 220-340-100 Commercial clam fishery—Gear, 220-340-420 Commercial crab fishery—Unlawful acts, 220-340-430 Commercial crab fishery—Gear requirements, 220-340-455 Commercial crab Fishery—Seasons and area—Puget Sound, 220-340-470 Commercial crab fishery—Gear limits—Puget Sound and Marine Fish-Shellfish Management and Catch Reporting Areas, 220-340-520 Commercial shrimp fishery—Puget Sound, 220-340-610 Commercial scallop fishery—Puget Sound, 220-340-700 Commercial crawfish fishery, 220-340-720 Commercial octopus fishery, 220-340-730 Commercial sea cucumber fishery, 220-340-750 Commercial sea urchin fisheries, 220-340-770 Commercial squid fishery, 220-352-340 Puget Sound crab—Additional reporting requirements and 220-352-355 Puget Sound shrimp—Additional reporting requirements; new WAC 220-320-140 Commercial shrimp geographical management units—Puget Sound, 220-340-530 Commercial shrimp trawl fishery—Puget Sound and 220-352-355 Puget Sound scallop—Additional reporting requirements; and repealing WAC 220-340-740 Sea cucumber license reduction program and 220-340-760 Sea urchin license reduction program.

Hearing Location(s): On February 17 - 19, 2022, at 8:00 a.m., webinar. This meeting of the fish and wildlife commission will take place by webinar. See https://wdfw.wa.gov/about/commission or contact the commission office at 360-902-2267 or commission@dfw.wa.gov for instructions on how to join the meeting.

Date of Intended Adoption: Not earlier than March 8, 2022.

Submit Written Comments to: Kelly Henderson, P.O. Box 43200, Olympia, WA 98504, email 2022CommercialShellfish102@PublicInput.com, website https://publicinput.com/2022CommercialShellfish102, phone 855-925-2801, project code 6429, by February 20, 2022.

Assistance for Persons with Disabilities: Contact Title VI/ADA compliance coordinator, phone 360-902-2349, TTY 1-800-833-6388 or 711, email Title6@dfw.wa.gov, by February 20, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: WAC 220-320-010, this proposal updates shellfish taxonomic and common name descriptions according to present scientifically accepted conventions.

WAC 220-320-110, this proposal defines Puget Sound commercial crab management regions, subregions, and subareas used in harvest allocation, fishing season, and catch reporting.

WAC 220-320-120, this proposal updates this WAC section to accommodate current "special management areas" for both Puget Sound crab

and shrimp. Special management area designations support managing according to commission policies and special biological considerations like differing molt timing.

WAC 220-320-140, this proposal defines Puget Sound commercial shrimp management regions, subregions, and subareas used in harvest allocation, fishing season, and catch reporting.

WAC 220-340-020, this proposal clarifies that vessel signage display requirements apply to all dive fisheries and clarifies sign requirements.

WAC 220-340-030, this proposal including housekeeping updates to mailing addresses for harvest logs, and adds additional reporting requirements for Puget Sound squid and shrimp harvest logs.

WAC 220-340-060, defines "other natural fiber" types permitted for escape cord construction.

WAC 220-340-100, defines permissible gear types and requirements in the commercial razor clam fishery.

WAC 220-340-420, this proposal for the Puget Sound crab fishery establishes crab pot barging requirements, as well as defines requirements related to short-term storage of live crab prior to delivery to original receiver and updates language to reflect gear types used in the fishery.

WAC 220-340-430, this proposal requires all remaining, undeployed Puget Sound crab buoy tags to be retained on the vessel and available for inspection and clarifies buoy construction requirements.

WAC 220-340-455, this proposal updates description of Puget Sound commercial crab season; including extending the length of the fishing day, removing hard dates for annual crab season, and removing obsolete commercial exclusion areas.

WAC 220-340-470, proposals here include allowing up to three (from two) licenses to be "stacked" on a single vessel and increases pot limits in some areas for Puget Sound crab.

WAC 220-340-520, this proposal reshapes this section to include only Puget Sound commercial shrimp pot fishery rules, clarifies shrimp buoy marking requirements, describes pot construction requirements, defines spatial harvest restrictions and requirements.

WAC 220-340-530, a new section is proposed to include only the Puget Sound commercial shrimp trawl fishery. This proposal moves existing rules from WAC 220-340-520 and defines spatial harvest restrictions and requirements, depth restrictions, and temporal harvest restrictions and requirements.

WAC 220-340-610, this commercial scallop section is updated to reflect now existing scallop fishery license, adds requirements related to possession for public health testing, permits a second diver in the water for safety purposes, references area closures and vessel marking requirements, and defines the fishing week for management purposes.

WAC 220-340-700, this proposal clarifies crawfish buoy marking and construction requirements.

WAC 220-340-720, this is a housekeeping change to clarify existing language for commercial octopus.

WAC 220-340-730, sea cucumber, clarifies licensing requirement, updates list and descriptions of closed areas, clarifies vessel marking requirements, and defines the fishing week for management purposes.

WAC 220-340-750, sea urchin, clarifies licensing requirement, updates list and descriptions of closed areas, clarifies vessel marking

requirements, defines size limits, and defines the fishing week for management purposes.

WAC 220-340-770, this proposal for Puget Sound commercial squid removes drag seines as a lawful gear type, clarifies net mesh requirements, and simplifies existing area restrictions.

WAC 220-340-740, this section is being proposed for repeal, as the sea cucumber license reduction program has expired.

WAC 220-340-760, this section is being proposed for repeal, as the sea urchin license reduction program has expired.

WAC 220-352-340, establishes new Puget Sound crab reporting requirements; including prefishing registration, updated quick reporting requirements and reporting requirements for the short-term storage of crab.

WAC 220-352-355, creates a new section to describe additional reporting requirements related to commercial scallops; including describing quick reporting requirements.

Housekeeping changes, such as adding geographical coordinates to support clarity in spatial references, improving the clarity of language, correcting errors, and reorganizing WAC structure for simplification are also proposed throughout many of the listed WAC sections.

Reasons Supporting Proposal: The department is considering updates to commercial shellfish rules; including sea cucumber, sea urchin, octopus, crawfish, scallop, coastal razor clam, and Puget Sound shrimp, crab, and squid. The proposed changes address conservation objectives in several fisheries, update out-of-date fisheries management provisions, and clarify some requirements that already exist. Many of the changes are also to support comanagement objectives and many are to make permanent rules previously articulated with emergency regulations. Housekeeping changes, such as adding geographical coordinates to support clarity in spatial references, improving the clarity of language, correcting errors, and reorganizing WAC structure for simplification are also proposed throughout many of the listed WAC sections.

Statutory Authority for Adoption: RCW 77.04.012, 77.04.020, 77.04.055, and 77.12.047.

Statute Being Implemented: RCW 77.04.012, 77.04.020, 77.04.055, and 77.12.047.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Governmental.

Name of Agency Personnel Responsible for Drafting: Chris Eardley, 375 Hudson Street, Port Townsend, WA 98368, 360-302-0302; Implementation: Kelly Cunningham, 1111 Washington Street S.E., Olympia, WA 98501, 360-902-2325; and Enforcement: Chief Steve Bear, 1111 Washington Street S.E., Olympia, WA 98501, 360-902-2373.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. This rule proposal does not require a cost-benefit analysis per RCW 34.05.328 (5)(a).

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. Many proposals are housekeeping changes, clarification of existing language or requirements, or are updates to definitions that do not represent substantive changes to rules or regulations in and of themselves. Many proposals are also minor, and which do not represent additional costs, such as retaining unused crab buoy

tags or clarifying what is meant by the term "natural fiber" for pot rot cord. There are also a number of proposals that involve codifying standards and conditions under which fishing already occurs, such as gear definitions in the shrimp pot fishery, updating echinoderm closure areas, or codifying depth restrictions in the shrimp trawl fishery. Substantive proposals have been discussed with affected fleets over time and some were developed following requests from fishers. Proposals are expected to be supported by affected fleets. Importantly, many of the proposals describe new options available to fishers, such as added flexibility in deploying gear, short-term storage of catch, and considerations to improve safety. We've added the specific conditions for using these options and this provides notification benefits to the affected stakeholders. Also included are proposals to simplify regulations, provide easier and more efficient reporting options, and remove obsolete barriers like no longer relevant closure areas. This rule-making package includes many benefits to fishing stakeholders as well as the agency's management of shellfish resources.

WAC 220-320-010, 220-320-110, 220-320-120 and 220-320-140, these proposals involve updating species taxonomic descriptions and area definitions and do not include any substantive rule changes in and of themselves.

WAC 220-340-020, 220-340-430 and 220-340-700, these proposals clarify existing requirements, add minor buoy-related marking requirements, or codify existing accepted standards and do not represent additional costs.

WAC 220-340-030, this proposal includes housekeeping updates to mailing addresses for harvest logs, and adds additional reporting fields to some log forms. This codifies standards that have already been used by the agency and the affected fleets and involve simply recording a few extra pieces of information, thus not representing more-than-minor additional cost.

WAC 220-340-060, clarifies an existing, vague definition to provide more direction and does not represent additional cost.

WAC 220-340-100, this proposal removes the use of three implements which in practice are impractical and have never really been used by industry. The change also adds the option of using a more practical implement in the clam tube. Since this change does not require participants to change gear from what they currently use, it does not represent a significant cost to industry. The option to use a clam tube was proposed by diggers at an industry meeting back in 2018. Clam tubes can be acquired for less than $100—minimal cost.

WAC 220-340-420, 220-340-470 and 220-352-340, these proposals include housekeeping clarifications, streamline reporting methods, add reporting requirements, and support additional, optional, flexibility in operating within the Puget Sound crab fishery. They involve clarifying existing requirements and defining the terms under which new options (barging of crab pots, clarified terms on short-term storage of crab, stacking of an additional license on a vessel) can occur (the conditions are required, but the choice to use the options described are not); any slight additional costs associated with negligible additional time to report to or communicate with the agency are far outweighed by the benefits to users of these options. Further, the changes also provide new electronic means of reporting, which makes it easier. Finally, this proposal supports more precise management of quota by the agency, which reduces the risk of exceedances, and thus

helps to avoid reductions in subsequent seasons. This proposal is thus a benefit to the commercial crab fishery, rather than representing additional costs.

WAC 220-340-455, this proposal adds flexibility for managers to execute commercial crab seasons and also benefits the commercial fishery by removing obsolete provisions that needlessly restricted the fishery. It is thus a benefit to the fishery and does not represent additional cost.

WAC 220-340-520, this proposal codifies standards that are already being used by the agency and the industry and under which the industry has already been operating for some time; there are also a number of minor housekeeping changes. This proposal thus does not represent any new or additional costs. Additionally, this proposal supports additional, optional, flexibility in operating within the Puget Sound shrimp fishery and is thus a benefit to the commercial shrimp fishery, rather than representing additional costs.

WAC 220-340-530, this proposal codifies standards that are already being used by the agency and the industry and under which the industry has already been operating for some time; there are also a number of minor housekeeping changes. This proposal thus does not represent any new or additional costs.

WAC 220-340-610 and 220-352-355, these proposals contain housekeeping changes, codify conditions under which the fishery has already been operating, and add optional flexibility that supports diver safety. Thus, these proposals do not come at additional costs and also benefit the industry.

WAC 220-340-720, 220-340-740 and 220-340-760, these are housekeeping changes that do not represent additional costs.

WAC 220-340-730 and 220-340-750, these proposals contain housekeeping changes and codify conditions under which the fishery has already been operating. Thus, these proposals do not come at new/additional costs. The provisions described here have also been discussed with the industry extensively and have support from the industry.

WAC 220-340-770, these proposals contain housekeeping changes and codify conditions under which the fishery has already been operating. Thus, this proposal does not come at additional costs. It also simplifies area restrictions, thus representing benefit to the industry.

December 22, 2021
Annie Szvetecz
Rules Coordinator

OTS-3516.1

AMENDATORY SECTION (Amending WSR 19-13-013, filed 6/7/19, effective 7/8/19)

WAC 220-320-010 Shellfish—Classification. The following species are classified as shellfish under RCW 77.12.047 and are subject to the provisions of this title:

Mussel	
Blue mussel	*Mytilus trossulus*

California mussel	*Mytilus californianus*
Mediterranean mussel	*Mytilus galloprovincialis*
Scallops	
Pacific pink scallop	*Chlamys rubida*
Rock scallop	*Crassadoma gigantea*
Spiny scallop	*Chlamys hastata*
Weathervane scallop	*Patinopecten caurinus*
Clams	
All macoma clams	*Macoma spp.*
Butter clam	*Saxidomus ((~~giganteus~~)) gigantea*
((~~Common~~)) Nuttall's/Heart cockle	*Clinocardium nuttallii*
Geoduck	*Panopea ((~~abrupta~~)) generosa*
Horse or Gaper clam	*Tresus nuttallii*, *Tresus capax*
Mud or soft shell clam	*Mya arenaria*
Manila clam	*((~~Venerupis~~)) Ruditapes (Venerupis) philippinarum*
Piddock	*Zirfaea pilsbryi*
Razor clam	*Siliqua patula*
Rock or native littleneck clam	*Leukoma staminea*
Varnish clam	*Nuttallia obscurata*
All other marine clams existing in Washington in a wild state	
Oysters	
All oysters	(Ostreidae)
Squid	
All squid	(Sepiolida ((~~or Teuthida~~)) , Loliginidae, or Ommastrephidae)
Octopus	
Octopus	*Enteroctopus ((~~dolfleini~~)) dofleini*
Barnacles	
Goose barnacle	*Pollicipes polymerus*
Shrimp	
((~~Coonstripe~~)) Dock shrimp	*Pandalus danae*
Coonstripe shrimp	*Pandalus hypsinotus*
Ghost or sand shrimp	*Neotrypaea spp.*
Humpy shrimp	*Pandalus goniurus*
Mud shrimp	*Upogebia pugettensis*
Ocean pink shrimp	*Pandalus jordani*
Pink shrimp	*Pandalus eous*
Sidestripe shrimp	*Pandalus (Pandalopsis) dispar*
Spot shrimp	*Pandalus platyceros*
Crab	
Dungeness ((~~or Pacific~~)) crab	*Metacarcinus (Cancer) magister*

Red rock crab	*Cancer productus*
Tanner crab	*Chionoecetes tanneri*
King and box crab	*Lopholithodes spp.*
Blue king crab	*Paralithodes platypus*
Red king crab	*Paralithodes camtschaticus*
Golden king crab	*Lithodes aequispinus*
Crawfish	
Crawfish	*Pacifastacus sp.*
Sea cucumber	
California sea cucumber	*((~~Parastichopus~~)) Apostichopus (Parastichopus) californicus*
Sea urchin	
Green urchin	*Strongylocentrotus droebachiensis*
Red urchin	*Mesocentrotus (Strongylocentrotus) franciscanus*
Purple urchin	*Strongylocentrotus purpuratus*

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.020, and 77.12.047. WSR 19-13-013 (Order 18-120), § 220-320-010, filed 6/7/19, effective 7/8/19. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-320-010, filed 2/15/17, effective 3/18/17; WSR 17-01-055 (Order 16-326), § 220-12-020, filed 12/14/16, effective 1/14/17. Statutory Authority: RCW 34.05.353 (1)(b), (c), and (d), 77.12.047, 77.50.050, and chapters 77.65 and 77.70 RCW. WSR 12-09-046 (Order 12-61), § 220-12-020, filed 4/13/12, effective 5/14/12. Statutory Authority: RCW 77.12.047. WSR 10-07-105 (Order 10-64), § 220-12-020, filed 3/19/10, effective 5/1/10; WSR 04-07-009 (Order 04-39), § 220-12-020, filed 3/4/04, effective 5/1/04; WSR 03-05-057 (Order 03-24), § 220-12-020, filed 2/14/03, effective 5/1/03. Statutory Authority: RCW 77.12.040 and 75.08.080. WSR 98-06-031, § 220-12-020, filed 2/26/98, effective 5/1/98. Statutory Authority: RCW 75.08.080. WSR 95-04-066 (Order 95-10), § 220-12-020, filed 1/30/95, effective 5/1/95; WSR 91-10-024 (Order 91-22), § 220-12-020, filed 4/23/91, effective 5/24/91; WSR 88-12-025 (Order 88-28), § 220-12-020, filed 5/25/88, effective 8/22/88; WSR 87-23-006 (Order 87-187), § 220-12-020, filed 11/6/87; WSR 86-24-046 (Order 86-190), § 220-12-020, filed 11/26/86; WSR 85-09-017 (Order 85-20), § 220-12-020, filed 4/9/85; WSR 85-01-010 (Order 84-214), § 220-12-020, filed 12/7/84; WSR 83-24-024 (Order 83-200), § 220-12-020, filed 11/30/83, effective 1/1/84; Order 1186, § 220-12-020, filed 1/13/75; Order 990, § 220-12-020, filed 5/11/72; Order 807, § 220-12-020, filed 1/2/69, effective 2/1/69; Order 677, Shellfish classification, filed 3/31/66; Order 256, Shellfish classification, filed 3/1/60; Abalone and octopus from Order 483 and 256, filed 3/1/60.]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-320-120 Puget Sound ((~~shrimp districts~~)) Crustacean (crab and shrimp) Special Management Areas. The following areas shall be defined as Puget Sound ((~~Shrimp Districts~~)) Crustacean (crab and shrimp) Special Management Areas (CSMA):

(1) Discovery Bay:

(a) Crustacean Special Management Area: All waters of Marine Fish-Shellfish Management and Catch Reporting Area 25E - Discovery Bay south of a line from Diamond Point (48°05.667'N, 122°54.913'W) to Cape George (48°06.205'N, 122°53.084'W).

(b) Shrimp District((~~---~~)): All waters Catch Area 25E and those waters of Catch Area 25A south of a line from McCurdy Point (48°08.148'N, 122°50.243'W) on the Quimper Peninsula to the northern tip of Protection Island (48°07.962'N, 122°55.707'W), then to Rocky Point (48°05.781'N, 122°58.523'W) on the Miller Peninsula((~~, and including all waters of Discovery Bay~~)).

(2) Dungeness Bay CSMA: All waters of Dungeness Bay west of the 123°06.6' longitude line originating from the New Dungeness Light (48°10.905'N, 123°06.616'W) extending southward to the cul-de-sac at the end of 3 Crabs Road on the mainland (48°09.054'N, 123°07.270'W).

(3) Everett Flats CSMA: That portion of Catch Area 26A-E east (see WAC 220-320-110) of a line from western edge of Howarth Park (47°57.715'N, 122°14.643'W) due north to the southern tip of Gedney (Hat) Island (48°00.289'N, 122°18.359'W) and that portion of 24B east of a line from the northern tip of Gedney (Hat) Island (48°01.292'N, 122°19.645'W) to Camano Head (48°03.421'N, 122°21.478'W) and south of a line drawn from Camano Head to Hermosa Point (48°03.718'N, 122°17.610'W) on the Tulalip reservation.

((~~(2) Hood Canal Shrimp District - All waters of Hood Canal south of the Hood Canal Floating Bridge.~~)) (4) Port Angeles Harbor CSMA: That portion of Marine Fish-Shellfish Catch Area 23D west of a line from the Ediz Hook Light (48°08.401'N, 123°24.148'W) to the site of the ITT Rayonier Dock (48°07.015'N, 123°24.496'W).

(5) Port Townsend Bay CSMA: Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 25D within a line projected from the Point Hudson Marina entrance to the northern tip of Indian Island (48°5.119'N, 122°43.816'W), thence to Kala Point (48°03.448'N, 122°46.043'W) and thence following the shoreline to the point of origin.

(6) Sequim Bay CSMA: All waters of Sequim Bay south of Travis Spit and a line west from the western tip of Travis Spit (Klapot Point) to the dock at the Pacific Northwest National Laboratory (48°04.757'N, 123°02.713'W).

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-320-120, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.12.047. WSR 07-05-051 (Order 07-22), § 220-16-270, filed 2/16/07, effective 3/19/07; WSR 04-07-009 (Order 04-39), § 220-16-270, filed 3/4/04, effective 5/1/04; WSR 03-16-097 (Order 03-180), § 220-16-270, filed 8/6/03, effective 9/6/03; WSR 01-03-016 (Order 00-271), § 220-16-270, filed 1/5/01, effective 2/5/01; Order 817, § 220-16-270, filed 5/29/69. Formerly WAC 220-16-020 (part).]

NEW SECTION

WAC 220-320-140 Commercial shrimp geographical management units ——Puget Sound. Puget Sound commercial shrimp harvest management utilizes a hierarchy of geographical management units consisting of region, subregion, Marine Fish-Shellfish Management and Catch Reporting Area (catch area), and subarea. This section defines these units.

(1) **The following areas are defined as Puget Sound Shrimp Management Regions and subregions:**

(a) Region 1 – Trawl fishery: All waters of Catch Areas 20A, 20B, 21A, 21B, 22B, and 22A;

Region 1 – Pot fishery: All waters of Catch Areas 20A, 20B, 21A, 21B, 22B, and Catch Area 22A, except the southwesterly portion of Catch Area 22A south of a line due west from Lime Kiln Point Light (48°30.954'N, 123°09.150'W) on San Juan Island to the International Boundary, then south of the shoreline of San Juan Island from Lime Kiln Point Light to Cattle Point (48°27.006'N, 122°57.818'W), then south of a line from Cattle Point to Davis Point on Lopez Island, and south of the shoreline of Lopez Island from Davis Point (48°27.351'N, 122°56.129'W) to Point Colville (48°25.301'N, 122°48.786'W; see (d) of this subsection Region 3).

(i) Subregion 1A: All waters of Catch Area 20B west of a line from Point Doughty (48°42.702'N, 122°56.953'W) on Orcas Island to the bell buoy (48°45.891'N, 123°00.869'W) at the International Boundary and all waters of Catch Area 22A west of a line projected true north and south from the western tip of Crane Island (48°35.848'N, 123°00.470'W), west of a line projected from the number 4 marker (48°31.339'N, 122°55.040'W) at the entrance to Fisherman Bay to the southern tip of Shaw Island (48°32.793'N, 122°56.924'W), and north of a line due west from Lime Kiln Point Light (48°30.954'N, 123°09.150'W) on San Juan Island to the International Boundary.

(ii) Subregion 1B: All waters of Catch Area 20B east of a line from Point Doughty (48°42.702'N, 122°56.953'W) on Orcas Island to the bell buoy at the International Boundary (48°45.891'N, 123°00.869'W), and waters of Catch Area 22A east of a line projected true north and south from the western tip of Crane Island (48°35.848'N, 123°00.470'W), east of a line projected from the number 4 marker (48°31.339'N, 122°55.040'W) at the entrance to Fisherman Bay to the southern tip of Shaw Island (48°32.793'N, 122°56.924'W), and east of a line projected true south from Point Colville (48°25.301'N, 122°48.786'W), and all waters of Catch Area 21A north and west of a line from the southern tip of Sinclair Island (48°36.583'N, 122°39.433'W) to Carter Point (48°38.423'N, 122°36.525'W) at the southern tip of Lummi Island.

(iii) Subregion 1C: All waters of Catch Areas 20A, 21B, 22B, and those waters of Catch Area 21A not included in Subregion 1B.

(b) Region 2E: All waters of Catch Areas 24A, 24B, 24C, 24D, and Subarea 26A-E (east; subareas defined in subsections (2) and (3) of this section).

(c) Region 2W: Waters of Catch Areas 25B, 25C, 25D, and Subarea 26A-W (west).

(d) Region 3 - Trawl fishery: All waters of Catch Areas 23A, 23B, 23C, 23D, 25A, 25E, and 29.

Region 3 - Pot fishery: All waters of Catch Areas 23A, 23B, 23C, 23D, 25A, 25E, 29, and the southwesterly portion of Catch Area 22A south of a line due west from Lime Kiln Point Light (48°30.954'N,

123°09.150'W) on San Juan Island to the International Boundary, then south of the shoreline of San Juan Island from Lime Kiln Point Light to Cattle Point (48°27.006'N, 122°57.818'W), then south of a line from Cattle Point to Davis Point (48°27.351'N, 122°56.129'W) on Lopez Island, and south of the shoreline of Lopez Island from Davis Point to Point Colville (48°25.301'N, 122°48.786'W).

(e) Region 4: All waters of Catch Area 26C and 26B, which is divided into Subareas 26B-1 and 26B-2 (subareas defined in subsection (2) of this section).

(f) Region 5: All waters of Catch Areas 27A, 27B, and 27C.

(g) Region 6: All waters of Catch Areas 26D, 28A, 28B, 28C, and 28D.

(2) **The following areas are defined as Puget Sound Commercial Shrimp Subareas, shrimp pot harvest**: For purposes of Puget Sound shrimp pot harvest allocation, fishing season, and catch reporting, catch areas (WAC 220-301-040) are modified as follows:

(a) That portion of Catch Area 22A south of a line due west from Lime Kiln Point Light (48°30.954'N, 123°09.150'W) on San Juan Island to the International Boundary, then south of the shores of San Juan Island from Lime Kiln Point Light to Cattle Point, then south of a line from Cattle Point (48°27.006'N, 122°57.818'W) to Davis Point on Lopez Island (48°27.351'N, 122°56.129'W), and south of the shoreline of Lopez Island from Davis Point to Point Colville (48°25.301'N, 122°48.786'W) shall be considered to be part of Catch Area 23A.

(b) Catch Area 23A is divided into four subareas:

(i) Subarea 23A-E (east): All waters of Catch Area 23A east of 122°57'W longitude and north of 48°22.5'N latitude.

(ii) Subarea 23A-W (west): All waters of Catch Area 23A west of 122°57'W longitude and north of 48°22.5'N latitude.

(iii) Subarea 23A-C (central): All waters of Catch Area 23 south of 48°22.5'N latitude and east of a line projected 335° true from the New Dungeness Lighthouse (48°10.905'N, 123°6.616'W).

(iv) Subarea 23A-S (south): All waters of Catch Area 23A west of a line projected 335° true from the New Dungeness Lighthouse (48°10.905'N, 123°6.616'W).

(c) Catch Area 26A is divided into two subareas:

(i) Subarea 26A-E (east): All waters of Catch Area 26A north and east of a line projected 110° true from the southern tip of Possession Point (47°54.364'N, 122°23.078'W) on Whidbey Island to the shipwreck located 0.8 nautical miles north of Picnic Point (47°53.585'N, 122°19.713'W) on the opposite shore.

(ii) Subarea 26A-W (west): All waters of Catch Area 26A south and west of a line projected 110° true from the southern tip of Possession Point (47°54.364'N, 122°23.078'W) on Whidbey Island to the shipwreck located 0.8 nautical miles north of Picnic Point (47°53.585'N, 122°19.713'W) on the opposite shore.

(d) Catch Area 26B is divided into two subareas:

(i) Subarea 26B-1: All waters of Catch Area 26B westerly of a line projected from West Point (47°39.712'N, 122°26.090'W) to Alki Point (47°34.575'N, 122°25.194'W).

(ii) Subarea 26B-2: All waters easterly of a line projected from West Point (47°39.712'N, 122°26.090'W) to Alki Point (47°34.575'N, 122°25.194'W).

(3) **The following areas are defined as Puget Sound Shrimp Subareas, shrimp trawl harvest**: For the purpose of Puget Sound shrimp trawl harvest allocation and catch reporting, catch areas (WAC 220-301-040) are modified as follows:

(a) Trawl Subarea 23A East: That portion of Catch Area 23A, east of a line projected true north from the New Dungeness Lighthouse (48°10.905'N, 123°6.616'W) to the International Boundary.

(b) Trawl Subarea 23A West: That portion of Catch Area 23A, west of a line projected true north from the New Dungeness Lighthouse (48°10.905'N, 123°6.616'W) to the International Boundary.

(4) In shrimp Subregions 1A, 1B, and 1C, all catch must be reported by catch area and subregion combined (for example 22a-1a).

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OTS-3517.1

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-320-110 ((~~Puget sound crab management regions.~~)) Commercial crab geographical management units—Puget Sound. ((~~The following areas are defined as Puget Sound Crab Management Regions:~~

~~(1) Crab Management Region 1 - (North Puget Sound). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 20A, 20B, 21A, 21B, 22A, and 22B.~~

~~(2) Crab Management Region 2-East - (Eastern Central Puget Sound). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 24A, 24B, 24C, 24D, and 26A-E (see WAC 220-340-455).~~

~~(3) Crab Management Region 2-West - (Western Central Puget Sound). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 25B, 25D, and 26A-W (see WAC 220-340-455).~~

~~(4) Crab Management Region 3, subarea 3-1 - (Eastern Strait of Juan de Fuca). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 23A and 23B.~~

~~(5) Crab Management Region 3, subarea 3-2 - (Central Strait of Juan de Fuca). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 23D, 25A, and 25E.~~

~~(6) Crab Management Region 3, subarea 3-3 - (Western Strait of Juan de Fuca). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 23C and 29.~~

~~(7) Crab Management Region 4 - (Southern Central Puget Sound). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 26B and 26C.~~

~~(8) Crab Management Region 5 - (Hood Canal). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 25C, 27A, 27B, and 27C.~~

~~(9) Crab Management Region 6 - (South Puget Sound). All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 26D, 28A, 28B, 28C, and 28D.~~))

For purposes of crab harvest management, Puget Sound commercial crab uses a hierarchy of geographical management units consisting of region, subregion, Marine Fish-Shellfish Management and Catch Reporting Area (catch area), and subarea. This section defines these units.

(1) **The following areas are defined as Puget Sound Crab Management Regions and Subregions:**

(a) Region 1 - (North Puget Sound): All waters of Catch Areas 20A, 20B, 21A, 21B, 22A, and 22B (see WAC 220-301-040).

(b) Region 2-East (2-E) - (Eastern Central Puget Sound): All waters of Catch Areas 24A, 24B, 24C, 24D, and Subarea 26A-E (subareas defined in subsection (2) of this section).

(c) Region 2-West (2-W) - (Western Central Puget Sound): All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 25B, 25D, and Subarea 26A-W.

(d) Region 3: All waters within Catch Areas 23A, 23B, 23C, 23D, 25A, 25E, and 29.

(i) Subregion 3-1 - (Eastern Strait of Juan de Fuca): All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 23A and 23B.

(ii) Subregion 3-2 - (Southeastern Strait of Juan de Fuca): All waters of Marine Fish-Shellfish Management and Catch Reporting Areas 23D, 25A, and 25E.

(iii) Subregion 3-3 - (Central Strait of Juan de Fuca): All waters of Subarea 23C-East.

(iv) Subregion 3-4 - (Western Strait of Juan de Fuca): All waters of Subarea 23C-West and Catch Area 29.

(e) Region 4 - (Southern Central Puget Sound): All waters of Catch Areas 26B and 26C.

(f) Region 5 - (Hood Canal): All waters of Catch Areas 25C, 27A, 27B, and 27C.

(g) Region 6 - (South Puget Sound): All waters of Catch Areas 26D, 28A, 28B, 28C, and 28D.

(2) **The following areas are defined as Puget Sound Commercial Crab Subareas**: For purposes of Puget Sound Crab harvest allocation, fishing season, and catch reporting, Marine Fish-Shellfish Management and Catch Reporting Areas (catch areas; WAC 220-301-040) are modified as follows:

(a) Catch Area 23C is divided into two subareas:

(i) Crab Subarea 23C-East (23C-E): All waters of Puget Sound westerly of a line true north from Ediz Hook Light (48°08.401'N, 123°24.148'W) to the International Boundary; and easterly of a line projected true north from Low Point (48°9.648'N, 123°49.608'W).

(ii) Crab Subarea 23C-West (23C-W): All waters of Puget Sound westerly of a line true north from Low Point (48°9.648'N, 123°49.608'W) to the International Boundary; and easterly of a line projected true north from the mouth of the Sekiu River (48°17.268'N, 124°23.723'W).

(b) Catch Area 26A is divided into two crab subareas:

(i) Crab Subarea 26A-East (26A-E): All waters of Puget Sound south of a line from Sandy Point (on Whidbey Island; 48°2.051'N, 122°22.583'W) to Camano Head (48°3.421'N, 122°21.478'W) and from Camano Head to the northern tip of Gedney (Hat) Island (48°01.292'N, 122°19.645'W), and from the southern tip of Gedney (Hat) Island (48°00.289'N, 122°18.359'W) east to the mainland (to near the northern end of the Everett 10th St. Marina, 48°00.288'N, 122°13.312'W), and north and east of a line that extends from Possession Point (47°54.364'N, 122°23.078'W) to the shipwreck located 0.8 nautical miles north of Picnic Point (47°53.585'N, 122°19.713'W) on the opposite shore.

(ii) Crab Subarea 26A-West (26A-W): All waters of Puget Sound south and east of a line from Foulweather Bluff (47°56.354'N, 122°36.836'W) to Double Bluff (47°58.059'N, 122°32.759'W), and northerly of a line from Apple Cove Point (47°48.874'N, 122°29.006'W) to

Point Edwards (47°48.162'N, 122°23.659'W), and south and west of a line that extends from Possession Point (47°54.364'N, 122°23.078'W) to the shipwreck located 0.8 nautical miles north of Picnic Point (47°53.585'N, 122°19.713'W).

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-320-110, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.12.047. WSR 06-01-013 (Order 05-275), § 220-16-260, filed 12/9/05, effective 1/9/06; WSR 01-03-016 (Order 00-271), § 220-16-260, filed 1/5/01, effective 2/5/01; Order 817, § 220-16-260, filed 5/29/69. Formerly WAC 220-16-020 (part).]

OTS-3518.1

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-020 Shellfish—Unlawful acts—Commercial. (1) It is unlawful to take oysters or clams for commercial purposes from tidelands reserved for public use unless authorized by a permit issued by the director.

(2)((~~(a)~~)) It is unlawful to take shellfish for commercial purposes from state oyster reserves without permission of the director ((~~of fisheries~~)).

((~~(b)~~)) Licensing: An oyster reserve fishery license is the license required to take shellfish for commercial purposes from state oyster reserves.

(3) All geoduck, sea cucumber, sea urchin, scallop, and mechanical clam harvester vessels shall be issued ((~~an identification~~)) a harvester number. ((~~It is unlawful to fail to place~~)) This number must be placed in a visible location on each side of the vessel and on the top of the cabin or deck awning to be visible from the air. A sign board or banner arranged so the numbers can be seen at all times from directly overhead may be substituted if the vessel does not have a fixed roof. The numbers ((~~shall~~)) must be black on a white background ((~~and shall be not less than~~)), at least 18 inches high, and ((~~of proportionate width~~)) of a stroke width of 1/6 the height of the characters.

(4) It shall be unlawful for a commercial clam digger to harvest clams from intertidal ground without having on his person a signed authorization from the registered clam farmer for whom he is harvesting. The digger will also be required to have suitable personal identification with him when engaged in clam harvesting. The authorization from the registered clam farmer must be legible, dated and must contain the date on which the authorization expires, provided that in no instance may the authorization go beyond the end of any calendar year. The authorization must additionally contain the name of each bay or area where the registered clam farmer has owned or leased ground from which the named clam digger is authorized to harvest.

(5)((~~(a)~~)) It is unlawful to fish for or possess ghost or mud shrimp taken for commercial purposes unless authorized by a permit issued by the director.

((~~(b)~~)) Licensing: A burrowing shrimp fishery license is the license required to take ghost or mud shrimp for commercial purposes.

(6) It is unlawful to set any shellfish pot gear such that the pot is not covered by water at all tide levels.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-340-020, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 75.08.080. WSR 94-12-009 (Order 94-23), § 220-52-010, filed 5/19/94, effective 6/19/94; WSR 88-12-025 (Order 88-28), § 220-52-010, filed 5/25/88, effective 8/22/88. Statutory Authority: RCW 75.08.080 and 75.58.040. WSR 86-19-043 (Order 86-102), § 220-52-010, filed 9/12/86. Statutory Authority: RCW 75.08.080. WSR 84-08-014 (Order 84-24), § 220-52-010, filed 3/27/84; Order 77-145, § 220-52-010, filed 12/13/77; Order 1258, § 220-52-010, filed 8/25/75; Order 857, § 220-52-010, filed 12/11/69; Order 807, § 220-52-010, filed 1/2/69, effective 2/1/69; subsections 1, 3-5, Orders 414, 256, filed 3/1/60; subsection 2, Orders 443, 256, filed 3/1/60.]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-030 Shellfish harvest logs. (1) **Logbook requirement:** It is unlawful for any vessel operator engaged in the commercial harvest of crawfish, sea cucumber, sea urchin, scallop, shrimp ((~~other than ocean pink shrimp~~)), or squid to fail to obtain and accurately and completely maintain the appropriate harvest log available from the Washington department of fish and wildlife. It is unlawful for any license holder engaged in commercial sand shrimp fishing or operator of mechanical clam digging device to fail to obtain and accurately and completely maintain the appropriate harvest log available from the Washington department of fish and wildlife.

(2) **Logbook maintenance:** It is unlawful for any harvest vessel operator or license holder engaged in harvest as described in subsection (1) of this section, to fail to maintain the required harvest log: Aboard the vessel; at the harvest site; when crawfish, sea cucumbers, sea urchins, shrimp ((~~other than ocean pink shrimp~~)), squid, scallops, clams, or sand shrimp are aboard during transit of a harvest vessel((~~;~~)), or are in possession of the license holder.

(3) **Logbook submission and retention:** It is unlawful for the vessel operator or license holder, engaged in harvest as described in subsection (1) of this section, to fail to submit harvest logs for inspection upon request by department of fish and wildlife officers or authorized employees.

(4) It is unlawful for any vessel operator or license holder, engaged in harvest as described in subsection (1) of this section, to fail to comply with the following methods of logbook submittal and time frames related to harvest logbook submittal:

(a) Within ((~~ten~~)) 10 days following any calendar month in which fishing occurred, required completed harvest logs must be received by the department; however, vessel operators or license holders may submit logs directly to authorized department employees.

(b) Vessel operators or license holders responsible for submitting logs to the department, as described in subsection (1) of this section, must maintain a copy of all submitted logs for a period of three years following the harvest activity. Copies of harvest logs, which are required to be maintained, must be available for inspection upon request by department of fish and wildlife officers and authorized employees.

(c) Original harvest logs must be maintained and submitted in ascending consecutive order of log serial number.

(5) It is unlawful for any vessel operator or license holder, engaged in harvest as described in subsection (1) of this section, to fail to send completed harvest logs to the appropriate following mailing address, except as provided for in subsection (4)(a) of this section.

For Puget Sound Shrimp Harvest Logbooks:
ATTN: PUGET SOUND SHRIMP HARVEST MANAGER
Washington Department of Fish and Wildlife
((~~Point Whitney Shellfish Laboratory~~
~~1000 Point Whitney Road~~
~~Brinnon, WA 98320-9799.~~))
375 Hudson St.
Port Townsend, WA 98368.

For Coastal Shrimp Harvest Logbooks:
ATTN: COASTAL SHRIMP HARVEST MANAGER
Washington Department of Fish and Wildlife
48 Devonshire Rd.
Montesano, WA 98563.

For Crawfish Harvest Logbooks:
ATTN: FISH PROGRAM - CRAWFISH HARVEST MANAGER
Washington Department of Fish and Wildlife
((~~600 Capitol Way North~~))
P.O. Box 43150
Olympia, WA ((~~98501-1091~~)) 98504-3150.

For Sea Urchin and Sea Cucumber Harvest Logbooks:
ATTN: FISH PROGRAM - SEA URCHIN/SEA CUCUMBER HARVEST MANAGER
Washington Department of Fish and Wildlife
((~~600 Capitol Way North~~))
P.O. Box 43150
Olympia, WA ((~~98501-1091~~)) 98504-3150.

For Clam (harvest with mechanical digging devices) Harvest Logbooks:
ATTN: FISH PROGRAM - GEODUCK HARVEST MANAGER
Washington Department of Fish and Wildlife
((~~600 Capitol Way North~~))
P.O. Box 43150
Olympia, WA ((~~98501-1091~~)) 98504-3150.

For Scallop Harvest Logbooks:
ATTN: FISH PROGRAM - SCALLOP HARVEST MANAGER
Washington Department of Fish and Wildlife
((~~600 Capitol Way North~~))
P.O. Box 43150
Olympia, WA ((~~98501-1091~~)) 98504-3150.

For Squid (Coastal waters) Harvest Logbooks:

ATTN: FISH PROGRAM - COASTAL SQUID HARVEST MANAGER
Washington Department of Fish and Wildlife
((~~600 Capitol Way North~~))
P.O. Box 43150
Olympia, WA ((~~98501-1091~~)) 98504-3150.

For Squid (Puget Sound waters) Harvest Logbooks:
ATTN: PUGET SOUND SQUID HARVEST MANAGER
Washington Department of Fish and Wildlife
375 Hudson St.
Port Townsend, WA 98368.

For Coastal Sand Shrimp Harvest Logbooks:
ATTN: COASTAL SAND SHRIMP HARVEST MANAGER
Washington Department of Fish and Wildlife
P.O. Box 190
Ocean Park, WA 98640-0190.

For Puget Sound Sand Shrimp Harvest Logbooks:
ATTN: PUGET SOUND SAND SHRIMP HARVEST MANAGER
Washington Department of Fish and Wildlife
((~~P.O. Box 1100
LaConner, WA 98257.~~))
375 Hudson St.
Port Townsend, WA 98368.

(6) It is unlawful for ((~~vessel operators engaged in commercial harvest of shrimp (other than Puget Sound shrimp or sand shrimp) or crawfish with shellfish pot or ring net gear~~)) any harvest vessel operator or license holder engaged in harvest as described in subsection (1) of this section to fail to permanently and legibly record in ink the following information within the following time frames:

(a) **Shrimp (other than Puget Sound shrimp or sand shrimp)** or crawfish with shellfish pot or ring net gear:

(i) Before leaving the catch area where harvest occurred, record the vessel Washington department of fish and wildlife boat registration number, number of pots or ring nets pulled, date pulled, soak time, and gear location; and

((~~(b)~~)) (ii) Immediately after delivery of shellfish to an original receiver, record the weight of all shellfish.

((~~(7) It is unlawful for vessel operators engaged in commercial harvest of shrimp (other than ocean pink shrimp)~~)) (b) **Shrimp** with beam trawl or shrimp trawl gear((~~, to fail to permanently and legibly record in ink onto the department-supplied harvest log, the following information within the following time frames~~)):

((~~(a)~~)) (i) Before commencing a new tow or prior to leaving the site where the catch was taken, record the vessel identity, current date of fishing activity, location fished, trawl width, Marine Fish-Shellfish Management and Catch Reporting Area fished, depth fished, latitude and longitude to the nearest hundredth of a minute at the beginning of each tow, tow speed, duration of tow, and estimated weight of shrimp of each species caught for each tow.

((~~(b)~~)) (ii) Immediately after delivery of shrimp to an original receiver, or before leaving the last catch site of the day if the operator holds a wholesale fish dealer's license and is the original receiver, record the fish receiving ticket serial number.

((~~(8) It is unlawful for vessel operators engaged in commercial harvest of sea urchins or sea cucumbers to fail to permanently and~~

~~legibly record in ink the following information within the following time frames~~)) (c) **Sea urchins and sea cucumbers**:

((~~(a)~~)) (i) Before leaving the harvest site, record the vessel identity, date, Marine Fish-Shellfish Catch Reporting Area fished, location fished, depth fished, latitude and longitude to the nearest tenth of a minute or to the nearest second, and the approximate weight in pounds of sea urchins or sea cucumbers harvested.

((~~(b)~~)) (ii) Upon landing or delivery to an original receiver, the exact species and weight of sea urchins, as recorded on the shellfish receiving ticket, must be recorded.

((~~(c)~~)) (iii) Upon landing or delivery to an original receiver, the exact weight of sea cucumbers, as recorded on the shellfish receiving ticket, and whether or not prelanded processing occurred ("whole-live" or "split-drained"), must be recorded.

((~~(9) It is unlawful for license holders engaged in commercial harvest of clams with mechanical digging devices to fail to permanently and legibly record in ink the following information within the following time frames~~)) (d) **Clams, with mechanical digging devices**:

((~~(a)~~)) (i) Before the end of each day's fishing and departure from the harvest grounds, record the vessel identity if a harvest vessel is used in harvest operation, exact location by latitude and longitude to the nearest thousandths of a minute (recorded in WGS 84 datum), and date of harvest.

((~~(b)~~)) (ii) Weight by each clam species in pounds upon landing or delivery to an original receiver.

((~~(c)~~)) (iii) Weight in pounds of each clam species caught and returned to the harvest grounds.

((~~(10) It is unlawful for vessel operators engaged in commercial harvest of scallops to fail to permanently and legibly record in ink the following information within the following time frames~~)) (e) **Scallops**:

((~~(a)~~)) (i) Before leaving the location where the catch was taken, record the vessel identity, date, location, and duration of harvest and estimated weight in pounds and species of scallops caught for each tow or dive hour.

((~~(b)~~)) (ii) Upon landing or delivery to an original receiver, the exact weight in pounds, as recorded on the shellfish receiving ticket, and species of harvested scallops.

((~~(11) It is unlawful for vessel operators engaged in commercial harvest of~~)) (f) **Squid**, except when taken incidental to any other lawful fishery((~~, to fail to permanently and legibly record in ink the following information within the following time frames~~)):

((~~(a)~~)) (i) Coastal:

(A) Before leaving the Marine Fish-Shellfish Management and Catch Reporting Area where taken, the vessel's Washington department of fish and wildlife boat registration number, gear type, catch area, starting and ending time of fishing, and numbers of other species caught and returned.

((~~(b)~~)) (B) Weight in pounds of squid upon landing or delivery to an original receiver.

((~~(12) It is unlawful for license holders engaged in commercial harvest of~~)) (ii) Puget Sound:

(A) Before leaving the Marine Fish-Shellfish Management and Catch Reporting Area where taken, the vessel's Washington department of fish and wildlife boat registration number, gear type, catch area, location (nearest landmark, bay, or GPS coordinates), starting and ending time

of fishing, total vessel wattage or lumens of attracting lights, and numbers of other species caught and returned.

(B) Weight in pounds of squid upon landing or delivery to an original receiver.

(g) **Sand shrimp**, except when taken incidental to other lawful fishery((~~, to fail to permanently and legibly record in ink the following information within the following time frames~~)):

((~~(a)~~)) (i) Prior to leaving the harvest site, the location or identification number of the harvest tract, date of harvest, number of trenches pumped, average length and width of trenches (yards), total number of sand shrimp retained (dozens).

((~~(b)~~)) (ii) At the time of delivery to an original receiver, total number of sand shrimp sold (dozens), and the name of the sand shrimp buyer.

((~~(13) It is unlawful for vessel operators engaged in commercial harvest of~~)) (h) **Shrimp (other than sand shrimp)**, using shellfish pot gear in Puget Sound((~~, to fail to permanently and legibly record in ink onto the department-supplied harvest logs, the following information within the following time frames~~)):

((~~(a)~~)) (i) Prior to leaving the harvest site, the name of vessel operator, license number, the vessel's Washington department of fish and wildlife boat registration number, buoy brand, date, phone number, pot mesh size, pull date, groundline length, number of pots pulled, ((~~pot mesh size,~~)) depth fished, soak time, gear location (including latitude and longitude to the nearest hundredth of a minute), Shrimp Management Unit fished (region, subregion, catch area, subarea), species targeted, ((~~and~~)) sorted catch estimates, weight(s) in pounds of catch, and shellfish receiving ticket number. A separate weight for each species caught and retained must be recorded. ((~~When single pots are fished an entry is required for each pot site. When two or more pots are fished on a common ground line the catch site must be recorded at the location of the last pot on the ground line that is pulled.~~)) Any time that gear is deployed the location must be recorded. For pots deployed on a ground line both the start and end locations must be provided.

((~~(b)~~)) (ii) Immediately after delivery of shrimp to an original receiver, or before leaving the last catch site of the day if the operator holds a wholesale fish dealer's license or limited fish seller endorsement and is the original receiver, record the fish receiving ticket serial number.

((~~(14) It is unlawful for vessel operators engaged in commercial harvest of shrimp from Puget Sound with shellfish pot gear to fail to report their daily catch by telephone before leaving the last catch site fished each day, in the following manner:~~

~~(a) For harvest in Shrimp Management Areas 1A, 1B, 1C, or 2, reports must be made to the voice recorder at the La Conner district office: 360-446-4345 ext 245.~~

~~(b) For harvest in Shrimp Management Areas 3, 4, or 6, reports must be made to the voice recorder at the Point Whitney shellfish laboratory: 360-796-4601 ext 800.~~

~~(c) All reports must specify the fisher's name, estimated total number of pounds of each shrimp species in possession, number of pots fished, number of pot pulls (pots multiplied by pulls), the Marine Fish-Shellfish Management and Catch Reporting Area where shrimp were harvested, and the port or name of vessel where the catch will be landed or sold.~~

~~(15)~~)) (7) Violation of this section as it relates to failing to report required information or failing to submit log books is punishable under RCW 77.15.280 reporting of fish or wildlife harvest. Violation of this section as it relates to knowingly providing false or misleading information is punishable under RCW 77.15.270, providing false information.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-030, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.12.047. WSR 07-21-083 (Order 07-256), § 220-52-075, filed 10/17/07, effective 11/17/07; WSR 03-05-064 (Order 03-28), § 220-52-075, filed 2/18/03, effective 3/21/03; WSR 01-02-061 (Order 00-267), § 220-52-075, filed 12/29/00, effective 1/29/01; WSR 01-02-057 (Order 00-262), § 220-52-075, filed 12/29/00, effective 1/29/01. Statutory Authority: RCW 75.08.080. WSR 00-05-054 (Order 00-17), § 220-52-075, filed 2/14/00, effective 3/16/00; WSR 97-08-052 (Order 97-55), § 220-52-075, filed 3/31/97, effective 5/1/97; WSR 94-12-009 (Order 94-23), § 220-52-075, filed 5/19/94, effective 6/19/94; WSR 93-15-051, § 220-52-075, filed 7/14/93, effective 8/14/93; WSR 91-10-024 (Order 91-22), § 220-52-075, filed 4/23/91, effective 5/24/91; WSR 87-15-022 (Order 87-69), § 220-52-075, filed 7/8/87; WSR 87-02-013 (Order 86-199), § 220-52-075, filed 12/30/86; WSR 84-08-014 (Order 84-24), § 220-52-075, filed 3/27/84; WSR 83-09-014 (Order 83-24), § 220-52-075, filed 4/12/83; WSR 82-03-045 (Order 82-6), § 220-52-075, filed 1/19/82; WSR 81-11-006 (Order 81-31), § 220-52-075, filed 5/11/81; WSR 80-13-064 (Order 80-123), § 220-52-075, filed 9/17/80; WSR 79-12-039 (Order 79-129), § 220-52-075, filed 11/20/79; WSR 79-02-053 (Order 79-6), § 220-52-075, filed 1/30/79.]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-060 Commercial shellfish pot gear—Escape mechanism required. It is unlawful to fish for or possess crab, shrimp, or crawfish taken for commercial purposes with shellfish pot gear unless the gear allows for escapement using at least one of the following methods:

(1) Attachment of pot lid hooks or tiedown straps with a single strand or loop of untreated cotton twine ((~~or other natural fiber~~)), hemp, jute, or sisal no larger than thread size 120 so that the pot lid will open freely if the twine or fiber is broken. It is permissible to use a single strand of cotton twine or ((~~other natural fiber~~)) hemp, jute, or sisal tied together at the ends so that it can be looped between the tie down straps and the lid hook to connect them together.

(2) Providing an opening in the pot mesh no less than three inches by five inches and laced or sewn closed with one single strand of untreated cotton twine ((~~or other natural fiber~~)), hemp, jute, or sisal no larger than thread size 120. The single strand of ((~~cotton~~)) twine or fiber may not be wrapped multiple times or doubled in any way when lacing or sewing the wire mesh closed. The opening must be loca-

ted within the top half of the pot and be unimpeded by the entry tunnels, bait boxes, or any other structures or materials.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-060, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012 and 77.12.047. WSR 11-09-072 (Order 11-72), § 220-52-035, filed 4/19/11, effective 5/20/11. Statutory Authority: RCW 77.12.047. WSR 06-07-044 (Order 06-38), § 220-52-035, filed 3/9/06, effective 4/9/06; WSR 03-16-097 (Order 03-180), § 220-52-035, filed 8/6/03, effective 9/6/03. Statutory Authority: RCW 75.08.080. WSR 87-23-006 (Order 87-187), § 220-52-035, filed 11/6/87.]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-100 Commercial clam fishery—Gear. It is unlawful to take, dig for, or possess clams, geoducks, or mussels taken for commercial purposes from any of the tidelands in the state of Washington except with a pick, mattock, fork or shovel operated by hand, except:

(1) Permits for the use of mechanical clam digging devices to take clams other than geoducks may be obtained from the director of the department of fish and wildlife (DFW), subject to the following conditions:

(a) All mechanical devices used to take or harvest shellfish must be approved by the director of DFW.

(b) A separate permit is required for each device used to take or harvest shellfish, and the permit must be attached to the specific unit the permit applies to at all times.

(c) All clams taken for commercial use must be of legal size and in season during the proposed operations unless otherwise provided in specially authorized permits for the transplanting of seed to growing areas or for research purposes.

(d) The holder of a permit to take shellfish from tidelands by mechanical means must limit operations to privately owned or leased land.

(e) Taking clams that lie in or on the substrate under navigable water below the level of mean lower low water by any mechanical device is prohibited except as authorized by the director of DFW.

(i) Within the enclosed bays and channels of Puget Sound, Strait of Juan de Fuca, Grays Harbor and Willapa Harbor, the operators of all mechanical devices must confine their operations to substrate-leased from the Washington department of natural resources, subject to the approval of the director of DFW.

(ii) It is unlawful to harvest shellfish that lie in or on the substrate of the Pacific Ocean westward from the western shores of the state in waters less than ((~~2~~)) two fathoms deep at mean lower low water. The director of DFW may reserve all or portions of the substrate in waters more than ((~~2~~)) two fathoms deep and prevent the taking of shellfish in any quantity from those reserves.

(f) Noncompliance with any part of this section or with special requirements of individual permits results in immediate cancellation and/or subsequent nonrenewal of all permits held by the operator.

(g) Applications for permits to use mechanical clam digging devices must be made on the forms provided by DFW, and permits must be in the operator's possession before digging commences.

(h) All permits to take or harvest shellfish by mechanical means expire on December 31 of the year of issue.

(i) All mechanical clam harvesting machines must have approved instrumentation that provides deck readout of water pressure.

(j) All clam harvest machines operating on intertidal grounds where less than 10 percent of the substrate material is above 500 microns in size must be equipped with a propeller guard suitable for reducing the average propeller wash velocity at the end of the guard to approximately 25 percent of the average propeller wash velocity at the propeller. The propeller guard must also be positioned to provide an upward deflection to propeller wash.

(k) Clam harvest machines operating in fine substrate material where less than 10 percent of the substrate material is above 500 microns in size, must have a maximum harvest head width of ((~~3~~)) three feet (overall) and the maximum pump volume as specified by DFW, commensurate with the basic hydraulic relationship of 828 gpm at 30 pounds per square inch, pressure to be measured at the pump discharge.

(l) Clam harvest machines operating in coarser substrate material where more than 10 percent of the substrate material is above 500 microns in size, must have a maximum harvest head width of ((~~4~~)) four feet (overall) and a maximum pump volume as specified by DFW, commensurate with a basic hydraulic relationship of 1,252 gpm at 45 pounds per square inch, pressure to be measured at the pump discharge.

(m) All clam harvest machine operators must submit accurate performance data showing revolutions per minute, gallons per minute, and output pressure for the water pump on their machine. In addition, they must furnish the number and sizes of the hydraulic jets on the machines. If needed, the operator will thereafter modify the machine (install a sealed pressure relief valve) as specified by DFW to conform with values set forth in this section. Thereafter, it is illegal to make unauthorized changes to the clam harvester water pump or the hydraulic jets. Exact description of the pump volume, maximum pressure and number and size of the hydraulic jet for each harvester machine must be included in the DFW's clam harvest permit.

(n) All clam harvest machines must be equipped with a 3/4-inch pipe thread tap and valve that will allow rapid coupling of a pressure gauge for periodic testing by enforcement officers.

(o) Each mechanical clam harvester must have controls arranged and situated near the operator to allow the operator to immediately cut off the flow of water to the jet manifold without affecting the capability of the vessel to maneuver.

(p) Licensing: A hardshell clam mechanical harvester fishery license is required to operate the mechanical harvester gear provided for in this section. For more information on or to apply for a hardshell clam mechanical harvester fishery license, visit department offices, call the WDFW license division at 360-902-2500, or visit the department website at www.wdfw.wa.gov.

(2) Aquatic farmers may harvest geoducks that are private sector cultured aquatic product by means of water pumps and nozzles.

(3) Persons may harvest nonstate tideland wild geoducks under a nonstate lands commercial wild clam, mussel and oyster trial fishery permit by means of water pumps and nozzles.

(4) It is unlawful to take, dig for and possess razor clams taken for commercial purposes from any of the tidelands in the state of

Washington except by hand, shovels, cylindrical cans, tubes or hinged digging devices operated by hand. The opening of tubes or cans must be either circular or elliptical with the circular can/tube having a minimum outside diameter of four inches and the elliptical can/tube having a minimum dimension of four inches long and three inches wide outside diameter. The hinged digging device when opened in a cylindrical position, must have a minimum outside diameter of four inches at the bottom.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-100, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 12-23-016 (Order 12-267), § 220-52-018, filed 11/9/12, effective 12/10/12. Statutory Authority: RCW 77.12.047. WSR 06-04-015 (Order 06-08), § 220-52-018, filed 1/22/06, effective 2/22/06. Statutory Authority: RCW 75.08.080. WSR 94-12-009 (Order 94-23), § 220-52-018, filed 5/19/94, effective 6/19/94; WSR 84-08-014 (Order 84-24), § 220-52-018, filed 3/27/84; WSR 79-02-053 (Order 79-6), § 220-52-018, filed 1/30/79; Order 76-152, § 220-52-018, filed 12/17/76; Order 1258, § 220-52-018, filed 8/25/75; Order 807, § 220-52-018, filed 1/2/69, effective 2/1/69. Formerly WAC 220-52-010(2).]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-455 Commercial crab fishery—Seasons and areas—Puget Sound. The open times and areas for commercial crab fishing in Puget Sound are as follows:

(1) ((~~All Puget Sound Marine Fish-Shellfish Management and Catch Reporting Areas are open for commercial crab fishing beginning 8:00 a.m. October 1st through the following April 15th from 30 minutes~~)) It is unlawful to fish for, take, or possess crab for commercial purposes except during open commercial crab harvest seasons and from open commercial crab management units as set by emergency rule. Commercial crab fishing will be open from one hour before sunrise to ((~~30 minutes~~)) one hour after sunset during open seasons, except as provided below.

(2) ((~~For purposes of crab harvest allocation, fishing season, and catch reporting, the Marine Fish-Shellfish Management and Catch Reporting Areas (Catch Areas) are modified as follows:~~

~~(a) Catch Area 26A-E includes those waters of Puget Sound south of a line from Sandy Point (on Whidbey Island) to Camano Head and from Camano Head to the north tip of Gedney Island, and from the southern tip of Gedney Island east to the mainland, and north and east of a line that extends from Possession Point to the shipwreck located 0.8 nautical miles north of Picnic Point.~~

~~(b) Catch Area 26A-W includes those waters of Puget Sound south and east of a line from Foulweather Bluff to Double Bluff, and northerly of a line from Apple Cove Point to Point Edwards, and south and west of a line that extends from Possession Point to the shipwreck located 0.8 nautical miles north of Picnic Point.~~

~~(3)~~)) The following areas are closed to commercial crab ((~~fishing except for treaty Indian commercial crab fishing where the treaty In-~~

~~dian crab fisher is following tribal openings that are in accordance with provisions of court orders in United States v. Washington~~)) fisheries regulated by the department:

(a) ((~~Areas 25C, 26B, 26C, 26D, 27A, 27B, 27C, 28A, 28B, 28C, and 28D.~~)) Crab Management Regions 4, 5, and 6 (WAC 220-320-110).

(b) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 20A in Lummi Bay east of a line projected from ((~~the entrance buoy at~~)) Sandy Point Light No. 2 (48°47.207'N, 122°42.745'W) to Gooseberry Point (48°43.945'N, 122°40.367'W).

(c) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 21A in Bellingham Bay west of a line projected from the exposed boulder ((~~at~~)) off the southeast portion of Point Francis (48°41.84'N, 122°36.44'W) to ((~~the pilings at~~)) Stevie's Point (0.2 miles northwest of the point where the Lehigh Cement pipeline meets the shoreline; 48°46.09'N, 122°31.69'W).

(d) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 24A east of a line projected true north from the most westerly tip of Skagit Island (48°24.787'N, 122°34.886'W) and extending south to the most westerly tip of Hope Island (48°23.754'N, 122°34.725'W), thence southeast to Seal Rocks (48°22.424'N, 122°33.806'W), thence southeast to the green can buoy (Buoy No. 5; 48°21.7821'N, 122°33.061'W) at the mouth of Swinomish Channel, thence easterly to the ((~~west side~~)) western tip of Goat Island (48°21.780'N, 122°32.316'W).

(e) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 24B inside a line projected from Priest Point (48°01.929'N, 122°13.641'W) to the five-meter tower (48°00.937'N, 122°16.243'W) between Gedney Island and Priest Point, thence northwesterly on a line between the five-meter tower and Barnum Point (48°11.608'N, 122°27.747'W) to the intersection (48°08.117'N, 122°23.991'W) with a line projected true west from Kayak Point (48°08.104'N, 122°22.068'W), thence east to shore.

(f) Those waters of ((~~Marine Fish-Shellfish Management and Catch Reporting Area 25A west of a line from the new Dungeness Light to the abandoned dock at the Three Crabs Restaurant.~~

~~(g) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 25D within a line projected from the Point Hudson Marina entrance to the northern tip of Indian Island, thence to Kala Point, and thence following the shoreline to the point of origin.~~

~~(4) The following areas are closed to commercial crab fishing during the periods indicated:~~

~~(a) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 20A between a line from the boat ramp at the western boundary of Birch Bay State Park to the western point of the entrance of the Birch Bay Marina and a line from the same boat ramp to Birch Point, are closed October 1 through October 31 and March 1 through April 15.~~

~~(b) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 24C inshore of the 400 foot depth contour within an area bounded by parallel lines projected northeasterly from Sandy Point and the entrance to the marina at Langley are closed October 1 through October 15.~~

~~(c) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 26A-W in Useless Bay north and east of a line from the south end of the Double Bluff State Park seawall (47°58.782'N, 122°30.840'W) projected 110 degrees true to the boulder on shore~~

~~(47°57.690'N, 122°26.742'W) are closed from October 1 through October 15.~~

~~(d) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22B in Fidalgo Bay south of a line projected from the red number 4 entrance buoy at Cap Sante Marina to the northern end of the easternmost oil dock are closed October 1 through October 31, and March 1 through April 15, of each year.~~

~~(e) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22A in Deer Harbor north of a line projected from Steep Point to Pole Pass are closed October 1 through October 31 and March 1 through April 15.~~

~~(f) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 26A-E east of a line that extends true north from the green No. 1 buoy at Possession Point to Possession Point and west of a line from the green No. 1 buoy at Possession Point northward along the 200-foot depth contour to the Glendale Dock, are closed October 1 through October 15.~~

~~(5) The following areas are closed to commercial crab fishing until further notice:~~

~~(a) Those waters of Area 25E south of a line from Contractors Point to Tukey Point.~~

~~(b) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 24A within a line projected from Rocky Point northeast to the red number 2 buoy north of Ustalady Point, thence to Brown Point on the northeast corner of Ustalady Bay.~~

~~(c) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 24D south of a line from the point at the southern end of Honeymoon Bay (48°03.047'N, 122°32.306'W) to the point just north of Beverly Beach.~~

~~(d) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 26A east of a line projected from the outermost tip of the ferry dock at Mukilteo to the green #3 buoy at the mouth of the Snohomish River, and west of a line projected from the #3 buoy southward to the oil boom pier on the shoreline.~~

~~(e) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 21B in Samish Bay south of a line from Point Williams to Fish Point in waters shallower than 60 feet in depth.~~

~~(f) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22A in Westcott and Garrison Bays east of a line projected due south from Point White to San Juan Island.~~

~~(g) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 20A in Birch Bay east of a line projected from the boat ramp at the western boundary of Birch Bay State Park to the western point of the entrance to the Birch Bay Marina.~~

~~(h) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 21A inside of Chuckanut Bay east of a line projected north from Governor's Point to the east side of Chuckanut Island, thence to Chuckanut Rock, thence to the most southerly tip of Clark's Point.~~

~~(i) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22A in Blind Bay south of a line projected due west from Point Hudson to its intersection with Shaw Island.~~

~~(j) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22A in Fisherman Bay south of a line projected east-west through the red number 4 entrance buoy.~~

~~(k) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22A in Mud Bay south of a line projected through Crab and Fortress Islands intersecting Lopez Island at either end.~~

~~(l) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22B in Padilla Bay within a line projected easterly from the northern end of the eastern most oil dock at March Point to the red number 2 buoy, thence southeasterly to the red number 8 buoy, thence west to shore and following the shoreline to the point of origin.~~

~~(m) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 24A in Cornet Bay south of a line projected true east and west from the northernmost tip of Ben Ure Island.~~

~~(n) That portion of Marine Fish-Shellfish Management and Catch Reporting Area 20B, which includes all waters of Prevost Harbor between Stuart Island and Satellite Island southwest of a line from Charles Point on Stuart Island to the northwest tip of Satellite Island and southwest of a line projected 120 degrees true from the southeast end of Satellite Island to Stuart Island.~~

~~(o) Those waters of Marine Fish-Shellfish Management and Catch Reporting Area 22A in East Sound north of a line from the southern point of Judd Bay on the west to Giffin Rocks on the east.~~)) the Dungeness Bay Crustacean Special Management Area (WAC 220-320-120).

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-455, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 12-23-016 (Order 12-267), § 220-52-046, filed 11/9/12, effective 12/10/12. Statutory Authority: RCW 77.12.047. WSR 07-23-090 (Order 07-285), § 220-52-046, filed 11/20/07, effective 12/21/07; WSR 06-08-064 (Order 06-58), § 220-52-046, filed 3/31/06, effective 5/1/06; WSR 06-01-013 (Order 05-275), § 220-52-046, filed 12/9/05, effective 1/9/06; WSR 01-11-009 (Order 01-74), § 220-52-046, filed 5/3/01, effective 6/3/01. Statutory Authority: RCW 75.08.080. WSR 99-10-062 (Order 99-59), § 220-52-046, filed 5/3/99, effective 6/3/99; WSR 98-19-012 (Order 98-185), § 220-52-046, filed 9/4/98, effective 10/5/98; WSR 98-05-043, § 220-52-046, filed 2/11/98, effective 3/14/98; WSR 97-08-052 (Order 97-55), § 220-52-046, filed 3/31/97, effective 5/1/97; WSR 94-12-009 (Order 94-23), § 220-52-046, filed 5/19/94, effective 6/19/94; WSR 93-15-051, § 220-52-046, filed 7/14/93, effective 8/14/93; WSR 91-10-024 (Order 91-22), § 220-52-046, filed 4/23/91, effective 5/24/91; WSR 87-05-038 (Order 87-08), § 220-52-046, filed 2/18/87; WSR 85-01-010 (Order 84-214), § 220-52-046, filed 12/7/84; WSR 84-08-014 (Order 84-24), § 220-52-046, filed 3/27/84; WSR 83-01-026 (Order 82-221), § 220-52-046, filed 12/8/82; WSR 80-13-064 (Order 80-123), § 220-52-046, filed 9/17/80; Order 76-152, § 220-52-046, filed 12/17/76; Order 1179, § 220-52-046, filed 11/19/74; Order 1112, § 220-52-046, filed 4/15/74; Order 1057, § 220-52-046, filed 5/22/73; Order 920, § 220-52-046, filed 5/13/71; Order 807, § 220-52-046, filed 1/2/69, effective 2/1/69. Formerly WAC 220-52-040 (2), (3), (4) and (9).]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-470 Commercial crab fishery—Gear limits—Puget Sound and Marine Fish-Shellfish Management and Catch Reporting Areas. (1) **Puget Sound licensing district commercial shellfish gear limit.** It is unlawful for any person to take or fish for crab for commercial purposes in the Puget Sound licensing district if he or she is using, operating, or controlling any more than an aggregate total of 100 shellfish pots ((~~or ring nets~~)). This limit applies to each license. This subsection does not preclude a person who holds two or three Puget Sound crab licenses from designating and using the licenses from one vessel as authorized by RCW 77.65.130. Violation of this subsection is a gross misdemeanor, punishable under RCW 77.15.520 Commercial fishing—Unlawful gear or methods—Penalty.

(2) **Marine Fish-Shellfish Management and Catch Reporting Areas gear limits.** It is unlawful for any person to use, maintain, operate, or control crab pots or ((~~ring nets~~)) in excess of the per-license limits prescribed in each of the following ((~~Marine Fish-Shellfish Management and Catch Reporting Areas~~)) shellfish management units.

(a) ((~~10~~)) Twenty pots in Marine Fish-Shellfish Management and Catch Reporting Area 25E((~~;~~)).

(b) ((~~10~~)) Twenty pots in all waters of ((~~Marine Fish-Shellfish Management and Catch Reporting Area 25A south of a line projected true west from Travis Spit on Miller Peninsula;~~)) the Sequim Bay Crustacean Special Management Area (WAC 220-320-120).

(c) ((~~20 pots in that portion of Marine Fish-Shellfish Management and Catch Reporting Area 25A west of a line projected from the new Dungeness Light to the mouth of Cooper Creek, and east of a line projected from the new Dungeness Light to the outermost end of the abandoned dock at the Three Crabs Restaurant on the southern shore of Dungeness Bay; and~~)) Twenty pots in all waters of the Port Townsend Bay Crustacean Special Management Area (WAC 220-320-120).

(d) ((~~10~~)) Twenty pots in ((~~that portion of Marine Fish-Shellfish Management and Catch Reporting Area 23D west of a line from the eastern tip of Ediz Hook to the I77 Roynier [Rayonier] Dock.~~))the Port Angeles Harbor Crustacean Special Management Area (WAC 220-320-120).

(3) Violation of subsection (2) of this section is a gross misdemeanor, punishable under RCW 77.15.520 Commercial fishing—Unlawful gear or methods—Penalty.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-470, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 12-23-016 (Order 12-267), § 220-52-048, filed 11/9/12, effective 12/10/12.]

AMENDATORY SECTION (Amending WSR 17-22-100, filed 10/30/17, effective 1/1/18)

WAC 220-340-520 Commercial shrimp pot fishery—Puget Sound.

License

(1) It is unlawful to take, fish for, land, or deliver shrimp taken for commercial purposes with pot gear from Puget Sound waters without a valid Puget Sound shrimp pot license.

A Puget Sound shrimp pot license ((~~or a Puget Sound shrimp trawl license~~)) will only be issued to an individual who is a natural person, and this person shall be the primary operator. Holders of Puget Sound shrimp pot licenses ((~~and Puget Sound shrimp trawl licenses~~)) may designate a single alternate operator per license.

Pot Gear and area

(2) It is unlawful to fish for shrimp for commercial purposes in Puget Sound using shellfish pot gear except during seasons opened by emergency rule((~~:~~)).

((~~(a)~~)) (3) Gear restrictions ((~~-~~

~~(i)~~)) in all areas, maximum 100 pots per fisher except for dual licensees as provided for in RCW 77.70.410.

((~~(ii)~~)) (4) Buoy requirements, in all areas:

((~~(A)~~)) (a) Buoys must be orange in color and consist of durable material that will remain floating on the surface with five pounds attached; bleach or antifreeze bottles or other containers may not be used as floats.

((~~(B)~~)) (b) Buoys must be marked with the clear identification of the license holder and the vessel designated on the Puget Sound shrimp pot license.

(c) When two or more shrimp pots are attached to a common ground line, the number and type of pots (spot shrimp or nonspot shrimp pot) so attached must be clearly labeled on the required buoy.

(d) The line attaching the pot to the buoy must be weighted sufficiently to prevent the line from floating on the surface.

((~~(C) The maximum perimeter of shrimp pots must not exceed ten feet and the maximum height must not exceed two feet.~~

~~(D)~~)) (5) Pot requirements, in all areas:

(a) A shrimp pot may not exceed a maximum of 153-inch bottom perimeter and a maximum of 24-inch height.

(b) The entire top, bottom, and sides of the shrimp pot must be constructed of mesh material. Use of liners is prohibited.

(c) Entrance tunnels to shrimp pots may be constructed of any size mesh material. All entrance tunnels must open into the pot from the side. The sum of the maximum widths of all entrance tunnel openings must not exceed half of the perimeter of the bottom of the pot.

(d) Spot shrimp may only be harvested using pots with a minimum mesh size of one inch. Mesh size of one inch is defined as a mesh opening that a 7/8-inch square peg will pass through, excluding the entrance tunnels, except for flexible (web) mesh pots, where the mesh must be a minimum of 1 3/4 inch stretch measure. Stretch measure is defined as the distance between the inside of one knot to the outside of the opposite vertical knot of one mesh, when the mesh is stretched vertically.

(e) Nonspot shrimp may only be harvested using pots with a minimum mesh size 1/2 inch. Mesh of 1/2 inch is defined as a mesh that a 3/8 inch square peg will pass through, excluding the entrance tunnels, except for flexible (web) mesh pots, where the mesh must be at a minimum 1 1/8 inch stretch measure. Stretch measure is defined as the distance between the inside of one knot to the outside of the opposite vertical knot of one mesh, when the mesh is stretched vertically.

(6) Harvest restrictions, all areas:

(a) It is unlawful to set or pull shrimp pot gear from one hour after official sunset to one hour before official sunrise.

((~~(b) Spot shrimp size restriction: It is unlawful to retain spot shrimp taken by shellfish pot gear that have a carapace length less than 1 and 3/16 inches. Carapace length is defined as the length between the posterior mid-dorsal margin to the posterior-most part of the eye-stalk orbit.~~

~~(c) Area restrictions:~~

~~(i) Pot gear closed in all Puget Sound Shrimp Districts except the Port Townsend Shrimp District.~~

~~(ii) Pot gear closed in Lopez Sound south of a line projected true east-west from the northern tip of Trump Island from the season opening through July 9th.~~

~~(3) It is unlawful to fish for shrimp for commercial purposes in Puget Sound using trawl gear except during seasons opened by emergency rule and authorized by a permit issued by the director.~~

~~(a) Gear restrictions - Beam trawl gear only. Otter trawl gear may not be used.~~

~~(i) Maximum beam width in Marine Fish-Shellfish Management and Catch Reporting Areas 20A, 20B, 21A, and 22A is 25 feet.~~

~~(ii) Maximum beam width in Marine Fish-Shellfish Management and Catch Reporting Areas 23A, 23B, 23C, 25A, 25B, and 29 is 60 feet.~~

~~(b) It is unlawful to retain spot shrimp.~~

~~(c) Area restrictions:~~

~~(i) Shrimp trawl fishing closed in all Puget Sound Shrimp Districts.~~

~~(ii) Shrimp trawl fishing closed in Lopez Sound south of a line projected true east-west from the northern tip of Trump Island from the season opening through July 9th.~~

~~(d) It is unlawful to fish for shrimp in Puget Sound with beam trawl gear in waters shallower than 100 feet.~~

~~(e) It is lawful to fish for shrimp in Puget Sound with beam trawl gear in Marine Fish-Shellfish Management and Catch Reporting Area 21A only in those waters north and west of a line from the southern tip of Sinclair Island to Carter Point on Lummi Island.~~

~~(f) The following restrictions apply to shrimp beam trawl harvest in Marine Fish-Shellfish Management and Catch Reporting Area 20A:~~

~~(i) Closed in waters east of a line from the southwest corner of Point Roberts to Sandy Point.~~

~~(ii) Closed in waters shallower than 20 fathoms.~~

~~(g) It is unlawful to operate shrimp beam trawl gear in Puget Sound from one hour after official sunset to one hour before official sunrise.~~

~~(h) It is unlawful to fish for, retain, land or deliver shrimp taken with trawl gear without a valid Puget Sound shrimp trawl fishery permit.~~

~~(i) It is unlawful to take, retain, land, or deliver any shrimp taken with trawl gear without complying with all provisions of a Puget Sound shrimp trawl fishery permit.~~

~~(j) A violation of this subsection is punishable under RCW 77.15.750.~~

~~(4)~~)) (b) It is unlawful to deploy spot shrimp pots and nonspot shrimp pots concurrently within the same Catch Reporting Area, with the following exceptions:

(i) Spot and nonspot shrimp pots may be concurrently deployed in Catch Area 23A but not within the same subarea (23A-E, 23A-W, 23A-C, or 23A-S) concurrently.

(ii) Nonspot pots may be deployed within Sequim Bay SSMA (WAC 220-320-120) concurrently with spot shrimp pots deployed in the remaining portion of Catch Area 25A outside of Sequim Bay SSMA.

(iii) All shrimp harvested must be landed and recorded on a shellfish receiving ticket before subsequent harvest may occur.

(c) Each fisher or alternate operator is required to report their intended catch area of harvest, target species (spot or nonspot), and an estimate of total pounds that are being targeted prior to the deployment of any shrimp gear by email or text message to shrimp.report@dfw.wa.gov, or by using the Puget Sound commercial shrimp reporting website.

(d) It is unlawful to harvest nonspot and spot shrimp in the same day.

(e) It is unlawful to harvest shrimp in more than one catch area per day, except for concurrent pot deployment described in (b) of this subsection.

(f) Shrimp nonspot pot harvest restrictions:

(i) Harvest of nonspot shrimp is not permitted deeper than 150 feet in Shrimp Management Area 2E.

(ii) Harvest of nonspot shrimp is not permitted deeper than 175 feet in Region 2W.

Reporting

(7) All shrimp taken in the Puget Sound commercial shrimp fishery must be landed and recorded on Washington state fish receiving tickets within 24 hours of harvest. No fisher may land shrimp without immediate delivery to a wholesale fish buyer, or if transferred at sea, without transfer to a wholesale fish buyer. A fisher who is a wholesale fish buyer or a limited fish seller may complete and return a fish receiving ticket to satisfy the requirements of this subsection.

((~~(5) For purposes of shrimp pot harvest allocation, fishing season, and catch reporting, the Marine Fish-Shellfish Management and Catch Reporting Areas (catch areas) are modified as follows:~~

~~(a) That portion of Catch Area 22A south of a line due east from the international boundary to Lime Kiln Point light on San Juan Island, then south of the shores of San Juan Island, then south of a line from Cattle Point on San Juan Island to Davis Point on Lopez Island, then south of the shores of Lopez Island to Point Colville shall be considered to be part of Catch Area 23A.~~

~~(b) Catch Area 23A is divided into four subareas:~~

~~(i) 23A-E (east) is those waters of Catch Area 23A east of 122°57'W. Long. and north of 48°22.5'N. Lat.~~

~~(ii) 23A-W (west) is those waters of Catch Area 23A west of 122°57'W. Long. and north of 48°22.5'N. Lat.~~

~~(iii) 23A-C (central) is those waters of Catch Area 23 south of 48°22.5'N. Lat. and east of a line projected 335° true from the Dungeness lighthouse.~~

~~(iv) 23A-S (south) is those waters of Catch Area 23A west of a line projected 335° true from the Dungeness lighthouse.~~

~~(c) Catch Area 26A is divided into two subareas:~~

~~(i) 26A-E (east) is those waters of Catch Area 26A north and east of a line projected 110 degrees true from the southern tip of Possession Point on Whidbey Island to the shipwreck on the opposite shore.~~

~~(ii) 26A-W (west) is those waters of Catch Area 26A south and west of a line projected 110 degrees true from the southern tip of Possession Point on Whidbey Island to the shipwreck on the opposite shore.~~

~~(d) Catch Area 26B is divided into two subareas:~~

~~(i) 26B-1 is those waters of Catch Area 26B westerly of a line projected from West Point to Alki Point.~~

~~(ii) 26B-2 is those waters easterly of a line projected from West Point to Alki Point.~~

~~(6) For purpose of shrimp trawl harvest allocation and catch reporting, 23A East is that portion of Catch Area 23A, east of a line projected true north from the Dungeness lighthouse. 23A West is that portion of Catch Area 23A, west of the line described herein.~~

~~(7) The following areas are defined as Puget Sound Shrimp Management Areas:~~

~~(a) Shrimp Management Area 1A: Waters of Catch Area 20B west of a line from Point Doughty on Orcas Island to the bell buoy at the international boundary, and all waters of Catch Area 22A west of a line projected true north and south from the western tip of Crane Island, west of a line projected from the number 2 buoy at the entrance to Fisherman Bay to the southern tip of Shaw Island.~~

~~(b) Shrimp Management Area 1B: Waters of Catch Area 20B east of a line from Point Doughty on Orcas Island to the bell buoy at the international boundary, and waters of Catch Area 22A east of a line projected true north and south from the western tip of Crane Island, east of a line projected from the number 2 buoy at the entrance to Fisherman Bay to the southern tip of Shaw Island, and east of a line projected true south from Point Colville, and all waters of Catch Area 21A north and west of a line from the southern tip of Sinclair Island to Carter Point on Lummi Island.~~

~~(c) Shrimp Management Area 1C: Waters of Catch Areas 20A, 21B, 22B, and waters of Catch Area 21A not included in Management Area 1B.~~

~~(d) Shrimp Management Area 2E: Waters of Catch Areas 24A, 24B, 24C, 24D, and 26A-E (east).~~

~~(e) Shrimp Management Area 2W: Waters of Catch Areas 25B, 25C, 25D, and 26A-W (west).~~

~~(f) Shrimp Management Area 3: Waters of Catch Areas 23A, 23B, 23C, 23D, 25A, 25E, and 29.~~

~~(g) Shrimp Management Area 4: Waters of Catch Areas 26B and 26C.~~

~~(h) Shrimp Management Area 5: Waters of Catch Areas 27A, 27B, and 27C.~~

~~(i) Shrimp Management Area 6: Waters of Catch Areas 26D, 28A, 28B, 28C, and 28D.~~

~~(8) In Shrimp Management Areas 1A, 1B and 1C, all catch must be reported by Management Area and Catch Area combined, either 1A-20B, 1A-22A, 1B-20B, 1B-21A, 1B-22A, 1C-20A, 1C-21A, 1C-21B, or 1C-22B.~~))

[Statutory Authority: RCW 77.04.090, 77.04.130, 77.15.568, 77.08.010, 77.65.510, 77.65.515, and 77.65.520. WSR 17-22-100, § 220-340-520, filed 10/30/17, effective 1/1/18. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-340-520, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.020, 77.12.045, 77.12.047 and 50 C.F.R., Parts 223 and 224. WSR 11-07-106 (Order 11-43), § 220-52-051, filed 3/23/11, effective 4/23/11. Statutory Authority: RCW 77.12.047. WSR 06-01-013 (Order 05-275), § 220-52-051, filed 12/9/05, effective 1/9/06; WSR 03-05-064 (Order 03-28), § 220-52-051, filed 2/18/03, effective 3/21/03; WSR 02-01-068, § 220-52-051, filed 12/14/01, effective 1/14/02; WSR 01-03-016 (Order 00-271), § 220-52-051, filed 1/5/01, effective 2/5/01. Statutory Authority: RCW 74.08.080 and 1999 c 239. WSR 00-01-124 (Order 99-217), § 220-52-051,

filed 12/17/99, effective 1/17/00. Statutory Authority: RCW 75.28.740 and 75.30.220. WSR 94-07-092 (Order 94-14), § 220-52-051, filed 3/17/94, effective 4/17/94. Statutory Authority: RCW 75.08.080. WSR 93-15-051, § 220-52-051, filed 7/14/93, effective 8/14/93; WSR 91-18-030 (Order 91-73), § 220-52-051, filed 8/28/91, effective 9/28/91; WSR 87-23-006 (Order 87-187), § 220-52-051, filed 11/6/87.]

NEW SECTION

WAC 220-340-530 Commercial shrimp trawl fishery—Puget Sound.

License

(1) It is unlawful to take, fish for, land, or deliver shrimp taken for commercial purposes with trawl gear from Puget Sound waters without a valid Puget Sound shrimp trawl license and a shrimp trawl permit, issued annually by the director, and without complying with all provisions of a Puget Sound shrimp trawl fishery permit.

A Puget Sound shrimp trawl license will only be issued to an individual who is a natural person, and this person shall be the primary operator. Holders of Puget Sound shrimp trawl licenses may designate a single alternate operator per license.

Trawl gear and area

(2) It is unlawful to fish for shrimp for commercial purposes in Puget Sound using trawl gear except during seasons opened by emergency rule and authorized by a permit issued by the director.

It is unlawful to operate shrimp beam trawl gear in Puget Sound from one hour after official sunset to one hour before official sunrise.

(3) It is unlawful to retain spot shrimp with trawl gear.

(4) Gear restrictions - Beam trawl gear is the only lawful trawl gear type permitted for Puget Sound. Use of otter trawl gear or other trawl gear types is unlawful.

(a) Maximum beam width in Marine Fish-Shellfish Management and Catch Reporting Areas 20A, 20B, 21A, and 22A is 25 feet.

(b) Maximum beam width in Marine Fish-Shellfish Management and Catch Reporting Areas 23A (trawl Catch Area 23A; WAC 220-320-140), 23B, 23C, 25A, and 29 is 60 feet.

(5) Area restrictions:

(a) Catch Areas 21B, 22B, and those waters of Catch Area 20A north and east of a line from Point Roberts Light (48°58.298'N, 123°05.027'W) to Sandy Point on the Lummi Reservation (48°47.193'N, 122°42.328'W) are closed year round.

(b) Catch Area 20A outside of those waters north and east of a line from Point Roberts Light (48°58.298'N, 123°05.027'W) to Sandy Point on the Lummi Reservation (48°47.193'N, 122°42.328'W) are closed through July 31st.

(c) Catch Area 21A is closed year round, except that those waters north and west of a line from the southern tip of Sinclair Island (48°36.583'N, 122°39.433'W) to Carter Point (48°38.423'N, 122°36.525'W) on Lummi Island are closed through June 30th.

(d) In Catch Area 22A:

(i) Shrimp trawl fishing is closed in Lopez Sound south of a line projected true east-west from the northern tip of Trump Island

(48°30.385'N, 122°50.211'W) from the season opening through July 9th, except as described in (f) of this subsection.

(ii) Shrimp trawl fishing is closed that portion east of a line projected along 122.47°W longitude (east of Blakely Island) and west of a line projected along 122.43°W longitude (west of Cypress Island) in Rosario Strait from the season opening through June 15th, except as described in (f) of this subsection.

(e) Subregion 1B (Catch Areas 20B and 22A) is closed through June 15th, except as described in (f) of this subsection.

(f) The following areas may open on the described dates and remain open from that date contingent upon the results of department-approved observer sampling to evaluate bycatch. Bycatch parameters must be satisfied for the fishery to remain open earlier than the dates described in (d) and (e) of this subsection.

(i) In Catch Area 22A, in Lopez Sound south of a line projected true east-west from the northern tip of Trump Island (48°30.385'N, 122°50.211'W): May 1st.

(ii) That portion of Catch Area 22A east of a line projected along 122.47°W longitude (east of Blakely Island) and west of a line projected along 122.43°W longitude (west of Cypress Island) in Rosario Strait: May 1st.

(iii) Subregion 1B (Catch Areas 20B and 22A): May 16th.

(iv) Trawl fishers seeking to open before the dates described in (d) and (e) of this subsection must coordinate with the department to arrange a department-approved bycatch observation plan prior to commencing fishing.

(g) It is unlawful to fish for shrimp in Puget Sound with beam trawl gear in waters shallower than 100 feet.

(h) It is unlawful to fish for shrimp with beam trawl gear shallower than 120 feet in Catch Area 20A.

(i) A violation of this section is punishable under RCW 77.15.750.

Landing and reporting

(6) All shrimp taken in the Puget Sound commercial shrimp fishery must be landed and recorded on Washington state fish receiving tickets within 24 hours of harvest. No fisher may land shrimp without immediate delivery to a licensed fish buyer, or if transferred at sea, without transfer to a licensed fish buyer. A fisher who is a licensed fish buyer or a limited fish seller may complete and return a fish receiving ticket to satisfy the requirements of this subsection.

(7) Harvesters must also comply with reporting provisions of WAC 220-340-030.

[]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-610 Commercial scallop fishery—Puget Sound. (1) **Licensing and permits:**

(a) It is unlawful to fish for, take, or possess scallops with shellfish dive gear without a valid ((~~shellfish~~)) commercial scallop dive fishery license in possession of the license holder or designated alternate operator, and on board the designated harvest vessel. A vio-

lation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.500, Commercial fishing without a license—Penalty, depending on the circumstances of the violation.

(b) It is unlawful to fish for, take, or possess rock or weathervane scallops for commercial purposes from Puget Sound unless a person first obtains a valid scallop brood stock collection permit issued by the department. A violation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.500, violation of commercial fishing without a license—Penalty, depending on the circumstances of the violation.

(c) It is unlawful to harvest scallops for brood stock or culture purposes in a manner that violates scallop brood stock collection permit provisions. Scallop brood stock collection permit provisions include, but are not limited to, the location, date and time restrictions on harvest, and the species and quantity of scallops the permit holder may take for brood stock or culture purposes. A violation of this subsection is a misdemeanor, punishable under RCW 77.15.750, Unlawful use of a department permit—Penalty.

(2) **Harvest areas and seasons.**

(a) It is unlawful to take or possess pink or spiny scallops for commercial purposes or for the purposes of public health testing, except during open scallop harvest seasons from open shellfish management areas as provided by emergency rule.

(b) It is unlawful to fish for, take, or possess scallops from the ((~~closed~~)) waters ((~~in Sea Urchin Districts 1, 2, 5, and 7~~)) permanently closed to sea urchin harvest as defined in WAC 220-340-750, and the waters permanently closed to sea cucumber harvest as defined in WAC 220-340-730.

(c) It is unlawful to fish for or take pink or spiny scallops from official sunset through 5:59 a.m. the following morning.

(3) A violation of subsection (2) of this section is a gross misdemeanor or class C felony punishable under RCW 77.15.550, Violation of commercial fishing area or time—Penalty, depending on the circumstances of the violation.

(4) **Size limits:** It is unlawful to take or possess pink or spiny scallops less than ((~~2~~)) two inches in length, measured from the hinge to the outer margin of the shell. A violation of this subsection is a gross misdemeanor, punishable under RCW 77.15.550, Violation of commercial fishing area or time—Penalty.

(5) **Shellfish dive gear and harvest vessel restrictions:**

(a) It is unlawful to fish for, take, or possess pink or spiny scallops by any means other than by hand with shellfish dive gear. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(b) It is unlawful to operate a vessel engaged in scallop harvest operations unless the ((~~vessel registration~~)) harvester number assigned by the department is properly displayed as provided by department rule (WAC 220-340-020). A violation of this subsection is a misdemeanor punishable under RCW 77.15.540, Unlawful use of a commercial fishery license—Penalty.

(c) It is unlawful for more than one ((~~diver~~)) shellfish dive fishery license holder from a harvest vessel to be in the water at any one time during pink or spiny scallop harvest operations or when commercial quantities of pink or spiny scallops are on board the vessel, except that two shellfish dive fishery license holders may be in the water if the harvest vessel is designated on two shellfish dive fish-

ery licenses. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(d) It is unlawful for a vessel engaged in the harvest of pink or spiny scallops to have through-hull fittings for water discharge hoses to be below the surface of the water. Through-hull fittings above the water line must be visible at all times. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(e) It is unlawful to possess a single hose or combination of hoses capable of measuring longer than ((~~thirty~~)) 30 feet or water jet nozzles onboard a vessel engaged in the commercial pink or spiny scallop fishery. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(6) **Possession restrictions:** It is unlawful to possess geoduck clams during pink or spiny scallop harvest operations, or possess geoduck clams on a vessel that has pink or spiny scallops on board. A violation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.550, Violation of commercial fishing area or time—Penalty, depending on the circumstances of the violation.

(7) For the purposes of weekly trip limits, the scallop fishery week begins Monday and ends Sunday.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-340-610, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 14-02-016 (Order 13-305), § 220-52-069, filed 12/19/13, effective 1/19/14. Statutory Authority: RCW 77.04.020, 77.12.045, 77.12.047 and 50 C.F.R., Parts 223 and 224. WSR 11-07-108 (Order 11-42), § 220-52-069, filed 3/23/11, effective 4/23/11. Statutory Authority: RCW 77.12.047. WSR 00-17-108 (Order 00-153), § 220-52-069, filed 8/16/00, effective 9/16/00. Statutory Authority: RCW 75.08.080. WSR 94-12-009 (Order 94-23), § 220-52-069, filed 5/19/94, effective 6/19/94; WSR 93-15-051, § 220-52-069, filed 7/14/93, effective 8/14/93; WSR 91-10-024 (Order 91-22), § 220-52-069, filed 4/23/91, effective 5/24/91; WSR 87-15-022 (Order 87-69), § 220-52-069, filed 7/8/87; WSR 86-08-056 (Order 86-14), § 220-52-069, filed 3/28/86; WSR 84-08-014 (Order 84-24), § 220-52-069, filed 3/27/84; WSR 82-03-045 (Order 82-6), § 220-52-069, filed 1/19/82; Order 807, § 220-52-069, filed 1/2/69, effective 2/1/69. Formerly WAC 220-52-060(7).]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-700 Commercial crawfish fishery. (1) Licensing: A shellfish pot fishery license is required to operate the gear provided for in this section. An application for a shellfish pot fishery license is available at the offices of the department, by calling the WDFW license division at 360-902-2500, or on the department website at www.wdfw.wa.gov.

(2) Commercial crawfish season: The first Monday in May through October 31, except: In Washington waters of the Columbia River down-

stream from the mouth of the Walla Walla River, it is permissible to take crawfish from April 1 through October 31.

(3) Commercial crawfish size and sex restrictions:

(a) Crawfish must be ((~~3-1/4~~)) 3 1/4 inches or more in length from the tip of the rostrum (nose) to the tip of the tail .

(b) All undersize crawfish and female crawfish with eggs or young attached to the abdomen must be immediately returned unharmed to the waters from which taken. Fishers must sort and return illegal crawfish to the waters from which taken immediately after the crawfish are removed from the shellfish pot and prior to lifting additional pots from the water.

(4) Commercial crawfish gear, fishing areas, and pot number restrictions:

(a) It is unlawful to take crawfish for commercial purposes with gear other than shellfish pots.

(b) The department determines the maximum number of pots permitted in any given body of water. Once the permitted maximum number of pots for any given body of water is reached, no further permits may be issued for that area. Permits are issued on a first-come, first-served basis consistent with all other regulations concerning issuance of commercial crawfish harvest permits.

(c) It is unlawful for a person to fish more than 400 pots at one time in the commercial crawfish fishery.

(d) Buoys must consist of durable material that will remain floating on the surface with five pounds attached; bleach or antifreeze bottles or other containers may not be used as floats.

(e) When two or more pots are attached to a common ground line, the number of pots attached must be clearly labeled on the required buoy.

(f) Crawfish gear also subject to provisions of WAC 220-353-020.

(g) It is unlawful to fish for crawfish for commercial purposes in the following waters:

Clallam

((~~Anderson Lake~~))
Crescent Lake

Clark

Battleground Lake

Cowlitz

Merrill Lake

Grant

Deep Lake
Potholes Res.
Coulee Lake
Soap Lakes
Sun Lakes

Grays Harbor

Sylvia Lake

Island

Cranberry Lake

Jefferson

Anderson Lake

King

Cedar Lake
Elbow Lake
Green Lake
Green River
Margaret Lake
Sammamish Lake
Sammamish River
Sammamish Slough
Walsh Lake

Kittitas

Easton Lake

Klickitat

Horsethief Lake
Roland Lake

Lewis

Mineral Lake

Okanogan

Alta Lake
Buffalo Lake
Campbell Lake
Conconully Lake
Conconully Res.
Crawfish Lake
Omak Lake
Osoyoos Lake
Pearrygin Lake

Pacific

Middle Nemah River
North Nemah River
Smith Creek

Pend Oreille

Browns Lake (on Brown Cr)
Calispell Lake
Cooks Lake
Conklin Lake
Davis Lake
Half Moon Lake
Mystic Lake
No Name Lake
Shearer Lake
Vanee Lake

Pierce

Clear Lake
Spanaway Lake
Steilacoom Lake
Wapato Lake

Skagit

Beaver Lake
Caskey Lake
Cranberry Lake
Everett Lake
Minkler Lake
Pass Lake
Sixteen Lake
Whistle Lake

Skamania

Goose Lake
Mosquito Lake
South Prairie Lake
Stump (Tunnel) Lake

Snohomish

Ballinger Lake
Chaplain Lake
Flowing Lake
Goodwin Lake
Ki Lake
Martha Lake
Pass Lake
Roesiger Lake
Serene Lake
Shoecraft Lake
Silver Lake
Stevens Lake
Stickney Lake
Storm Lake

Thurston

Deep Lake
Hicks Lake
Long Lake
Patterson Lake
Summit Lake
Ward Lake

Whatcom

Budd Lake
Bug Lake
Caine Lake
Fishtrap Creek
Johnson Creek
Padden Lake
Toad or Emerald Lake

((~~(e)~~)) (h) It is unlawful to fish for crawfish within 1/4 mile of the shoreline of developed parks.

((~~(f)~~)) (i) It is permissible for an individual fisherman to fish for crawfish for commercial use in the waters set out below with up to the number of pots shown.

Name of Lake, River, or Slough	County	Max. Pots Allowed
Alder Lake (Res.)	Pierce/Thurston	200
((~~Aldwell Lake (Res.)~~	~~Clallam~~	~~100~~))
Alkali Lake	Grant	100
Bachelor Slough	Clark	100
Baker Lake	Whatcom	200
Banks Lake	Grant	200
Big Lake	Skagit	200
Black Lake	Thurston	200
Blue Lake	Grant	200
Bonaparte Lake	Okanogan	100
Buckmire Slough	Clark	100
Camas Slough	Clark	100
Campbell Lake	Skagit	100
Cassidy Lake	Snohomish	100
Cavanaugh Lake	Skagit	200
Chehalis River	Lewis/Grays Harbor	100
Chelan Lake	Chelan	200
Clear Lake	Skagit	100
Coal Creek Slough	Cowlitz	100
Columbia River	Clark, Cowlitz, etc.	200
Copalis River	Grays Harbor, etc.	100
Cowlitz River	Clark, Cowlitz, etc.	100
Curlew Lake	Ferry	200
Cushman Lake #1	Clark	100
Deep River	Wahkiakum	100
Deschutes River	Thurston	100
Diablo Lake	Whatcom	200
Drano Lake	Skamania	100
Elochoman River	Wahkiakum	100
Erie Lake	Skagit	100
Evergreen Reservoir	Grant	100
Fisher Island Slough	Cowlitz	100
Goose Lake (upper)	Grant	100
Grays River	Pacific	100
Harts Lake	Pierce	100
Hoquiam River	Grays Harbor	100
Humptulips River	Grays Harbor	100
John's River	Grays Harbor	100
Kapowsin Lake	Pierce	200
Kalama River	Cowlitz, etc.	100
Klickitat	Klickitat	100
Lackamas Lake (Res.)	Clark	100
Lake River	Clark	100
Lawrence Lake	Thurston	100
Lenore Lake	Grant	200
Lewis River	Clark/Cowlitz	100
Loomis Lake	Pacific	100
Mayfield Lake	Lewis	200
McIntosh Lake	Thurston	100
McMurray Lake	Skagit	100
Merwin Lake	Clark/Cowlitz	200
Moses Lake	Grant	200
Naselle River	Pacific, etc.	100
Nisqually River	Pierce, etc.	100
Nooksack River	Whatcom	100

Name of Lake, River, or Slough	County	Max. Pots Allowed
North River	Grays Harbor	100
Palmer Lake	Okanogan	100
Patterson Lake (Res.)	Okanogan	100
Portage Bay	King	100
Rattlesnake Lake	King	100
Ross Lake (Res.)	Whatcom	200
Salmon Lake	Okanogan	100
Satsop River	Grays Harbor	100
Shannon Lake (Res.)	Skagit	200
Sidley Lake	Okanogan	100
Silver Lake	Pierce	100
Silver Lake	Cowlitz	200
Skagit River	Skagit/Whatcom	200
Skamokawa River	Wahkiakum	100
Snake River	Franklin/Walla Walla	200
Snohomish River	Snohomish	100
St. Clair Lake	Thurston	100
Swift Lake (Res.)	Skamania	200
Terrell Lake	Whatcom	100
Toutle River	Cowlitz	100
Union Lake	King	200
Vancouver Lake	Clark	200
Warden Lake	Grant	100
Washington Lake	King	200
Washougal River	Clark/Skamania	100
Whitestone Lake	Okanogan	100
Willapa River	Pacific	100
Wiser Lake	Whatcom	100
Wind River	Cowlitz	100
Wishkah River	Grays Harbor	100
Woodland Slough	Clark	100
Wynoochee River	Grays Harbor	100
Yakima River	Kittitas	100
Yale Lake (Res.)	Clark/Cowlitz	200

((~~(g)~~)) (j) Commercial crawfish harvest permits will be issued to limit the number of crawfish pots permissible per fisherman per body of water in suitable crawfish harvest sites not listed in subsections (4)(d) and (e) of this section as follows:

(i) Under 20 acres - No commercial harvest.

(ii) 20 acres to 100 acres - 50 pots.

(iii) 101 acres to 400 acres - 100 pots.

(iv) Over 400 acres - 200 pots.

((~~(h)~~)) (k) Permits may be issued only in waters where fishing will not conflict with high density residential or recreational areas. No permit will be issued where developed parks encompass more than 1/2 of the water shoreline.

(5) It is unlawful to discard any crawfish bait into the waters of the state.

(6) This section does not apply to the commercial culture of crawfish at a registered aquatic farm.

(7) It is unlawful to fish for or possess crawfish taken for commercial purposes in violation of this section. Violation of this section is punishable under RCW 77.15.500, 77.15.520, 77.15.522, or 77.15.540, depending on the circumstances of the violation.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-700, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 12-23-016 (Order 12-267), § 220-52-060, filed 11/9/12, effective 12/10/12. Statutory Authority: RCW 75.08.080. WSR 94-12-009 (Order 94-23), § 220-52-060, filed 5/19/94, effective 6/19/94; WSR 91-10-024 (Order 91-22), § 220-52-060, filed 4/23/91, effective 5/24/91; WSR 87-23-006 (Order 87-187), § 220-52-060, filed 11/6/87. Statutory Authority: RCW 75.08.080 and 75.58.040. WSR 86-19-043 (Order 86-102), § 220-52-060, filed 9/12/86. Statutory Authority: RCW 75.08.080. WSR 80-13-064 (Order 80-123), § 220-52-060, filed 9/17/80; WSR 79-02-053 (Order 79-6), § 220-52-060, filed 1/30/79; Order 76-26, § 220-52-060, filed 1:45 p.m., 4/20/76; Order 945, § 220-52-060, filed 8/16/71; Order 807, § 220-52-060, filed 1/2/69, effective 2/1/69; subsections 1-7, Orders 414 and 256, filed 3/1/60.]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-720 Commercial octopus fishery. (1) It ((~~shall be~~)) is unlawful to possess octopus for commercial purposes except octopus taken incidentally to any lawful bottom fish or shellfish fishery((~~, except that it shall be unlawful for divers to take octopus for commercial purposes except as authorized by permit issued by the director for display or scientific purposes~~)).

(2) It is unlawful to take or possess octopus for display or scientific purposes, except as authorized by permit issued by the director.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-340-720, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.12.047. WSR 01-02-057 (Order 00-262), § 220-52-063, filed 12/29/00, effective 1/29/01. Statutory Authority: RCW 75.08.080. WSR 94-12-009 (Order 94-23), § 220-52-063, filed 5/19/94, effective 6/19/94; WSR 87-15-022 (Order 87-69), § 220-52-063, filed 7/8/87; WSR 84-08-014 (Order 84-24), § 220-52-063, filed 3/27/84; WSR 80-13-064 (Order 80-123), § 220-52-063, filed 9/17/80; Order 807, § 220-52-063, filed 1/2/69, effective 2/1/69. Formerly WAC 220-52-060 (2), (3) and (4).]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-730 Commercial sea cucumber fishery. (1) **Licensing:** It is unlawful to fish for, take, or possess sea cucumbers ((~~with shellfish dive gear~~)) without a valid ((~~shellfish~~)) commercial sea cucumber dive fishery license and license holder or designated alternate operator on board the designated harvest vessel. A violation of this

subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.500, Commercial fishing without a license—Penalty.

(2) **Harvest areas and seasons:**

(a) It is unlawful to fish for, take, or possess sea cucumbers for commercial purposes, except during open sea cucumber harvest seasons and from open sea cucumber districts as provided by emergency rule. It is unlawful to fish for, take, or possess sea cucumbers for commercial purposes from closed areas defined in this section.

(b) It is unlawful to fish for or take sea cucumbers from official sunset to 5:59 a.m. the following morning.

(c) A violation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.550, Violation of commercial fishing area or time—Penalty.

(3) **Sea cucumber districts defined:**

(a) Sea Cucumber District 1 is defined as those waters of Marine Fish-Shellfish Management and Catch Reporting Areas 20A, 20B, 21A, 21B, 22A, and 22B((~~, and 23B~~)) outside of the following closed areas:

(i) San Juan Channel ((~~and Upright Channel within the following lines: South of a line projected from Flat Point on Lopez Island true west to Shaw Island; west of a line from Neck Point on Shaw Island to Steep Point on Orcas Island; south of a line from Steep Point on Orcas Island to Limestone Point on San Juan Island north of a line from Flat Point on Lopez Island to the northernmost point of Turn Island and thence projected true west to San Juan Island~~)) Closed Area: Those waters of San Juan Channel and Upright Channel within the following lines: North and west of a line from the northernmost point of Turn Island on San Juan Island (48°32.146'N, 122°58.279'W) to Flat Point on Lopez Island (48°33.060'N, 122°55.181'W), and thence projected from Flat Point true west to Shaw Island (48°33.062'N); north of a line projected from the northernmost point of Turn Island (48°32.146'N, 122°58.279'W) true west to San Juan Island (48°32.146'N); west of a line from Neck Point on Shaw Island (48°35.233'N, 123°00.744'W) to Steep Point on Orcas Island (48°36.559'N, 123°01.387'W); and south of a line from Steep Point on Orcas Island to Limestone Point on San Juan Island (48°37.348'N, 123°06.450'W).

(ii) Haro Strait Closed Area: North of a line projected ((~~due~~)) true west from the southernmost point of Cattle Point on San Juan Island to the international border (closed area includes those waters of Areas 22A and 23A that fall north of this line) and south of a line projected ((~~due~~)) true west from a point ((~~one-quarter~~)) (48°31.202'N, 123°09.162'W) 1/4 mile north of Lime Kiln Light (48°30.954'N, 123°09.150'W) on San Juan Island to the international border.

(b) Sea Cucumber District ((~~2~~)) 2-1 is defined as the waters of Marine Fish-Shellfish Management and Catch Reporting Areas 23A, 23C, 23D, ((~~25A, 25B, 25C, 25D, 25E,~~)) and 29 outside of the following closed areas:

(i) Low Point Closed Area: Those waters of the Strait of Juan de Fuca in the vicinity of Low Point west of longitude 123°48.3'W, east of longitude 123°52.7'W, and south of the international border;

(ii) Tatoosh Island Closed Area: Those waters within 1/4 mile of Tatoosh Island;

(iii) Haro Strait Closed Area: Those waters of Haro Strait within Area 23A north of a line projected true west from the southernmost point of Cattle Point on San Juan Island to the international border (this closed area also includes those waters of Area 22A described in (a)(ii) of this subsection).

(c) Sea Cucumber District 2-2 is defined as the waters of Marine Fish Shellfish Management and Catch Reporting Areas 23B, 25A, 25B, 25C, 25D, and 25E.

((~~(c)~~)) (d) Sea Cucumber District 3 is defined as the waters of Marine Fish-Shellfish Management and Catch Reporting Areas 24A, 24B, 24C, 24D, 26A, 26B, and 26C. The following areas within Sea Cucumber District 3 are closed to the harvest of sea cucumbers:

(i) Eagle Harbor Closed Area: Those waters of Eagle Harbor west of a line projected from Wing Point (47°37.241'N, 122°29.535'W) to Eagle Harbor Creosote Light Number 1((~~, then~~)) (47°36.975'N, 122°29.792'W), thence projected ((~~due~~)) true west to shore on Bainbridge Island (47°36.975'N).

(ii) Sinclair Inlet Closed Area: Those waters of Sinclair Inlet west of a line projected southerly from the easternmost point of Point Turner (47°33.886'N, 122°37.397'W) to landfall directly below the ((~~Veteran's Home~~)) Kitsap Transit foot ferry terminal in Annapolis (47°32.868'N, 122°36.973'W).

((~~(d)~~)) (e) Sea Cucumber District 4 is defined as the waters of Marine Fish-Shellfish Management and Catch Reporting Areas 27A, 27B, and 27C.

((~~(e)~~)) (f) Sea Cucumber District 5 is defined as the waters of Marine Fish-Shellfish Management and Catch Reporting Areas 26D, 28A, 28B, 28C, and 28D outside of the following closed area: Hale Passage/Wollochet Bay Closed Area: The waters of Hale Passage and Wollochet Bay within the following lines: West of a line projected true south from the shoreline near Point Fosdick at 122°35'W longitude to 47°14'N latitude, and thence projected true west to the shoreline of Fox Island (47°14'N), and east of a line projected true south from the shoreline near Green Point at 122°41'W longitude to 47°16.5'N latitude, and thence projected true east to the shoreline of Fox Island (47°16.5'N).

(4) **Shellfish dive gear and harvest vessel restrictions:**

(a) It is unlawful to fish for, take, or possess sea cucumbers taken for commercial purposes by any means other than by hand with shellfish dive gear. A violation of this subsection is punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(b) It is unlawful to operate a vessel engaged in commercial sea cucumber harvest operations unless the ((~~vessel registration~~)) harvester number assigned by the department is properly displayed on the vessel as provided by department rule (WAC 220-340-020). A violation of this subsection is a misdemeanor punishable under RCW 77.15.540, Unlawful use of a commercial fishery license.

(c) It is unlawful for more than one diver from a harvest vessel to be in the water at any one time during sea cucumber harvest operations or when commercial quantities of sea cucumbers are aboard, except that two divers from a harvest vessel may be in the water at one time if the vessel is designated on two sea cucumber dive fishery licenses. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(d) It is unlawful for a vessel engaged in the harvest of sea cucumbers to have through-hull fittings for water discharge hoses below the surface of the water. Through-hull fittings above the water line must be visible at all times. A violation of this subsection is a

gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(e) It is unlawful to possess a single hose or combination of hoses capable of measuring longer than ((~~thirty~~)) 30 feet or water jet nozzles onboard a vessel engaged in the commercial sea cucumber fishery. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(5) **Possession restrictions:** It is unlawful to possess geoduck clams during commercial sea cucumber harvest operations, or possess geoduck clams on a vessel that has sea cucumbers on board. A violation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.550, Violation of commercial fishing area or time—Penalty, depending on the circumstances of the violation.

(6) For the purposes of weekly trip limits, the sea cucumber fishery week begins Monday and ends Sunday.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-730, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 14-02-016 (Order 13-305), § 220-52-071, filed 12/19/13, effective 1/19/14. Statutory Authority: RCW 77.12.047. WSR 03-16-098 (Order 03-177), § 220-52-071, filed 8/6/03, effective 9/6/03; WSR 02-17-016 (Order 02-186), § 220-52-071, filed 8/9/02, effective 9/9/02; WSR 01-07-021 (Order 01-40), § 220-52-071, filed 3/14/01, effective 4/14/01. Statutory Authority: RCW 75.08.080. WSR 00-03-042 (Order 00-07), § 220-52-071, filed 1/13/00, effective 2/13/00; WSR 99-17-068 (Order 99-126), § 220-52-071, filed 8/13/99, effective 9/13/99; WSR 94-12-009 (Order 94-23), § 220-52-071, filed 5/19/94, effective 6/19/94; WSR 93-15-051, § 220-52-071, filed 7/14/93, effective 8/14/93; WSR 91-18-030 (Order 91-73), § 220-52-071, filed 8/28/91, effective 9/28/91; WSR 91-10-024 (Order 91-22), § 220-52-071, filed 4/23/91, effective 5/24/91; WSR 87-23-006 (Order 87-187), § 220-52-071, filed 11/6/87; WSR 87-15-022 (Order 87-69), § 220-52-071, filed 7/8/87; WSR 87-02-013 (Order 86-199), § 220-52-071, filed 12/30/86; WSR 81-11-006 (Order 81-31), § 220-52-071, filed 5/11/81; WSR 79-02-053 (Order 79-6), § 220-52-071, filed 1/30/79; Order 77-145, § 220-52-071, filed 12/13/77; Order 77-65, § 220-52-071, filed 8/5/77; Order 1105, § 220-52-071, filed 12/28/73; Order 990, § 220-52-071, filed 5/11/72.]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-750 Commercial sea urchin fisheries. (1) **Licensing:** It is unlawful to fish for, take, or possess sea urchins for commercial purposes ((~~with shellfish dive gear~~)) without a valid ((~~shellfish~~)) commercial sea urchin dive fishery license and license holder or designated alternate operator on board the designated harvest vessel. A violation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.500, Commercial fishing without a license—Penalty, depending on the circumstances of the violation.

(2) **Harvest areas, seasons, and size restrictions:**

(a) It is unlawful to fish for, take, or possess sea urchins for commercial purposes except during open sea urchin harvest seasons((~~,~~)) and from open sea urchin districts((~~, and within the size restrictions~~)) as set by emergency rule. It is unlawful to fish for, take, or possess sea urchins for commercial purposes from closed areas defined in this section.

(b) It is unlawful for any person to fish for, take, or possess for commercial purposes any green sea urchins less than 2 1/4 inches; or red sea urchins measuring less than 3 1/4 inches or greater than five inches. All measurements are caliper measurements of the largest shell (test) diameter, exclusive of the spines.

((~~(b)~~)) (c) It is unlawful to fish for or take sea urchins from official sunset through 5:59 a.m. the following morning.

((~~(c)~~)) (d) It is unlawful to harvest or possess sea urchins taken from less than ((~~ten~~)) 10 feet below mean lower low water.

((~~(d)~~)) (e) It is unlawful to process sea urchins aboard the harvest vessel.

((~~(e)~~)) (f) It is unlawful to take sea urchins for commercial use for purposes other than human consumption.

(3) A violation of subsection (2) of this section is a gross misdemeanor or class C felony punishable under RCW 77.15.550, Violation of commercial fishing area or time—Penalty, depending on the circumstances of the violation.

(4) **Sea urchin districts defined:**

(a) Sea Urchin District 1 (((~~Northern~~)) San Juan Islands) is defined as Marine Fish-Shellfish Management and Catch Reporting Areas 20A, 20B, ((~~and those waters of Area 22A north of a line projected east-west one-quarter mile north of Lime Kiln Light on San Juan Island and west of a line projected true north from Limestone Point on San Juan Island~~)) 21A, 21B, 22A, and 22B outside the following closed areas:

(i) San Juan Channel Closed Area: Those waters of San Juan Channel and Upright Channel within the following lines: North and west of a line from the northernmost point of Turn Island on San Juan Island (48°32.146'N, 122°58.279'W) to Flat Point on Lopez Island (48°33.060'N, 122°55.181'W), and thence projected from Flat Point true west to Shaw Island (48°33.062'N); north of a line projected from the northernmost point of Turn Island (48°32.146'N, 122°58.279'W) true west to San Juan Island (48°32.146'N); west of a line from Neck Point on Shaw Island (48°35.233'N, 123°00.744'W) to Steep Point on Orcas Island (48°36.559'N, 123°01.387'W); and south of a line from Steep Point on Orcas Island to Limestone Point on San Juan Island (48°37.348'N, 123°06.450'W).

(ii) Haro Strait Closed Area: North of a line projected true west from the southernmost point of Cattle Point on San Juan Island to the international border (closed area includes those waters of 22A and 23A that fall north of this line) and south of a line projected true west from a point (48°31.202'N, 123°09.162'W) 1/4 mile north of Lime Kiln Light (48°30.954'N, 123°09.150'W) on San Juan Island to the international border.

(b) Sea Urchin District 2 ((~~(Southern San Juan Islands and Port Townsend)~~)) (Admiralty Inlet) is defined as those waters of Marine Fish-Shellfish Management and Catch Reporting Areas ((~~22A south of a line projected east-west one-quarter mile north of Lime Kiln Light on San Juan Island and east of a line projected true north from Limestone Point on San Juan Island and Areas 21A, 21B, 22B, 23A, 23B, 25A and~~

~~25B. The following areas within Sea Urchin District 2 are closed to the harvest of sea urchins at all times:~~

~~(i) Those waters of Haro Strait north of a line projected due west from the southernmost point of Cattle Point on San Juan Island to the international border and south of a line projected due west from a point one-quarter mile north of Lime Kiln Light on San Juan Island to the international border.~~

~~(ii) Those waters of San Juan Channel and Upright Channel within the following lines: South of a line projected from Flat Point on Lopez Island true west to Shaw Island; west of a line from Neck Point on Shaw Island to Steep Point on Orcas Island; south of a line from Steep Point on Orcas Island to Limestone Point on San Juan Island north of a line from Flat Point on Lopez Island to the northernmost point of Turn Island and thence projected true west to San Juan Island~~)) 23B, 25A, and 25B.

(c) Sea Urchin District 3 (Port Angeles) is defined as those waters of Marine Fish-Shellfish Management and Catch Reporting Areas 23A, 23D, and 23C east of a line projected true north from ((~~Low Point, along 123°49'30" W. longitude, and Area 23D~~)) the shoreline near Low Point at 123°48.3'W longitude to the international border at 123°48.3'W longitude.

The following area, comprising portions of Sea Urchin Districts 3 and 4, is a closed area: (Low Point Closed Area) Those waters of the Strait of Juan de Fuca in the vicinity of Low Point west of a line projected true north from the shoreline at 123°48.3'W longitude to the international border at 123°52.7'W longitude, and east of a line projected true north from the shoreline at 123°52.7'W longitude to the international border at 123°52.7'W longitude.

(d) Sea Urchin District 4 (Sekiu) is defined as those waters of Marine Fish-Shellfish Management and Catch Reporting Area 23C west of a line projected true north from Low Point, along ((~~123°49'30" W.~~)) 123°52.7'W longitude, and those waters of Area 29 east of a line projected true north from the mouth of Rasmussen Creek (3.1 miles southeast of Sail Rock; 48°19.905'N, 124°29.427'W).

(e) Sea Urchin District 5 is defined as those waters of Marine Fish-Shellfish Management and Catch Reporting Area 29 west of a line projected true north from the mouth of Rasmussen Creek (3.1 miles southeast of Sail Rock; 48°19.905'N, 124°29.427'W) and Areas ((~~59A~~)) 59A-1, 59A-2, and 59B. Within Sea Urchin District 5, waters within ((~~one-quarter~~)) 1/4 mile of Tatoosh Island are closed to the harvest of sea urchins at all times (Tatoosh Island Closed Area).

(f) Sea Urchin District 6 is defined as those waters of Marine Fish-Shellfish Management and Catch Reporting Areas 24A, 24B, 24C, 24D and 26A.

(g) Sea Urchin District 7 is defined as those waters of Marine Fish-Shellfish Management and Catch Reporting Areas 26B, 26C, 26D and 28A. The following areas within Sea Urchin District 7 are closed to the harvest of sea urchins at all times((~~.~~)):

(i) Eagle Harbor Closed Area: Those waters of Eagle Harbor west of a line projected from Wing Point (47°37.241'N, 122°29.535'W) to Eagle Harbor Creosote Light Number 1 (47°36.975'N, 122°29.792'W), ((~~then~~)) thence projected ((~~due~~)) true west to the shore on Bainbridge Island (47°36.975'N).

(ii) ((~~The~~)) Sinclair Inlet Closed Area: Those waters of Sinclair Inlet west of a line projected southerly from the easternmost point of Point Turner (47°33.886'N, 122°37.397'W) to landfall directly below

the ((~~Veteran's Home~~)) Kitsap Transit foot ferry terminal in Annapolis (47°32.868'N, 122°36.973'W).

(iii) Hale Passage/Wollochet Bay Closed Area: The waters of Hale Passage and Wollochet Bay within the following lines: West of a line projected true south from the shoreline near Point Fosdick at 122°35'W longitude to 47°14'N latitude, and thence projected true west to the shoreline of Fox Island (47°14'N), and east of a line projected true south from the shoreline near Green Point at 122°41'W longitude to 47°16.5'N latitude, and thence projected true east to the shoreline of Fox Island (47°16.5'N).

(5) **Shellfish dive gear and harvest vessel restrictions:**

(a) It is unlawful to fish for, take, or possess sea urchins by any means other than with ((~~hand held~~)) handheld tools that do not penetrate the shell.

(b) It is unlawful for more than one diver from a harvest vessel to be in the water at any one time during sea urchin harvest operations or when commercial quantities of sea urchins are onboard, except that two divers may be in the water if the harvest vessel is designated on two sea urchin dive fishery licenses.

(c) It is unlawful for a vessel engaged in the harvest of sea urchins to have through-hull fittings for water discharge hoses below the surface of the water. Through-hull fittings above the water line must be visible at all times. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(d) It is unlawful to possess a single hose or combination of hoses capable of measuring longer than ((~~thirty~~)) 30 feet or water jet nozzles onboard a vessel engaged in the commercial sea urchin fishery. A violation of this subsection is a gross misdemeanor punishable under RCW 77.15.520, Commercial fishing—Unlawful gear or methods—Penalty.

(e) It is unlawful to operate a vessel engaged in sea urchin harvest operations unless the ((~~vessel registration~~)) harvester number assigned by the department is properly displayed as provided by department rule (WAC 220-340-020). A violation of this subsection is a misdemeanor punishable under RCW 77.15.540, Unlawful use of a commercial fishery license—Penalty.

(6) **Possession restrictions:** It is unlawful to possess geoduck clams during commercial sea urchin harvest operations, or possess geoduck clams on a vessel that has sea urchins onboard. A violation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.550, Violation of commercial fishing area or time—Penalty, depending on the circumstances of the violation.

(7) For the purposes of weekly trip limits, the sea urchin fishery week begins Monday and ends Sunday.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-750, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 14-02-016 (Order 13-305), § 220-52-073, filed 12/19/13, effective 1/19/14. Statutory Authority: RCW 77.12.047. WSR 08-15-127 (Order 08-180), § 220-52-073, filed 7/22/08, effective 8/22/08; WSR 04-17-096 (Order 04-210), § 220-52-073, filed 8/17/04, effective 9/17/04; WSR 02-17-016 (Order 02-186), § 220-52-073, filed 8/9/02, effective 9/9/02; WSR 01-07-021 (Order 01-40), § 220-52-073, filed 3/14/01, effective 4/14/01. Statutory Authority: RCW 75.08.080. WSR 00-03-042

(Order 00-07), § 220-52-073, filed 1/13/00, effective 2/13/00; WSR 94-12-009 (Order 94-23), § 220-52-073, filed 5/19/94, effective 6/19/94; WSR 91-22-064 (Order 91-132), § 220-52-073, filed 11/1/91, effective 12/2/91; WSR 91-10-024 (Order 91-22), § 220-52-073, filed 4/23/91, effective 5/24/91; WSR 87-23-006 (Order 87-187), § 220-52-073, filed 11/6/87; WSR 87-15-022 (Order 87-69), § 220-52-073, filed 7/8/87; WSR 86-20-028 (Order 86-123), § 220-52-073, filed 9/23/86; WSR 85-01-010 (Order 84-214), § 220-52-073, filed 12/7/84; WSR 83-04-025 (Order 83-04), § 220-52-073, filed 1/27/83; WSR 80-13-064 (Order 80-123), § 220-52-073, filed 9/17/80; WSR 79-02-053 (Order 79-6), § 220-52-073, filed 1/30/79; Order 77-145, § 220-52-073, filed 12/13/77; Order 76-152, § 220-52-073, filed 12/17/76; Order 1105, § 220-52-073, filed 12/28/73; Order 990, § 220-52-073, filed 5/11/72.]

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-770 Commercial squid fishery. (1) It is lawful at any time to take or fish for squid for commercial purposes with ((~~drag seine gear not exceeding 350 feet in length and having meshes of not less than 1-1/4 inches stretch measure,~~)) dip bag net, brail, and squid jigging gear. Dip bag net and brail may not exceed 10 feet in diameter nor have a mesh less than one inch stretch measure. Stretch measure is defined as the distance between the inside of one knot to the outside of the opposite vertical knot of one mesh, when the mesh is stretched vertically. Other gear may be used to fish for squid commercially if authorized by a permit issued by the director.

(2) Food fish, other shellfish except octopus, and squid eggs caught while fishing for squid must be returned to the water immediately. It is lawful to retain for commercial purposes squid taken incidental to another commercial fishery.

(3) Each vessel fishing for squid may use a lighting system with a combined power of not more than 10 kilowatts (10,000 watts), or equivalent when measured in lumens. Lights of 200 watts (or equivalent when measured in lumens) or greater must be shielded and may not be directed to any point more than 100 feet from the vessel while fishing for or attracting squid.

(4) It is unlawful to fish for squid for commercial purposes within 1/4 mile of the shoreline ((~~of an incorporated city or town~~)).

(5) Licensing: A squid fishery license is the license required to operate the gear provided for in this section.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-340-770, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 75.08.080. WSR 94-12-009 (Order 94-23), § 220-52-066, filed 5/19/94, effective 6/19/94; WSR 84-08-014 (Order 84-24), § 220-52-066, filed 3/27/84; WSR 80-13-064 (Order 80-123), § 220-52-066, filed 9/17/80; Order 807, § 220-52-066, filed 1/2/69, effective 2/1/69. Formerly WAC 220-52-060 (5) and (6).]

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 220-340-740	Sea cucumber license reduction program.
WAC 220-340-760	Sea urchin license reduction program.

OTS-3552.1

AMENDATORY SECTION (Amending WSR 21-24-031, filed 11/22/21, effective 1/1/22)

WAC 220-340-420 Commercial crab fishery—Unlawful acts. (1) **Crab size and sex restrictions.** It is unlawful for any person acting for commercial purposes to take, possess, deliver, or otherwise control:

(a) Any female Dungeness crab; or

(b) Any male Dungeness crab measuring less than 6-1/4 inches, caliper measurement, at the widest part of the shell immediately in front of the points (tips).

(2) Violation of subsection (1) of this section is a gross misdemeanor or class C felony depending on the value of fish or shellfish taken, possessed, or delivered, punishable under RCW 77.15.550 (1)(c).

(3) **Incidental catch may not be retained.** It is unlawful to retain salmon, food fish, or any shellfish other than octopus that is taken incidental to any commercial crab fishing.

(4) **Net fishing boats must not have crab on board.** It is unlawful for any person to possess any crab on board a vessel geared or equipped with commercial net fishing gear while fishing with the net gear for commercial purposes or while commercial quantities of food fish or shellfish are on board. Violation of this subsection is a gross misdemeanor or class C felony punishable under RCW 77.15.550(1), depending on the quantity of crab taken or possessed.

(5) **Area must be open to commercial crabbing.** It is unlawful for any person to set, maintain, or operate any baited or unbaited shellfish pots for taking crab for commercial purposes in any area or time that is not open for commercial crabbing by rule of the department, except when acting lawfully under the authority of a valid gear recovery permit as provided in WAC 220-340-450.

(6) Violation of subsection (5) of this section is a gross misdemeanor or class C felony punishable under RCW 77.15.550, or a gross misdemeanor punishable under RCW 77.15.522 depending on the circumstances of the violation.

(7) **When it is unlawful to buy or land crab from the ocean without a crab vessel inspection.** It is unlawful for any fisher or wholesale fish buyer to land or purchase Dungeness crab taken from Grays Harbor, Willapa Bay, the Columbia River, or Washington coastal or adjacent waters of the Pacific Ocean from any vessel that has not been issued a Washington crab vessel inspection certificate during the first 30 days following the opening of a coastal crab season.

(a) Authorized department personnel will perform inspections for Washington crab vessel inspection certificates no earlier than 12 hours prior to the opening of the coastal crab season and during the following 30-day period.

(b) A Washington crab vessel inspection certificate may be issued to vessels made available for inspection at a Washington coastal port that:

(i) Are properly licensed commercial crab fishing; and

(ii) Contain no Dungeness crab on board the vessel.

(8) Violation of subsection (7) of this section is a gross misdemeanor, punishable under RCW 77.15.550 (1)(a) Violation of commercial fishing area or time—Penalty.

(9) ((**~~Coastal - Barging of crab pots by undesignated vessels.~~** ~~It is unlawful for a vessel not designated on a Dungeness crab coastal fishery license to deploy crab pot gear except under the following conditions:~~

~~(a)~~)) **Barging of crab pots by undesignated vessels.** It is unlawful for a vessel not designated on a Dungeness crab coastal or Puget Sound fishery license to deploy crab pot gear except under the following conditions:

(a) **Coastal**

(i) The vessel deploys pot gear only during the 73-hour period immediately preceding the season opening date and during the 48-hour period immediately following the season opening date;

((~~(b)~~)) (ii) The undesignated vessel carries no more than 250 crab pots at any one time; and

((~~(c)~~)) (iii) The primary or alternate operator of the crab pot gear named on the license associated with the gear is on board the undesignated vessel while the gear is being deployed.

(b) **Puget Sound**

(i) The vessel deploys pot gear only during the 48-hour period immediately following the initial season opening date and time;

(ii) The primary or alternate operator designated on the license associated with the barged gear is on board the nondesignated vessel ("barge" vessel) while the gear is being deployed; and

(iii) The Puget Sound commercial crab license holder who owns the gear intended for barging has provided notice to the department via email at crab.report@dfw.wa.gov at least 24 hours in advance of the fishery opening date. Notice must include the following information:

(A) Name and license number(s) of the owner of the gear being barged;

(B) Name of the designated primary operator, if different from the licensed owner;

(C) Name of the alternate operator, if used to deploy pots from a nondesignated vessel;

(D) Buoy brand number and number of pots to be deployed from a nondesignated vessel;

(E) Name and identification numbers (WN and/or Coast Guard) of the nondesignated vessel;

(F) Puget Sound Crab Management Region or set location.

(10) Violation of subsection (9) of this section is a gross misdemeanor or class C felony punishable under RCW 77.15.500 Commercial fishing without a license—Penalty, depending on the circumstances of the violation.

(11) **Storing crab prior to delivery to an original receiver, Puget Sound.** It is unlawful for a Puget Sound commercial crab license

holder to store crab prior to delivery to an original receiver, except under the following conditions:

(a) It is unlawful to store crab for more than 10 days prior to delivery to an original receiver.

(b) All crab that have been removed from a vessel and are not immediately delivered to an original receiver must be stored in containers labeled with the following:

(i) Date of harvest;

(ii) An estimate of pounds of crab contained;

(iii) Either the Marine Fish-Shellfish (MFSF) Catch Reporting Area or the Crab Management Region from which the catch originated;

(iv) Containers used for storing crab removed from a vessel and not delivered to an original receiver by 5:00 p.m. of the day following the day of harvest must additionally be labeled with the commercial fish and shellfish transportation ticket number(s).

(c) Storage of crab is subject to the reporting requirements described in WAC 220-352-340.

[Statutory Authority: RCW 77.04.020, 77.12.045, and 77.12.047. WSR 21-24-031 (Order 21-259), § 220-340-420, filed 11/22/21, effective 1/1/22. Statutory Authority: RCW 77.04.090, 77.04.130, 77.15.568, 77.08.010, 77.65.510, 77.65.515, and 77.65.520. WSR 17-22-100, § 220-340-420, filed 10/30/17, effective 1/1/18. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-340-420, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 12-23-016 (Order 12-267), § 220-52-040, filed 11/9/12, effective 12/10/12. Statutory Authority: RCW 77.12.047 and 77.04.020. WSR 09-18-075 (Order 09-183), § 220-52-040, filed 8/31/09, effective 10/1/09. Statutory Authority: RCW 77.12.047. WSR 07-23-090 (Order 07-285), § 220-52-040, filed 11/20/07, effective 12/21/07; WSR 05-21-068 (Order 05-246), § 220-52-040, filed 10/14/05, effective 11/14/05; WSR 01-20-066 (Order 01-219), § 220-52-040, filed 9/28/01, effective 10/29/01; WSR 01-18-005 (Order 01-180), § 220-52-040, filed 8/22/01, effective 9/22/01; WSR 01-11-009 (Order 01-74), § 220-52-040, filed 5/3/01, effective 6/3/01; WSR 00-18-005 (Order 00-164), § 220-52-040, filed 8/23/00, effective 9/23/00. Statutory Authority: RCW 75.08.080. WSR 98-19-012 (Order 98-185), § 220-52-040, filed 9/4/98, effective 10/5/98; WSR 98-05-043, § 220-52-040, filed 2/11/98, effective 3/14/98; WSR 97-08-052 (Order 97-55), § 220-52-040, filed 3/31/97, effective 5/1/97; WSR 94-12-009 (Order 94-23), § 220-52-040, filed 5/19/94, effective 6/19/94; WSR 91-10-024 (Order 91-22), § 220-52-040, filed 4/23/91, effective 5/24/91; WSR 85-01-010 (Order 84-214), § 220-52-040, filed 12/7/84; WSR 84-08-014 (Order 84-24), § 220-52-040, filed 3/27/84; WSR 83-01-026 (Order 82-221), § 220-52-040, filed 12/8/82; WSR 80-13-064 (Order 80-123), § 220-52-040, filed 9/17/80; WSR 79-02-053 (Order 79-6), § 220-52-040, filed 1/30/79; Order 77-145, § 220-52-040, filed 12/13/77; Order 76-152, § 220-52-040, filed 12/17/76; Order 76-26, § 220-52-040, filed 1:45 p.m., 4/20/76; Order 1045, § 220-52-040, filed 3/8/73; Order 807, § 220-52-040, filed 1/2/69, effective 2/1/69; subsections 1, 5, 6, from Orders 409 and 256, filed 3/1/60; subsection 2 from Orders 500 and 256, filed 3/1/60; subsection 3 from Order 528, filed 6/1/61; Order 525, filed 5/3/61; Order 507, filed 4/8/60; Orders 409 and 256, filed 3/1/60; subsection 4 from Order 528, filed 6/1/61; Order 525, filed 5/3/61; Orders 409 and 256, filed 3/1/60; subsection 7 from Orders 414 and 256, filed

3/1/60; subsection 8 from Orders 410 and 256, filed 3/1/60; subsection 9 from Order 409, filed 9/14/56.]

AMENDATORY SECTION (Amending WSR 21-24-031, filed 11/22/21, effective 1/1/22)

WAC 220-340-430 Commercial crab fishery—Gear requirements. (1) **Buoy tag and pot tag required.**

(a) It is unlawful to place in the water, pull from the water, possess on the water, or transport on the water any crab buoy or crab pot without an attached buoy tag and pot tag that meet the requirements of this section, except as provided by (b) and (c) of this subsection. A violation of this subsection is punishable under RCW 77.15.520 Commercial fishing—Unlawful gear or methods—Penalty.

(b) Persons operating under a valid coastal gear recovery permit as provided in WAC 220-340-440 may possess crab pots or buoys missing tags or bearing the tags of another license holder, provided the permittee adheres to provisions of the permit. Failure to adhere to the provisions of the permit is a gross misdemeanor, punishable under RCW 77.15.750 Unlawful use of a department permit—Penalty.

(c) Persons operating under a valid coastal gear transport permit as provided in WAC 220-340-440 may possess crab pots or buoys bearing the tags issued by another state, provided the permittee adheres to provisions of the permit. Failure to adhere to the provisions of the permit is a gross misdemeanor, punishable under RCW 77.15.750 Unlawful use of a department permit—Penalty.

(2) **Commercial crab fishery pot tag requirements:** Each shellfish pot used in the commercial crab fishery must have a durable, nonbiodegradable tag securely attached to the pot that is permanently and legibly marked with the license owner's name or license number and telephone number. If the tag information is illegible, or the tag is lost for any reason, the pot is not in compliance with state law. A violation of this subsection is punishable under RCW 77.15.520 Commercial fishing—Unlawful gear or methods—Penalty.

(3) **Commercial crab fishery buoy tag requirements.**

(a) The department issues crab pot buoy tags to the owner of each commercial crab fishery license upon payment of an annual buoy tag fee per crab pot buoy tag. Prior to setting gear, each Puget Sound crab license holder must purchase 100 tags, and each coastal crab fisher must purchase 300 or 500 tags, depending on the crab pot limit assigned to the license.

(b) In coastal waters, except if authorized by permit issued by the director, each crab pot must have the department-issued buoy tag securely attached to the first buoy on the crab pot buoy line (the buoy closest to the crab pot), and the buoy tag must be attached to the end of the first buoy, at the end away from the crab pot buoy line.

(c) In Puget Sound, all crab buoys must have the department-issued buoy tag attached to the outermost end of the buoy line.

(d) If there is more than one buoy attached to a pot, only one buoy tag is required.

(e) All remaining, undeployed buoy tags per license per region must be onboard the designated vessel and available for immediate inspection by the department.

(f) Replacement crab buoy tags.

(i) Puget Sound: The department only issues additional tags to replace lost tags to owners of Puget Sound commercial crab fishery licenses who obtain, complete, and sign a declaration, under penalty of perjury, in the presence of an authorized department employee. The declaration must state the number of buoy tags lost, the location and date where the licensee last observed lost gear or tags, and the presumed cause of the loss.

(ii) Coastal: The department only issues replacement buoy tags for the coastal crab fishery in the case of extraordinary loss or on a case-by-case basis. Replacement buoy tags will not be issued in excess of the license holder's permanent pot limit.

(4) A violation of subsection (3) of this section is a gross misdemeanor, punishable under RCW 77.15.520 Commercial fishing—Unlawful gear or methods—Penalty.

(5) **Commercial crab fishery buoy requirements.**

(a) All buoys attached to commercial crab gear must consist of a durable material and remain floating on the water's surface when 5 pounds of weight is attached, unless otherwise authorized by permit issued by the director.

(b) It is unlawful to use bleach, antifreeze or detergent bottles, paint cans, or any other container as a buoy. The line attaching a buoy to shellfish gear must be weighted sufficiently to prevent the excess line from floating on the water's surface.

(c) No buoys attached to commercial crab gear in Puget Sound may be both red and white in color unless a minimum of 30 percent of the surface of each buoy is also prominently marked with an additional color or colors other than red or white. Red and white colors are reserved for personal use crab gear as described in WAC 220-330-020.

((~~(c)~~)) (d) It is unlawful for any coastal Dungeness crab fishery license holder to fish for crab unless the license holder has registered the buoy brand and buoy color(s) to be used with the license. A license holder may register only one unique buoy brand and one buoy color scheme with the department per license. Persons holding more than one state license must register buoy color(s) for each license that are distinctly different. The buoy color(s) will be shown in a color photograph.

(i) All buoys fished under a single license must be marked in a uniform manner with one buoy brand number registered by the license holder with the department and be of identical color or color combinations, unless otherwise authorized by permit issued from the director.

(ii) It is unlawful for a coastal Dungeness crab fishery license holder to fish for crab using any other buoy brand or color(s) than those registered with and assigned to the license by the department.

(6) **Coastal commercial crab fishery line requirements.**

(a) All crab pots used in the coastal Dungeness crab fishery shall be set up to use only the amount of line reasonably necessary to compensate for tides, currents, and weather.

(b)(i) ((~~Beginning December 1, 2020,~~)) It is unlawful for a coastal Dungeness crab fishery license holder to use line that connects the main buoy to the crab pot that is not marked sufficiently to identify it as gear used in the Washington coastal Dungeness crab fishery.

(ii) For each shellfish pot used in the Washington coastal commercial Dungeness crab fishery and rigged with line, that line must be marked with 12 inches of red in at least two places. At a minimum, 12

inches of line must be marked in red, no more than one fathom from the main buoy and no more than one fathom from the pot.

(7) Violation of subsection (5) of this section is a gross misdemeanor, punishable under RCW 77.15.520 Commercial fishing—Unlawful gear or methods—Penalty.

[Statutory Authority: RCW 77.04.020, 77.12.045, and 77.12.047. WSR 21-24-031 (Order 21-259), § 220-340-430, filed 11/22/21, effective 1/1/22; WSR 20-04-066 (Order 20-15), § 220-340-430, filed 1/31/20, effective 3/2/20. Statutory Authority: RCW 77.04.012, 77.04.055, 77.12.045, and 77.12.047. WSR 17-17-104 (Order 17-207), § 220-340-430, filed 8/18/17, effective 9/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-340-430, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.020, 77.04.055, 77.12.045, and 77.12.047. WSR 15-03-091 (Order 15-01), § 220-52-042, filed 1/21/15, effective 2/21/15. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, 77.12.045, and 77.12.047. WSR 12-23-016 (Order 12-267), § 220-52-042, filed 11/9/12, effective 12/10/12.]

OTS-3519.1

AMENDATORY SECTION (Amending WSR 18-11-052, filed 5/10/18, effective 6/10/18)

WAC 220-352-335 Puget Sound shrimp—Additional reporting requirements.

Harvesters, pot fishery

(1) License registration: Each fisher or alternate operator is required to report their intended catch area of harvest, target species (spot or nonspot), and the quantity of pounds that are being targeted prior to the deployment of any shrimp gear. Reports must be submitted via email or text to shrimp.report@dfw.wa.gov or via an electronic reporting system provided by the agency.

(2) Quick reports: Daily catch must be reported to the department by 10:00 a.m. the day after the shrimp are harvested. Reports must be submitted via email or text to shrimp.report@dfw.wa.gov or via an electronic reporting system provided by the agency. Daily catch reports must include the following information as it is recorded on the fish receiving ticket:

(a) Fisher name, buyer name, and date of sale;

(b) Quantity of pounds landed per shrimp species;

(c) Catch area and date of harvest; and

(d) The entire alphanumeric fish ticket number, including the alphabetic prefix.

(e) A fisher who is the wholesale fish buyer or limited fish seller (the original receiver) may submit a quick report per provisions of this subsection to satisfy the requirements of this subsection.

Original Receivers

((~~(1)~~)) (3) Any person originally receiving or purchasing shrimp, other than ghost shrimp, harvested with pot or trawl gear must record on the shellfish receiving ticket the appropriate catch area based on the location of harvest and the boundary definitions specified in WAC ((~~220-340-520~~)) 220-320-140.

((~~(2)~~)) (4) Quick reports: Any person originally receiving or purchasing shrimp, other than ghost shrimp, taken from Puget Sound by trawl gear or pot gear must report to the department the previous day's purchases by 10:00 a.m. the following morning.

(a) Reports must be sent ((~~by fax to 360-302-3031 or~~)) by text message or email to ((~~shrimpreport@dfw.wa.gov~~)) shrimp.report@dfw.wa.gov, or by an electronic reporting form approved by the department.

(b) Reports must include, for each fish receiving ticket prepared:

(i) The wholesale fish buyer name((~~,~~)) and number;

(ii) Fisher name((~~, and~~));

(iii) Date of sale;

((~~(ii) The fish receiving ticket number, including the first alphanumeric letter; and~~

~~(iii) The total number~~)) (iv) The entire alphanumeric fish ticket number, including the alphabetic prefix;

(v) The quantity of pounds delivered per shrimp species((~~.~~

~~(3) Alternative reporting requirements may be specified in an electronic fish receiving ticket agreement (WAC 220-352-035(3)).~~));

and

(vi) The Shrimp Region (WAC 220-320-140) and Marine Fish-Shellfish Management and Catch Reporting Area (WAC 220-301-050) from which the shrimp was harvested.

(c) Receivers who complete and submit an electronic fish receiving ticket form, which is also received by the department, per the provisions of WAC 220-352-035 are exempted from the requirements of this subsection.

[Statutory Authority: RCW 77.04.090 and 77.04.130. WSR 18-11-052 (Order 18-92), § 220-352-335, filed 5/10/18, effective 6/10/18.]

AMENDATORY SECTION (Amending WSR 18-11-052, filed 5/10/18, effective 6/10/18)

WAC 220-352-340 Puget Sound crab—Additional reporting requirements. (1) **License registration:** Puget Sound commercial crab license holders, or their designated alternate operators, must register which Crab Management Region to which gear will be deployed for each license they hold prior to the fishery opening date.

(a) Registrations must be updated when gear moves between areas.

(b) The department must be notified if gear is not going to be deployed for a period of 72 hours or longer.

(c) Registrations must be made by registering via the WDFW Puget Sound commercial crabbing web page or via email or text to crab.report@dfw.wa.gov.

(d) Reports must include the following information:

(i) Vessel operator name;

(ii) Vessel name and vessel registration number;

(iii) Permit number(s) to be fished;
(iv) Crab Management Region to be fished;
(v) Gear deployment date.

(2) **Quick reports:** Any person originally receiving or purchasing Dungeness crab taken from Puget Sound by nontreaty fishers must report to the department the previous day's purchases by 10:00 a.m. the following day.

(a) Reports must be sent ((~~to the Mill Creek Regional Office by fax to 425-338-1066, or~~)) by email or text message to ((~~crabreport@dfw.wa.gov~~)) crab.report@dfw.wa.gov, or by using the Puget Sound commercial crab reporting website.

(b) For crab originally received or purchased by a licensed fish buyer, reports must include, for each fish receiving ticket ((~~submitted~~)) completed by a licensed fish buyer:

(i) The name and department-issued license number of the wholesale fish buyer or limited fish seller;

(ii) The phone number or email address of the wholesale fish buyer or limited fish seller;

(iii) The date of ((~~delivery~~)) landing of crab ((~~to the original receiver~~)); and

(iv) The ((~~total number~~)) quantity of pounds of crab delivered, by Crab Management Region (WAC 220-320-110) or by Marine Fish-Shellfish Management and Catch Reporting Area (WAC 220-301-040).

((~~(2) Alternative reporting requirements may be specified in an electronic fish receiving ticket agreement (WAC 220-352-035(3)).~~)) (c) Receivers who complete and submit an electronic fish receiving ticket form, which is also received by the department, per the provisions of WAC 220-352-035 are exempted from the requirements of this subsection.

(3) **Shellfish transportation tickets:** If crab are transported from a vessel prior to completing a fish receiving ticket and not delivered to an original receiver by 5:00 p.m. on the day following the day of harvest, the fisher must complete and submit a commercial fish and shellfish transportation ticket per the provisions of WAC 220-352-230 and submit a transported crab quick report to the department.

(a) "Transported" is intended to include crab stored beyond 5:00 p.m. on the day following the day of harvest and prior to delivery to an original receiver.

(b) Separate commercial fish and shellfish transportation tickets must be filled out for each day's harvest that is not delivered to a licensed fish buyer by 5:00 p.m. on the day following the day of harvest.

(4) **Transported crab quick reports:** Transported crab quick reports must be submitted by the fisher and received by the department by 10:00 a.m. the day following the day crab are offloaded from the vessel for storage. Reports must be made online using the Puget Sound commercial crab reporting website or by email or text to crab.report@dfw.wa.gov. Reports must include:

(a) The name of the fisher who caught the crab;
(b) The date of harvest of the crab;
(c) Puget Sound commercial license number of the fisher who caught the crab;
(d) The vessel ID from which the crab were harvested;
(e) The number of containers used to store the crab;
(f) The approximate weight of the crab retained;
(g) Catch Reporting Area of crab harvested;

(h) The quantity of pounds of crab retained by Crab Management Region or by Marine Fish-Shellfish Management Area; and

(i) Shellfish transportation ticket number(s).

(5) **Delivery of crab previously retained beyond 5:00 p.m. on the day following the day of harvest (transported crab):** Commercial harvesters of crab in Puget Sound must report the delivery to an original receiver of all transported crab by 10:00 a.m. the day following delivery to an original receiver. Reports must be made using the department-provided electronic forms on the Puget Sound commercial crab reporting website, or by email or text to crab.report@dfw.wa.gov. Reports must contain:

(a) Fisher name;

(b) WDFW-issued vessel ID;

(c) Puget Sound commercial license number;

(d) Date of sale;

(e) Dealer name;

(f) Commercial shellfish transportation ticket number(s) associated with the delivered crab; and

(g) Fish receiving ticket number(s) corresponding to landing date of delivery.

[Statutory Authority: RCW 77.04.090 and 77.04.130. WSR 18-11-052 (Order 18-92), § 220-352-340, filed 5/10/18, effective 6/10/18.]

NEW SECTION

WAC 220-352-355 Puget Sound scallop—Additional reporting requirements. (1) Any wholesale dealer acting in the capacity of an original receiver and receiving scallops from nontreaty fishers must report to the department each day's purchases by 10:00 a.m. the following day.

(a) Reports must be made by text message or email to scallopreport@dfw.wa.gov.

(b) Reports must include, for each ticket prepared:

(i) The licensed fish buyer name, fisher name, date of landing, and the name of the port of landings;

(ii) The entire alphanumeric fish ticket number, including the alphabetic prefix;

(iii) The quantity of pounds received from each Marine Fish-Shellfish Management and Catch Reporting Area; and

(iv) The number of pounds that will be transported to a Washington department of health approved wet storage facility, the location of the approved wet storage facility, and the name of the operator of the wet storage facility.

(2) Alternative reporting requirements may be specified in an electronic fish receiving ticket agreement (WAC 220-352-035).

[]

WSR 22-02-066
PROPOSED RULES
WASHINGTON STATE UNIVERSITY
[Filed January 5, 2022, 8:57 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-23-101.

Title of Rule and Other Identifying Information: Chapter 504-26 WAC, Standards of conduct for students, specifically WAC 504-26-045 Evidence.

Hearing Location(s): On February 10, 2022, at 4:00 p.m., Zoom meeting. Join from PC, Mac, Linux, iOS, or Android https://wsu.zoom.us/j/95177761871?pwd=Q05uczlodFM1cjVOTlk2MXVrN1NiUT09, Meeting ID 951 7776 1871, Passcode 021022; or join by telephone (long distance) +1-253-215-8782, or 95177761871# US (one tap mobile call). For international telephone number, see https://wsu.zoom.us/u/aBNjAy2tc (enter the meeting ID and passcode when prompted). Due to the public health emergency resulting from COVID-19 and guidance/directives from the Washington department of health, no in-person hearing locations are being scheduled for this hearing.

Date of Intended Adoption: March 11, 2022.

Submit Written Comments to: Deborah Bartlett, Rules Coordinator, P.O. Box 641225, Pullman, WA 99164-1225, email prf.forms@wsu.edu, fax 509-335-3969, by February 10, 2022.

Assistance for Persons with Disabilities: Contact Joy Faerber, phone 509-335-2005, fax 509-335-3969, email prf.forms@wsu.edu, by February 8, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The university is modifying, clarifying, and updating the university's standards of conduct for students, specifically the rules regarding evidence in student conduct proceedings.

Reasons Supporting Proposal: The proposed amendment removes the requirement for written or verbal evidence to be subject to cross examination in order to be considered by the university conduct board.

On August 24, 2021, the United States Department of Education's Office of Civil Rights (OCR) announced that it would not enforce the part of 34 C.F.R. § 106.45 (b)(6)(i) regarding the prohibition against statements not subject to cross-examination and that postsecondary institutions are no longer subject to this part of the provision. OCR's announcement came as a result of a July 28, 2021, decision by the federal district court in Massachusetts. The court vacated the part of 34 C.F.R. § 106.45 (b)(6)(i) that prohibits a decision-maker from relying on statements that are not subject to cross-examination during the hearing and imposed a nationwide injunction.

Statutory Authority for Adoption: RCW 28B.30.150.

Statute Being Implemented: RCW 9.41.345(5).

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Washington State University (WSU), public.

Name of Agency Personnel Responsible for Drafting: Karen Metzner, Director, Center for Community Standards, French Administration 130, Pullman, WA 99164-1012, 509-335-4532; Implementation and Enforcement: Ellen Taylor, Interim Vice President for Student Affairs, French Administration 134, Pullman, WA 99164-1013, 509-335-4531.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. The university does not consider these rules to be significant legislative rules.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules relate only to internal governmental operations that are not subject to violation by a nongovernment party; and rules adopt, amend, or repeal a procedure, practice, or requirement relating to agency hearings; or a filing or related process requirement for applying to an agency for a license or permit.

Is exempt under RCW 19.85.025.

Explanation of exemptions: The amendments to WSU student conduct code only apply to students at WSU, and therefore do not effect [affect] business or commerce in any way.

January 5, 2022
Deborah L. Bartlett, Director
Procedures, Records, and Forms
and University Rules Coordinator

OTS-3529.1

AMENDATORY SECTION (Amending WSR 21-07-057, filed 3/15/21, effective 4/15/21)

WAC 504-26-045 Evidence. (1) ((~~Except as provided in subsection (2) of this section,~~)) Evidence, including hearsay evidence, is admissible in student conduct proceedings if, in the judgment of the conduct officer or presiding officer, it is the kind of evidence that reasonably prudent persons are accustomed to rely on in the conduct of their affairs. The conduct officer or presiding officer determines the admissibility and relevance of all information and evidence.

(2) ((~~In conduct board hearings to resolve allegations that, if proven, would constitute Title IX sexual harassment within the university's Title IX jurisdiction, witnesses, including parties, must submit to cross-examination for their written or verbal statements to be considered by the university conduct board.~~

~~(3)~~)) The sexual history of a complainant is not relevant and not admissible in a student conduct proceeding unless such evidence about the complainant's sexual predisposition or prior sexual behavior is offered to prove that someone other than the respondent committed the conduct alleged by the complainant, or if the questions and evidence concern specific incidents of the complainant's prior sexual behavior with respect to the respondent and are offered to prove consent.

((~~(4)~~)) (3) Students may choose to remain silent during conduct proceedings, recognizing that they give up the opportunity to explain their version of events and that the decision is made based on the information presented at the hearing. No student must be compelled to give self-incriminating evidence, and no negative inference will be drawn from a student's refusal to participate in any stage of the conduct proceeding. If either party does not attend or participate in a

hearing, the conduct officer or conduct board may resolve the matter based on the information available at the time of the hearing.

[Statutory Authority: RCW 28B.30.150. WSR 21-07-057, § 504-26-045, filed 3/15/21, effective 4/15/21; WSR 18-23-083, § 504-26-045, filed 11/19/18, effective 12/20/18.]

WSR 22-02-067
PROPOSED RULES
DEPARTMENT OF
FISH AND WILDLIFE
[Filed January 5, 2022, 9:15 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-21-069 on October 18, 2021.

Title of Rule and Other Identifying Information: The department is amending several regulations in WAC chapters that affect harvesting clams and oysters for personal use and include the following: WAC 220-330-110 Clams other than razor clams, and mussels—Areas and seasons, 220-330-140 Oysters—Areas and seasons, and 220-340-130 Oyster drill restricted areas—Puget Sound.

Hearing Location(s): On February 8, 2022, at 5:30 p.m., via Zoom webinar https://us02web.zoom.us/webinar/register/WN_JGC5rMyuQI-AbQJRobfk2Q. The public may participate in the meeting. Register in advance for this webinar https://us02web.zoom.us/webinar/register/WN_JGC5rMyuQI-AbQJRobfk2Q.

Date of Intended Adoption: On or after February 14, 2022.

Submit Written Comments to: Kelly Henderson, P.O. Box 43152, Olympia, WA 98501, email 2022ClamOyster102@PublicInput.com, web page https://publicinput.com/2022ClamOyster102, phone 855-925-2801, project code 7744, by February 9, 2022.

Assistance for Persons with Disabilities: Contact Title VI/ADA compliance coordinator, phone 360-902-2349, TTY 1-800-833-6388 or 711, email Title6@dfw.wa.gov, by February 9, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: In accordance with recent clam and oyster survey data, recreational harvest projections, comanagement agreements, and public health considerations, recreational clam and oyster seasons require extension or shortening on some public beaches. This rule proposal reflects these changes. Additionally, this proposal updates beach designations according to shellfish pest status by adding restricted designation to three new beaches due to the discovery of invasive Japanese oyster drills on these beaches. This designation is necessary to prevent the spread of pest infestations harmful to shellfish.

Reasons Supporting Proposal: The amendments to the rules will perpetuate shellfish resources while maximizing recreational fishing opportunity and protecting public health; and helping to prevent the spread of a harmful shellfish pest organism.

Statutory Authority for Adoption: RCW 77.04.012, 77.04.055, 77.12.045, and 77.12.047.

Statute Being Implemented: RCW 77.04.012, 77.04.055, 77.12.045, and 77.12.047.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Governmental.

Name of Agency Personnel Responsible for Drafting: Camille Speck, 375 Hudson Street, Port Townsend, WA 98368, 360-302-3030; Implementation: Kelly Cunningham, 1111 Washington Street S.E., Olympia, WA 98501, 360-902-2325; and Enforcement: Chief Steve Bear, 1111 Washington Street S.E., Olympia, WA 98501, 360-902-2373.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. This rule proposal does not require a cost-benefit analysis per RCW 34.05.328 (5)(a)(i).

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4). This chapter does not apply to the adoption of a rule if an agency is able to demonstrate that the proposed rule does not affect small businesses.

Explanation of exemptions: Relative to the recreational clam and oyster seasons portion of this proposal, the department is exempt from the requirements of chapter 19.85 RCW because the proposed recreational fishing rules do not regulate small businesses; these rule changes clarify dates for anticipated open and closed periods and areas for harvesting clams and oysters for personal use. There are no anticipated professional services required to comply.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. Relative to the oyster drill restricted areas portion of this proposal (WAC 220-340-130). The proposed designation of new oyster drill restricted areas does not have an anticipated significant impact on small businesses, as these areas are: (1) Used for recreational harvest, the transfer of shellfish from these locations is unlawful without a permit per WAC 220-340-150, the removal of oyster shells is already unlawful per WAC 220-330-010, and because recreational shellfish does not generally (lawfully) involve the return of shellfish to state waters once removed; (2) used for periodic tribal commercial and C&S harvest, which already operate with consideration to the restricted area landscape under conditions long-established and agreed to in comanagement plans; (3) do not contain any shellfish hatcheries, nurseries, or suppliers of shellfish seed stock, and the single active farming operation in one of the areas does not have a need to directly transfer shellfish from this area for return to state waters as evidenced by the absence of any relevant permits by this operator on file with the agency as required by WAC 220-340-150; (4) potential buyers of shellfish from commercial harvest in these areas are already adapted to operating with consideration to oyster drill restricted areas and a significant number of them are located, or have locations, within other existing restricted areas, and the agency manages this with its existing permitting system; and (5) the department is not aware of potential buyers of commercially harvested shellfish from these areas needing to place those shellfish back into state waters for storage prior to market, as evidenced by the long absence of permit applications for such transfers.

Based on the department's analysis, the proposed rules are unlikely to impose more-than-minor costs to small businesses.

January 5, 2022
Annie Szvetecz
Rules Coordinator

OTS-3546.1

AMENDATORY SECTION (Amending WSR 21-06-060, filed 2/26/21, effective 3/29/21)

WAC 220-330-110 Clams other than razor clams, and mussels—Areas and seasons. It is lawful to take, dig for, and possess clams and mussels for personal use from public tidelands year-round, except the following restrictions apply to the public tidelands at the beaches listed below:

(1) Ala Spit: All public tidelands of Ala Spit are open May 1 through May 31 only.

(2) Alki Park: Closed year-round.

(3) Alki Point: Closed year-round.

(4) Bay Center Oyster Reserve (Willapa Harbor reserves): Palix River channel, extending from the Palix River bridge to beyond Bay Center to the north of Goose Point, is closed year-round.

(5) Bay View State Park: Closed year-round.

(6) Belfair State Park: Open ((~~January 1 through March 31 and August 1~~)) July 15 through September 30 only.

(7) Blaine Marine Park: Closed year-round.

(8) Blake Island State Park Marina: Closed year-round.

(9) Blowers Bluff North: Closed year-round.

(10) Brown's Point Lighthouse: Closed year-round.

(11) Budd Inlet: All state-owned tidelands of Budd Inlet south of a line drawn from the southern boundary of Burfoot Park west to the opposite shore near 68th Avenue N.W. are closed year-round.

(12) Cama Beach State Park: Closed year-round.

(13) Camano Island State Park: Closed year-round.

(14) Chuckanut Bay: All tidelands of Chuckanut Bay north of the railroad trestle are closed year-round.

(15) Coupeville: Closed year-round.

(16) Cultus Bay: Closed year-round.

(17) Dash Point County Park: Closed year-round.

(18) Dash Point State Park: Open September 1 through May 31 only.

((~~(18)~~)) (19) Dave Mackie County Park: Closed year-round.

((~~(19)~~)) (20) Deception Pass State Park: Open year-round, except the tidelands of Rosario Bay from the northern park boundary, south to Rosario Head (((~~48° 25.03'N, 122° 39.98'W~~)) 48.4172, -122.6663) are closed year-round.

((~~(20)~~)) (21) Des Moines City Park: Closed year-round.

((~~(21)~~)) (22) Discovery Park: Closed year-round.

((~~(22)~~)) (23) DNR-142: Closed year-round.

((~~(23)~~)) (24) DNR-144 (Sleeper): Closed year-round.

((~~(24)~~)) (25) Dockton County Park: Closed year-round.

((~~(25)~~)) (26) Dosewallips State Park: The area defined by boundary markers and signs posted on the beach is open ((~~June~~)) July 1 through September 30 only.

((~~(26)~~)) (27) Dosewallips State Park South: Closed year-round south of the line defined by boundary markers and signs posted on the beach.

((~~(27)~~)) (28) Drayton Harbor: All public tidelands of Drayton Harbor are open year-round, except tidelands identified as prohibited ((~~or unclassified~~)) by the department of health and defined by boundary markers and signs posted on the beach are closed year-round.

((~~(28)~~)) (29) Duckabush: Open November 1 through April 30 only.

((~~(29)~~)) (30) Dungeness Spit and Dungeness National Wildlife Refuge Tidelands: Open May 15 through September 30 only.

((~~(30)~~)) (31) Eagle Creek: Open ((~~June~~)) July 1 through August 31 only.

((~~(31)~~)) (32) East San de Fuca: Tidelands east of the Rolling Hills Glencairn Community dock are closed year-round.

((~~(32)~~)) (33) Eld Inlet Oyster Reserves (Mud Bay reserves): Closed year-round.

((~~(33)~~)) (34) English Camp: Tidelands between the National Park Service dinghy dock to the southern park boundary are closed year-round.

((~~(34)~~)) (35) Evergreen Rotary Park (Port Washington Narrows): Closed year-round.

((~~(35)~~)) (36) Fay Bainbridge Park: Closed year-round.

((~~(36)~~)) (37) Fort Flagler State Park: Open January 1 through April 15 and ((~~June~~)) July 1 through December 31 only, except that portion of Rat Island and the spit west and south of the park boundary is closed year-round from two white posts on the north end of the island at the vegetation line south to the end of the island.

((~~(37)~~)) (38) Freeland County Park: Open October 1 through May 31 only.

((~~(38)~~)) (39) Frye Cove County Park: Open May 1 through May 31 only.

((~~(39)~~)) (40) Fudge Point State Park: Closed year-round.

((~~(40)~~)) (41) Gertrude Island: All tidelands of Gertrude Island are closed year-round.

((~~(41)~~)) (42) Golden Gardens: Closed year-round.

((~~(42)~~)) (43) Graveyard Spit: Closed year-round.

((~~(43)~~)) (44) Guillemot Cove Nature Reserve: Closed year-round.

((~~(44)~~)) (45) Guss Island: All tidelands of Guss Island are closed year-round.

((~~(45) Hoodsport: Tidelands at Hoodsport Salmon Hatchery are closed year-round.~~))

(46) Hope Island State Park (South Puget Sound): Open May 1 through May 31 only.

(47) Howarth Park/Darlington Beach: Closed year-round.

(48) Illahee State Park: Open April 1 through July 31 only.

(49) Indian Island County Park/Lagoon Beach: From the jetty boundary with Port Townsend Ship Canal east to the beach access stairs on Flagler Road near milepost 4 open September 1 through September 30 only.

(50) Ingvald J. Gronvold Park: Open April 1 through April 30 only.

(51) Joemma Beach State Park: Closed year-round.

((~~(51)~~)) (52) Kayak Point County Park: Closed year-round.

((~~(52)~~)) (53) Kitsap Memorial State Park: Closed year-round.

((~~(53)~~)) (54) Kopachuck State Park: Open April 1 through May 31 only.

((~~(54)~~)) (55) Lent Landing (Port Washington Narrows): Closed year-round.

((~~(55)~~)) (56) Liberty Bay: All state-owned tidelands in Liberty Bay north and west of the Keyport Naval Supply Center are closed year-round, except the western shoreline of Liberty Bay from the unincorporated Kitsap County line south to Virginia Point is open October 1 through April 30 only.

((~~(56)~~)) (57) Lincoln Park: Closed year-round.

((~~(57)~~)) (58) Lions Park (Bremerton): Closed year-round.

((~~(58)~~)) (59) Lofall: Closed year-round.

((~~(59)~~)) (60) Long Island Oyster Reserve, Diamond Point and Pinnacle Rock (Willapa Harbor reserves): Diamond Point on the northwest side of Long Island between reserve monuments 39 and 41 and Pinnacle Rock on the southwest side of Long Island between reserve monuments 58 and 59 is open year-round.

((~~(60)~~)) (61) Long Island Slough Oyster Reserve (Willapa Harbor reserves): Closed year-round.

((~~(61)~~)) (62) Long Point West: Closed year-round.

((~~(62)~~)) (63) Lower Roto Vista Park: Closed year-round.

((~~(63)~~)) (64) March Point Recreation Area: Closed year-round.

((~~(64)~~)) (65) McNeil Island: All tidelands of McNeil Island are closed year-round.

((~~(65)~~)) (66) Meadowdale County Park: Closed year-round.

((~~(66)~~)) (67) Mee-Kwa-Mooks Park: Closed year-round.

((~~(67)~~)) (68) Monroe Landing: Closed year-round.

((~~(68)~~)) (69) Mukilteo: Closed year-round.

((~~(69)~~)) (70) Mystery Bay State Park: Open October 1 through April 30 only.

((~~(70)~~)) (71) Nahcotta Tidelands: State-owned tidelands east of the Willapa Bay Field Station and Nahcotta Tidelands interpretive site are closed year-round.

((~~(71)~~)) (72) Nemah Oyster Reserve (Willapa Harbor reserves): Oyster reserves between reserve monuments 10 and 11 are closed year-round.

((~~(72)~~)) (73) Nisqually National Wildlife Refuge: All state-owned tidelands of the Nisqually River delta south of a line drawn from Luhr Beach boat ramp to Sequalitchew Creek are closed year-round.

((~~(73)~~)) (74) North Bay (Case Inlet): All state-owned tidelands north of the power transmission lines and those extending 1,900 feet south of the power transmission lines along the eastern shore are open March 1 through April 30 and September 1 through September 30, from one hour before official sunrise until one hour after official sunset only.

((~~(74)~~)) (75) North Beach County Park: Closed year-round.

((~~(75)~~)) (76) Oak Bay County Park: Closed year-round.

((~~(76)~~)) (77) Oak Harbor: Closed year-round.

((~~(77)~~)) (78) Oak Harbor Beach Park: Closed year-round.

((~~(78)~~)) (79) Oak Harbor City Park: Closed year-round.

((~~(79)~~)) (80) Oakland Bay: State-owned oyster reserves are open year-round except in areas defined by boundary markers and signs posted on the beach.

((~~(80)~~)) (81) Old Mill County Park (Silverdale): Closed year-round.

((~~(81)~~)) (82) Olympia Shoal: Closed year-round.

((~~(82)~~)) (83) Pat Carey Vista Park: Closed year-round.

((~~(83)~~)) (84) Penrose Point State Park: Open March 1 through April 30 only, except that portion of Mayo Cove within the commercially prohibited growing area is closed year-round.

((~~(84)~~)) (85) Picnic Point County Park: Closed year-round.

((~~(85)~~)) (86) Pitship Point: Closed year-round.

((~~(86)~~)) (87) Pitt Island: All tidelands on Pitt Island are closed year-round.

((~~(87)~~)) (88) Pleasant Harbor State Park: Closed year-round.

((~~(88)~~)) (89) Pleasant Harbor WDFW Boat Launch: Closed year-round.

((~~(89)~~)) (90) Point Defiance: Closed year-round.

((~~(90)~~)) (91) Point Whitney Tidelands and Point Whitney Lagoon: ((~~Open January 1 through April 30 only~~)) Closed year-round.

((~~(91)~~)) (92) Port Angeles Harbor: All public tidelands of Port Angeles Harbor and interior tidelands of Ediz Hook are closed year-round.

((~~(92)~~)) (93) Port Gamble Heritage Park Tidelands: Open ((~~January~~)) September 1 through ((~~April~~)) September 30 only.

((~~(93)~~)) (94) Port Gardner: Closed year-round.

((~~(94)~~)) (95) Port Townsend Ship Canal/Portage Beach: ((~~Closed year-round~~)) Open September 1 through September 30 only.

((~~(95)~~)) (96) Post Point: Closed year-round.

((~~(96)~~)) (97) Potlatch State Park and Potlatch DNR tidelands: Open April 1 through ((~~April 30~~)) May 15 only.

((~~(97)~~)) (98) Priest Point County Park: Closed year-round.

((~~(98)~~)) (99) Purdy Spit County Park: The southern shore of the spit from the boat ramp east to the southern utility tower near Purdy Bridge is open April 1 through April 30 only.

((~~(99)~~)) (100) Quilcene Bay Tidelands: All state-owned tidelands in Quilcene Bay north of a line drawn from the Quilcene Boat Haven to Fisherman's Point are closed to the harvest of clams year-round, except those state-owned tidelands on the west side of the bay north of the Quilcene Boat Haven are open year-round.

((~~(100)~~)) (101) Quilcene Bay Boat Ramp: Open January 1 through April 30 only.

((~~(101)~~)) (102) Retsil: Closed year-round.

((~~(102)~~)) (103) Richmond Beach Saltwater Park: Closed year-round.

((~~(103)~~)) (104) Salt Creek Recreation Area (DNR-419): Closed year-round.

((~~(104)~~)) (105) Saltair Beach (Kingston Ferry Terminal): Closed year-round.

((~~(105)~~)) (106) Saltwater State Park: Closed year-round.

((~~(106)~~)) (107) Samish Bay: Public tidelands of Samish Bay between Scotts Point and a point on the shore (((~~48° 34.47'N, 122° 26.64'W~~)) 48.5745, -122.4440) are closed year-round.

((~~(107)~~)) (108) Scenic Beach State Park: Closed year-round.

((~~(108)~~)) (109) Seahurst County Park: Closed year-round.

((~~(109)~~)) (110) Semiahmoo County Park: Closed year-round.

((~~(110)~~)) (111) Semiahmoo Marina: Closed year-round.

((~~(111)~~)) (112) Sequim Bay State Park: Open January 1 through ((~~June~~)) April 30 only.

((~~(112)~~)) (113) Shine Tidelands State Park: Open January 1 through May 15 only.

((~~(113)~~)) (114) Silverdale Waterfront Park: Closed year-round.

((~~(114)~~)) (115) Sinclair Inlet: All public tidelands of Sinclair Inlet west of a line drawn from the intersection of Bancroft Road and Beach Drive East northerly to Point Herron are closed year-round.

((~~(115)~~)) (116) Skagit Bay Estuary Wildlife Areas: All public tidelands of Skagit Bay Estuary Wildlife Area, Fir Island Farms Reserve Wildlife Area, Island Wildlife Area, Camano Island Wildlife Area and Leque Island Wildlife Area are closed year-round.

((~~(116)~~)) (117) South Carkeek Park: Closed year-round.

((~~(117)~~)) (118) Southworth: Closed year-round.

((~~(118)~~)) (119) Spencer Spit State Park: Open March 1 through July 31 only.

((~~(119)~~)) (120) Stuart Island State Park – Reid Harbor (South Beach): Closed year-round.

((~~(120)~~)) (121) Taylor Bay: Closed year-round.

((~~(121)~~)) (122) Totten Inlet Oyster Reserve (Oyster Bay reserves): Closed year-round.

((~~(122)~~)) (123) Triton Cove Tidelands: Open June 1 through August 31 only.

((~~(123)~~)) (124) Twanoh State Park: Open August 1 through September 30 only.

((~~(124)~~)) (125) Walker County Park: Closed year-round.

((~~(125)~~)) (126) WDFW Hoodsport Hatchery: Tidelands at Hoodsport Salmon Hatchery are closed year-round.

(127) West Dewatto: DNR Beach 44A open July 1 through September 30 only.

((~~(126)~~)) (128) West Pass Access: Closed year-round.

((~~(127)~~)) (129) West Penn Cove: From the property boundary at the Grasser's Lagoon access on Highway 20 to the dock extending across the tidelands from Captain Whidbey Inn on Madrona Road is open ((~~August 1~~)) July 15 through ((~~September 30~~)) August 31 only.

((~~(128)~~)) (130) Willapa River Oyster Reserve (Willapa Harbor reserves): Reserves located in the Willapa River channel extending west and upriver from a point approximately one-quarter mile from the blinker light marking the division of Willapa River channel and the North River channel are closed year-round.

((~~(129)~~)) (131) Wolfe Property State Park: Open January 1 through May 15 only.

((~~(130)~~)) (132) Woodard Bay Natural Resource Conservation Area: Closed year-round.

((~~(131)~~)) (133) It is lawful to take, dig for, and possess clams and mussels, not including razor clams, for personal use from the Pacific Ocean beaches from November 1 through March 31 only.

[Statutory Authority: RCW 77.04.012, 77.04.020, 77.04.055, 77.12.045, and 77.12.047. WSR 21-06-060 (Order 21-24), § 220-330-110, filed 2/26/21, effective 3/29/21; WSR 20-05-019 (Order 20-21), § 220-330-110, filed 2/7/20, effective 3/9/20; WSR 19-08-044 (Order 19-51), § 220-330-110, filed 3/29/19, effective 4/29/19; WSR 18-11-077 (Order 18-99), § 220-330-110, filed 5/17/18, effective 6/17/18; WSR 17-18-004 (Order 17-214), § 220-330-110, filed 8/24/17, effective 9/24/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-330-110, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.020, 77.04-055 [77.04.055], 77.12.045, and 77.12.047. WSR 16-07-012 (Order 16-41), § 220-56-350, filed 3/4/16, effective 4/4/16. Statutory Authority: RCW 77.04.012, 77.04.055, and 77.12.047. WSR 15-09-046, § 220-56-350, filed 4/10/15, effective 5/11/15. Statutory Authority: RCW 77.04.012, 77.04.020, 77.12.045, and 77.12.047. WSR 14-07-057 (Order 14-61), § 220-56-350, filed 3/14/14, effective 4/14/14. Statutory Authority: RCW 77.04.020 and 77.12.047. WSR 13-06-034 (Order 13-44), § 220-56-350, filed 3/1/13, effective 4/1/13. Statutory Authority: RCW 77.04.020, 77.12.045, and 77.12.047. WSR 12-07-011 (Order 12-31), § 220-56-350, filed 3/12/12, effective 4/12/12; WSR 11-09-073 (Order 11-66), § 220-56-350, filed 4/19/11, effective 5/20/11. Statutory Authority: RCW 77.12.047. WSR 10-07-105 (Order 10-64), § 220-56-350, filed 3/19/10, effective 5/1/10; WSR 09-06-042 (Order 09-27), § 220-56-350, filed 2/25/09, effective 5/1/09; WSR 08-07-003, § 220-56-350, filed 3/5/08, effective 4/5/08; WSR 07-05-051 (Order 07-22), § 220-56-350, filed 2/16/07, effective 3/19/07; WSR 06-05-085 (Order 06-23), § 220-56-350, filed 2/14/06, effective 5/1/06; WSR 05-05-035 (Order 05-15), § 220-56-350, filed

2/10/05, effective 5/1/05; WSR 04-07-009 (Order 04-39), § 220-56-350, filed 3/4/04, effective 5/1/04; WSR 03-05-057 (Order 03-24), § 220-56-350, filed 2/14/03, effective 5/1/03; WSR 02-17-019 (Order 02-193), § 220-56-350, filed 8/9/02, effective 9/9/02; WSR 02-08-048 (Order 02-53), § 220-56-350, filed 3/29/02, effective 5/1/02; WSR 01-06-036 (Order 01-24), § 220-56-350, filed 3/5/01, effective 5/1/01. Statutory Authority: 2000 c 107 § 7. WSR 00-16-091 (Order 00-134), § 220-56-350, filed 7/31/00, effective 8/31/00. Statutory Authority: RCW 75.08.080, 77.12.040. WSR 00-08-038 (Order 00-29), § 220-56-350, filed 3/29/00, effective 5/1/00; WSR 99-08-029 (Order 99-13), § 220-56-350, filed 3/30/99, effective 5/1/99; WSR 98-06-031, § 220-56-350, filed 2/26/98, effective 5/1/98. Statutory Authority: RCW 75.08.080. WSR 97-07-078 (Order 97-53), § 220-56-350, filed 3/19/97, effective 5/1/97; WSR 96-11-078 (Order 96-44), § 220-56-350, filed 5/13/96, effective 6/13/96; WSR 95-12-027 (Order 95-46), § 220-56-350, filed 5/31/95, effective 7/1/95; WSR 94-14-069, § 220-56-350, filed 7/1/94, effective 8/1/94; WSR 93-15-011, § 220-56-350, filed 7/8/93, effective 8/8/93; WSR 93-08-034 (Order 93-20), § 220-56-350, filed 3/31/93, effective 5/1/93; WSR 92-11-012 (Order 92-19), § 220-56-350, filed 5/12/92, effective 6/12/92; WSR 91-08-054 (Order 91-13), § 220-56-350, filed 4/2/91, effective 5/3/91; WSR 90-06-026, § 220-56-350, filed 2/28/90, effective 3/31/90; WSR 89-07-060 (Order 89-12), § 220-56-350, filed 3/16/89; WSR 88-10-013 (Order 88-15), § 220-56-350, filed 4/26/88; WSR 87-09-066 (Order 87-16), § 220-56-350, filed 4/21/87; WSR 86-09-020 (Order 86-08), § 220-56-350, filed 4/9/86; WSR 85-12-046 (Order 85-57), § 220-56-350, filed 6/5/85; WSR 83-07-043 (Order 83-16), § 220-56-350, filed 3/17/83; WSR 81-05-027 (Order 81-13), § 220-56-350, filed 2/17/81, effective 4/1/81; WSR 80-03-064 (Order 80-12), § 220-56-350, filed 2/27/80, effective 4/1/80. Formerly WAC 220-56-082.]

OTS-3547.1

AMENDATORY SECTION (Amending WSR 21-06-060, filed 2/26/21, effective 3/29/21)

WAC 220-330-140 Oysters—Areas and seasons. It is lawful to take and possess oysters for personal use from public tidelands year-round except the following restrictions apply to the public tidelands at the beaches listed below:

(1) Ala Spit: All public tidelands of Ala Spit open May 1 through May 31 only.

(2) Alki Park: Closed year-round.

(3) Alki Point: Closed year-round.

(4) Bay Center Oyster Reserve (Willapa Harbor reserves): Palix River channel, extending from the Palix River bridge to beyond Bay Center to the north of Goose Point, is closed year-round.

(5) Bay View State Park: Closed year-round.

(6) Belfair State Park: Open ((~~January 1 through March 31 and August 1~~)) July 15 through September 30 only.

(7) Blaine Marine Park: Closed year-round.

(8) Blake Island State Park Marina: Closed year-round.

(9) Blowers Bluff North: Closed year-round.

(10) Brown's Point Lighthouse: Closed year-round.

(11) Budd Inlet: All state-owned tidelands of Budd Inlet south of a line drawn from the southern boundary of Burfoot Park west to the opposite shore near 68th Avenue N.W. are closed year-round.

(12) Cama Beach State Park: Closed year-round.

(13) Camano Island State Park: Closed year-round.

(14) Chuckanut Bay: All tidelands of Chuckanut Bay north of the railroad trestle are closed year-round.

(15) Coupeville: Closed year-round.

(16) Cultus Bay: Closed year-round.

(17) Dash Point County Park: Closed year-round.

(18) Dash Point State Park: Open September 1 through May 31 only.

((~~(18)~~)) (19) Dave Mackie County Park: Closed year-round.

((~~(19)~~)) (20) Deception Pass State Park: Open year-round, except the tidelands of Rosario Bay from the northern park boundary to Rosario Head (((~~48° 25.03'N, 122° 39.98'W~~)) 48.4172, -122.6663) are closed year-round.

((~~(20)~~)) (21) Des Moines City Park: Closed year-round.

((~~(21)~~)) (22) Discovery Park: Closed year-round.

((~~(22)~~)) (23) DNR-142: Closed year-round.

((~~(23)~~)) (24) DNR-144 (Sleeper): Closed year-round.

((~~(24)~~)) (25) Dockton County Park: Closed year-round.

((~~(25)~~)) (26) Dosewallips State Park: Open year-round only in the area defined by boundary markers and signs posted on the beach.

((~~(26)~~)) (27) Dosewallips State Park South: Closed year-round south of the line defined by boundary markers and signs posted on the beach.

((~~(27)~~)) (28) Drayton Harbor: All public tidelands of Drayton Harbor are open year-round, except the tidelands identified as prohibited ((~~or unclassified~~)) by the department of health and defined by boundary markers and signs posted on the beach are closed year-round.

((~~(28)~~)) (29) Duckabush: Open November 1 through April 30 only.

((~~(29)~~)) (30) Dungeness Spit/National Wildlife Refuge: Open May 15 through September 30 only.

((~~(30)~~)) (31) East San de Fuca: Tidelands east of the Rolling Hills Glencairn Community dock are closed year-round.

((~~(31)~~)) (32) Eld Inlet Oyster Reserves (Mud Bay reserves): Closed year-round.

((~~(32)~~)) (33) English Camp: Tidelands between the National Park Service dinghy dock to the southern park boundary are closed year-round.

((~~(33)~~)) (34) Evergreen Rotary Park (Port Washington Narrows): Closed year-round.

((~~(34)~~)) (35) Fay Bainbridge Park: Closed year-round.

((~~(35)~~)) (36) Fort Flagler State Park: Open January 1 through April 15 and ((~~June~~)) July 1 through December 31 only, except that portion of Rat Island and the spit west and south of the park boundary is closed year-round from two white posts on the north end of the island at the vegetation line south to the end of the island.

((~~(36)~~)) (37) Freeland County Park: Open October 1 through May 31 only.

((~~(37)~~)) (38) Frye Cove County Park: Open May 1 through May 31 only.

((~~(38)~~)) (39) Fudge Point State Park: Closed year-round.

((~~(39)~~)) (40) Gertrude Island: All tidelands of Gertrude Island are closed year-round.

((~~(40)~~)) (41) Golden Gardens: Closed year-round.

((~~(41)~~)) (42) Graveyard Spit: Closed year-round.

((~~(42)~~)) (43) Guillemot Cove Nature Reserve: Closed year-round.

((~~(43)~~)) (44) Guss Island: All tidelands of Guss Island are closed year-round.

((~~(44) Hoodsport: Tidelands at the Hoodsport Salmon Hatchery are closed year-round.~~))

(45) Hope Island State Park (South Puget Sound): Open May 1 through May 31 only.

(46) Howarth Park/Darlington Beach: Closed year-round.

(47) Illahee State Park: Open April 1 through July 31 only.

(48) Indian Island County Park/Lagoon Beach: From the jetty boundary with Port Townsend Ship Canal east to the beach access stairs on Flagler Road near milepost 4 open September 1 through September 30 only.

(49) Ingvald J. Gronvold Park: Open April 1 through April 30 only.

(50) Joemma Beach State Park: Closed year-round.

((~~(50)~~)) (51) Kayak Point County Park: Closed year-round.

((~~(51)~~)) (52) Kitsap Memorial State Park: Closed year-round.

((~~(52)~~)) (53) Kopachuck State Park: Open April 1 through May 31 only.

((~~(53)~~)) (54) Lent Landing (Port Washington Narrows): Closed year-round.

((~~(54)~~)) (55) Liberty Bay: All state-owned tidelands in Liberty Bay north and west of the Keyport Naval Supply Center are closed year-round, except the western shoreline of Liberty Bay from the unincorporated Kitsap County line south to Virginia Point is open October 1 through April 30 only.

((~~(55)~~)) (56) Lincoln Park: Closed year-round.

((~~(56)~~)) (57) Lions Park (Bremerton): Closed year-round.

((~~(57)~~)) (58) Lofall: Closed year-round.

((~~(58)~~)) (59) Long Island Oyster Reserve, Diamond Point and Pinnacle Rock (Willapa Harbor reserves): Diamond Point on the northwest side of Long Island between reserve monuments 39 and 41 and Pinnacle Rock on the southwest side of Long Island between reserve monuments 58 and 59 is open year-round.

((~~(59)~~)) (60) Long Island Slough Oyster Reserve (Willapa Harbor reserves): Closed year-round.

((~~(60)~~)) (61) Long Point West: Closed year-round.

((~~(61)~~)) (62) Lower Roto Vista Park: Closed year-round.

((~~(62)~~)) (63) March Point Recreation Area: Closed year-round.

((~~(63)~~)) (64) McNeil Island: All tidelands of McNeil Island are closed year-round.

((~~(64)~~)) (65) Meadowdale County Park: Closed year-round.

((~~(65)~~)) (66) Mee-Kwa-Mooks Park: Closed year-round.

((~~(66)~~)) (67) Monroe Landing: Closed year-round.

((~~(67)~~)) (68) Mukilteo: Closed year-round.

((~~(68)~~)) (69) Mystery Bay State Park: Open October 1 through April 30 only.

((~~(69)~~)) (70) Nahcotta Tidelands: State-owned tidelands east of the Willapa Bay Field Station and Nahcotta Tidelands interpretive site are open year-round.

((~~(70)~~)) (71) Nemah Oyster Reserve (Willapa Harbor reserves): Oyster reserves between reserve monuments 10 and 11 are closed year-round.

((~~(71)~~)) (72) Nisqually National Wildlife Refuge: All state-owned tidelands of the Nisqually River delta south of a line drawn from Luhr Beach boat ramp to Sequalitchew Creek are closed year-round.

((~~(72)~~)) (73) North Bay (Case Inlet): All state-owned tidelands north of the power transmission lines and those extending 1,900 feet south of the power transmission lines along the eastern shore are open March 1 through April 30 and September 1 through September 30, from one hour before official sunrise until one hour after official sunset only.

((~~(73)~~)) (74) North Beach County Park: Closed year-round.

((~~(74)~~)) (75) Oak Bay County Park: Closed year-round.

((~~(75)~~)) (76) Oak Harbor: Closed year-round.

((~~(76)~~)) (77) Oak Harbor Beach Park: Closed year-round.

((~~(77)~~)) (78) Oak Harbor City Park: Closed year-round.

((~~(78)~~)) (79) Oakland Bay: State-owned oyster reserves are open year-round except in areas defined by boundary markers and signs posted on the beach.

((~~(79)~~)) (80) Old Mill County Park (Silverdale): Closed year-round.

((~~(80)~~)) (81) Olympia Shoal: Closed year-round.

((~~(81)~~)) (82) Pat Carey Vista Park: Closed year-round.

((~~(82)~~)) (83) Penrose Point State Park: Open March 1 through April 30 only, except that part of Mayo Cove within the commercially prohibited growing area is closed year-round.

((~~(83)~~)) (84) Pitship Point: Closed year-round.

((~~(84)~~)) (85) Picnic Point County Park: Closed year-round.

((~~(85)~~)) (86) Pitt Island: Closed year-round.

((~~(86)~~)) (87) Pleasant Harbor State Park: Closed year-round.

((~~(87)~~)) (88) Pleasant Harbor WDFW Boat Launch: Closed year-round.

((~~(88)~~)) (89) Point Defiance: Closed year-round.

((~~(89)~~)) (90) Point Whitney Tidelands and Point Whitney Lagoon: Open January 1 through ((~~August 31~~)) June 30 only.

((~~(90)~~)) (91) Port Angeles Harbor: All public tidelands of Port Angeles Harbor and interior tidelands of Ediz Hook are closed year-round.

((~~(91)~~)) (92) Port Gamble Heritage Park Tidelands: Open ((~~January~~)) September 1 through ((~~April~~)) September 30 only.

((~~(92)~~)) (93) Port Gardner: Closed year-round.

((~~(93)~~)) (94) Port Townsend Ship Canal/Portage Beach: ((~~Closed year-round~~)) Open September 1 through September 30 only.

((~~(94)~~)) (95) Post Point: Closed year-round.

((~~(95)~~)) (96) Potlatch State Park and Potlatch DNR tidelands: Open April 1 through ((~~April 30~~)) May 15 only.

((~~(96)~~)) (97) Priest Point County Park: Closed year-round.

((~~(97)~~)) (98) Purdy Spit County Park: The southern shore of the spit from the boat ramp east to the southern utility tower near Purdy Bridge is open April 1 through April 30 only.

((~~(98)~~)) (99) Quilcene Bay Tidelands: All state-owned tidelands in Quilcene Bay north of a line drawn from the Quilcene Boat Haven to Fisherman's Point are closed year-round except those state-owned tidelands on the west side of the bay north of the Quilcene Boat Haven are open year-round.

((~~(99)~~)) (100) Quilcene Boat Ramp: Open January 1 through April 30 only.

((~~(100)~~)) (101) Retsil: Closed year-round.

((~~(101)~~)) (102) Richmond Beach Saltwater Park: Closed year-round.

((~~(102)~~)) (103) Salt Creek Recreation Area (DNR-419): Closed year-round.

((~~(103)~~)) (104) Saltair Beach (Kingston Ferry Terminal): Closed year-round.

((~~(104)~~)) (105) Saltwater State Park: Closed year-round.

((~~(105)~~)) (106) Samish Bay: Public tidelands of Samish Bay between Scotts Point and a point on the shore (((~~48°34.47'N, 122°26.64'W~~)) 48.5745, -122.4440) are closed year-round.

((~~(106)~~)) (107) Scenic Beach State Park: Closed year-round.

((~~(107)~~)) (108) Seahurst County Park: Closed year-round.

((~~(108)~~)) (109) Semiahmoo County Park: Closed year-round.

((~~(109)~~)) (110) Semiahmoo Marina: Closed year-round.

((~~(110)~~)) (111) Sequim Bay State Park: Open January 1 through ((~~June~~)) April 30 only.

((~~(111)~~)) (112) Shine Tidelands State Park: Open January 1 through May 15 only.

((~~(112)~~)) (113) Silverdale Waterfront Park: Closed year-round.

((~~(113)~~)) (114) Sinclair Inlet: All public tidelands of Sinclair Inlet west of a line drawn from the intersection of Bancroft Road and Beach Drive East northerly to Point Herron are closed year-round.

((~~(114)~~)) (115) Skagit Bay Estuary Wildlife Areas: All public tidelands of the Skagit Bay Estuary Wildlife Area, Fir Island Farms Reserve Wildlife Area, Island Wildlife Area, Camano Island Wildlife Area and Leque Island Wildlife Area are closed year-round.

((~~(115)~~)) (116) South Carkeek Park: Closed year-round.

((~~(116)~~)) (117) Southworth: Closed year-round.

((~~(117)~~)) (118) Spencer Spit State Park: Open March 1 through July 31 only.

((~~(118)~~)) (119) Stuart Island State Park – Reid Harbor (South Beach): Closed year-round.

((~~(119)~~)) (120) Taylor Bay: Closed year-round.

((~~(120)~~)) (121) Totten Inlet Oyster Reserve (Oyster Bay reserves): Closed year-round.

((~~(121)~~)) (122) Walker County Park: Closed year-round.

((~~(122)~~)) (123) WDFW Hoodsport Hatchery: Open April 1 through April 30 only.

(124) West Pass Access: Closed year-round.

((~~(123)~~)) (125) West Penn Cove: From the property boundary at the Grasser's Lagoon access on Highway 20 to the dock extending across the tidelands from Captain Whidbey Inn on Madrona Road is open ((~~August 1~~)) July 15 through ((~~September 30~~)) August 31 only.

((~~(124)~~)) (126) Willapa River Oyster Reserve (Willapa Harbor reserves): Reserves located in the Willapa River channel extending west and upriver from a point approximately one-quarter mile from the blinker light marking the division of Willapa River channel and the North River channel are closed year-round.

((~~(125)~~)) (127) Wolfe Property State Park: Open January 1 through May 15 only.

((~~(126)~~)) (128) Woodard Bay Natural Resource Conservation Area: Closed year-round.

((~~(127)~~)) (129) It is lawful to take and possess oysters for personal use from the Pacific Ocean beaches from November 1 through March 31 only.

[Statutory Authority: RCW 77.04.012, 77.04.020, 77.04.055, 77.12.045, and 77.12.047. WSR 21-06-060 (Order 21-24), § 220-330-140, filed 2/26/21, effective 3/29/21; WSR 20-05-019 (Order 20-21), §

220-330-140, filed 2/7/20, effective 3/9/20; WSR 19-08-044 (Order 19-51), § 220-330-140, filed 3/29/19, effective 4/29/19; WSR 18-11-077 (Order 18-99), § 220-330-140, filed 5/17/18, effective 6/17/18; WSR 17-18-004 (Order 17-214), § 220-330-140, filed 8/24/17, effective 9/24/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-330-140, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.020, 77.04-055 [77.04.055], 77.12.045, and 77.12.047. WSR 16-07-012 (Order 16-41), § 220-56-380, filed 3/4/16, effective 4/4/16. Statutory Authority: RCW 77.04.012, 77.04.055, and 77.12.047. WSR 15-09-046, § 220-56-380, filed 4/10/15, effective 5/11/15. Statutory Authority: RCW 77.04.012, 77.04.020, 77.12.045, and 77.12.047. WSR 14-07-057 (Order 14-61), § 220-56-380, filed 3/14/14, effective 4/14/14. Statutory Authority: RCW 77.04.020 and 77.12.047. WSR 13-06-034 (Order 13-44), § 220-56-380, filed 3/1/13, effective 4/1/13. Statutory Authority: RCW 77.04.020, 77.12.045, and 77.12.047. WSR 12-07-011 (Order 12-31), § 220-56-380, filed 3/12/12, effective 4/12/12; WSR 11-09-073 (Order 11-66), § 220-56-380, filed 4/19/11, effective 5/20/11. Statutory Authority: RCW 77.12.047. WSR 10-07-105 (Order 10-64), § 220-56-380, filed 3/19/10, effective 5/1/10; WSR 09-06-042 (Order 09-27), § 220-56-380, filed 2/25/09, effective 5/1/09; WSR 08-07-003, § 220-56-380, filed 3/5/08, effective 4/5/08; WSR 07-05-051 (Order 07-22), § 220-56-380, filed 2/16/07, effective 3/19/07; WSR 06-05-085 (Order 06-23), § 220-56-380, filed 2/14/06, effective 5/1/06; WSR 05-05-035 (Order 05-15), § 220-56-380, filed 2/10/05, effective 5/1/05; WSR 04-07-009 (Order 04-39), § 220-56-380, filed 3/4/04, effective 5/1/04; WSR 03-05-057 (Order 03-24), § 220-56-380, filed 2/14/03, effective 5/1/03; WSR 02-08-048 (Order 02-53), § 220-56-380, filed 3/29/02, effective 5/1/02; WSR 01-06-036 (Order 01-24), § 220-56-380, filed 3/5/01, effective 5/1/01. Statutory Authority: 2000 c 107 § 7. WSR 00-16-091 (Order 00-134), § 220-56-380, filed 7/31/00, effective 8/31/00. Statutory Authority: RCW 75.08.080, 77.12.040. WSR 00-08-038 (Order 00-29), § 220-56-380, filed 3/29/00, effective 5/1/00; WSR 99-08-029 (Order 99-13), § 220-56-380, filed 3/30/99, effective 5/1/99; WSR 98-06-031, § 220-56-380, filed 2/26/98, effective 5/1/98. Statutory Authority: RCW 75.08.080. WSR 97-07-078 (Order 97-53), § 220-56-380, filed 3/19/97, effective 5/1/97; WSR 96-11-078 (Order 96-44), § 220-56-380, filed 5/13/96, effective 6/13/96; WSR 95-12-027 (Order 95-46), § 220-56-380, filed 5/31/95, effective 7/1/95; WSR 94-14-069, § 220-56-380, filed 7/1/94, effective 8/1/94; WSR 93-08-034 (Order 93-20), § 220-56-380, filed 3/31/93, effective 5/1/93; WSR 92-11-012 (Order 92-19), § 220-56-380, filed 5/12/92, effective 6/12/92; WSR 91-08-054 (Order 91-13), § 220-56-380, filed 4/2/91, effective 5/3/91; WSR 90-06-026, § 220-56-380, filed 2/28/90, effective 3/31/90; WSR 89-07-060 (Order 89-12), § 220-56-380, filed 3/16/89; WSR 88-10-012 and 88-10-013 (Orders 88-14 and 88-15), § 220-56-380, filed 4/26/88; WSR 87-09-066 (Order 87-16), § 220-56-380, filed 4/21/87; WSR 86-09-020 (Order 86-08), § 220-56-380, filed 4/9/86; WSR 84-09-026 (Order 84-22), § 220-56-380, filed 4/11/84; WSR 82-13-040 (Order 82-61), § 220-56-380, filed 6/9/82; WSR 82-07-047 (Order 82-19), § 220-56-380, filed 3/18/82; WSR 81-05-027 (Order 81-13), § 220-56-380, filed 2/17/81, effective 4/1/81; WSR 80-03-064 (Order 80-12), § 220-56-380, filed 2/27/80, effective 4/1/80. Formerly WAC 220-56-086.]

OTS-3548.1

AMENDATORY SECTION (Amending WSR 17-05-112, filed 2/15/17, effective 3/18/17)

WAC 220-340-130 Oyster drill restricted shellfish areas—Puget Sound. All waters, tidelands, shellfish handling facilities and equipment (including aquaculture vehicles and vessels) operated in conjunction with said waters and tidelands of Puget Sound within the following areas are designated as oyster drill restricted shellfish areas:

(1) Dungeness Bay—Inside and bounded westerly of a line projected from the most easterly tip of Dungeness Spit true-south to the mainland.

(2) Drayton Harbor—Inside and southerly of a line projected from the north most tip of Semiahmoo Spit to where the International Boundary line intersects the mainland.

(3) Lummi Bay—Inside the Lummi Dike and inside and bounded by a line projected from((~~: 48°46'32" N. Lat. 122°40'00" W. Long.~~)) 48.7756, -122.6667; thence to ((~~48°45'55" N. Lat. 122°40'00" W. Long.~~)) 48.7653, -122.6667; thence to ((~~48°45'55" N. Lat. 122°39'12" W. Long.~~)) 48.7653, -122.6533; then following the shoreline northerly ((~~along the beach~~)) to the point of origin.

(4) Samish Bay—Inside and easterly of a line starting at the most westerly tip of Governor's Point and projected in a southerly direction to the most westerly tip of William Point on Samish Island.

(5) Padilla Bay—Easterly (including the Swinomish channel) of a line starting at the most westerly tip of William Point on Samish Island and projected southerly to the most northerly tip of March Point on Fidalgo Island.

(6) Similk and Skagit Bays—Northerly of a line projected across Skagit Bay following latitude 48.333 (48°20' N((~~.~~))) and easterly of the Deception Pass bridge.

(7) Liberty Bay—Inside and westerly of a line projected true south from the most southerly point ((~~at Tower Point~~)) on the Lemolo shoreline, near the powerline tower.

(8) Dyes Inlet—Inside and northerly of a line projected true east from the most northerly tip of Rocky Point to the mainland.

(9) Carr Inlet—

(a) Burley Lagoon—Inside and northerly of the Purdy bridge.

(b) Minter Creek—Inside and westerly of a line projected from the ((~~east~~)) west shore of Carr Inlet at ((~~122°41'00" W. Long.~~)) -122.6833 longitude true south to ((~~47°21'00" N. Lat.~~)) 47.3500 latitude, then true west to shore.

(10) Case Inlet—

(a) Rocky Bay and North Bay—Northerly of a line projected across Case Inlet following latitude 47.3456 (47°20'44" N).

(b) Vaughn Bay—Easterly of a line projected true north from the most northerly point of the southern spit at the mouth of Vaughn Bay to the mainland on the north shore.

(11) Hammersley Inlet and Oakland Bay—Inside, westerly and northerly of a line starting at ((~~the most southeasterly point of Munson Point and projected in a southeasterly direction to Eagle Point~~))

the shore at 47.2070, -123.0600 on the north shore of Hammersley Inlet and projected true south to the south shore of Hammersley Inlet.

(12) Totten Inlet, Oyster Bay and Little Skookum Inlet—Inside and southerly of a line starting at the most southeasterly point on Windy Point and projected northeasterly to the most northerly tip of Sandy Point (i.e., the southern base of the Steamboat Island Bridge).

(13) Eld Inlet—

(a) Mud Bay—Inside and westerly of a line projected from the most easterly point of Flapjack Point and projected true south to the mainland.

(b) Sanderson Harbor—Lying inside and westerly of a line starting at the most northern point on Sanderson Spit and projected northeasterly to the mainland.

(14) Nisqually Flats—Inside and southerly of a line starting ((~~near the DuPont Dock~~)) on the east shore at ((~~47°07'00" N. Lat.~~)) 47.1182, -122.6657 and projected true west to the mainland.

(15) Hood Canal—

(a) Quilcene Bay—Inside, northerly and easterly of a line starting at the Port of Port Townsend boat ramp north of Coast Seafoods company shellfish hatchery projected easterly to a point at ((~~48°48'10" N. Lat., 122°51'30" W. Long.~~)) 48.8028, -122.8583 and then projected southeasterly to the most westerly tip of Fisherman's Point.

(b) Tarboo Bay—Inside, northerly and easterly of a line starting at the most northerly tip of Long Spit and then projected true west to the mainland.

(c) The Great Bend to Lynch Cove—Inside and bounded southerly and easterly by a line projected from the western most point at Musqueti Point true west to the mainland.

(d) Hamma Hamma Flats and ((~~Jorsted~~)) Jorstad Creek—Inside and westerly of a line projected from((~~: 47°33'15" N. Lat. 123°01'42" W. Long.~~)) 47.5547, -123.0289; thence to ((~~47°32'54" N. Lat. 123°01'06" W. Long.~~)) 47.5483, -123.0183; thence to ((~~47°32'54" N. Lat. 123°01'48" W. Long.~~)) 47.5483, -123.0300; thence to ((~~47°31'00" N. Lat. 123°01'48" W. Long.~~)) 47.5167, -123.0300; then true west to shore.

(e) Dosewallips Delta—Inside and westerly of lines projected from((~~: 47°41'03" N. Lat. 122°53'57.5" W. Long.~~)) 47.6842, -122.8993; thence to ((~~47°41'03" N. Lat. 122°52'24" W. Long.~~)) 47.6842, -122.8733; thence to ((~~47°42'43.5" N. Lat. 122°52'24" W. Long.~~)) 47.7121, -122.8733; thence to ((~~47°42'43.5" N. Lat. 122°53'10" W. Long~~)) 47.7121, -122.8861.

(f) Point Whitney (including all portions of seawater ponds, lagoon, and shellfish cultivation facilities)—Inside and southerly of lines projected from((~~: 47°45'43" N. Lat. 122°51'4.7" W. Long.~~)) 47.7619, -122.8513; thence to ((~~47°45'52" N. Lat. 122°51'4.7" W. Long.~~)) 47.7644, -122.8513; thence to ((~~47°45'52" N. Lat. 122°51'18" W. Long.~~)) 47.7644, -122.8550; thence to ((~~47°45'45" N. Lat. 122°51'18" W. Long~~)) 47.7625, -122.8550.

(g) Duckabush River Mouth—Inside and westerly of a line projected from((~~: 47°38'46" N. Lat. 122°54'08" W. Long.~~)) 47.6467, -122.9044; thence to ((~~47°37'55" N. Lat. 122°56'25" W. Long~~)) 47.6319, -122.9417.

(h) East Dabob Bay—Inside and easterly of a line projected from 47.8283, -122.7997; thence to 47.8264, -122.8050; thence to 47.8131, -122.7989; thence to the shore at 47.8136, -122.7958.

(i) Guillemot Cove—Inside and easterly of lines projected from 47.6119, -122.8848; thence to 47.6119, -122.9208; thence to 47.6075, -122.9225; thence returning to shore at 47.6069 latitude.

(j) Bywater Bay—Inside and northerly of a line projected true east from latitude 47.8819 (47°52'55" N) to the west shoreline of Hood Head.

(16) Henderson Inlet—South Bay—Inside and southerly of a line commencing at ((~~a point~~)) 47.1268, -122.8412 on the west shore of Henderson Inlet ((~~where the south line of Section 17, Twp 19 N R 1 WWM intersects the shoreline~~)), thence projected true east across Henderson Inlet to the east shoreline.

(17) Birch Bay—Inside and bounded by a line projected from((~~÷ 48°53'59" N. Lat. 122°46'33.9" W. Long.~~)) 48.8997, -122.7761; thence following the shoreline northeasterly ((~~along the shoreline to 48°54'37.7" N. Lat. 122°45'7.65" W. Long.~~)) to 48.9105, -122.7521; thence to ((~~48°54'56" N. Lat. 122°45'31" W. Long.~~)) 48.9156, -122.7586; thence to ((~~48°54'10" N. Lat. 122°46'53.54" W. Long~~)) 48.9028, -122.7815; thence returning to the origin at 48.8997, -122.7761.

[Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), recodified as § 220-340-130, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, and 77.12.047. WSR 14-07-092 (Order 14-63), § 220-72-011, filed 3/18/14, effective 4/18/14. Statutory Authority: RCW 77.12.047. WSR 05-01-113 (Order 04-318), § 220-72-011, filed 12/15/04, effective 1/15/05; WSR 03-10-041 (Order 03-86), § 220-72-011, filed 4/30/03, effective 5/31/03. Statutory Authority: RCW 75.08.080. WSR 97-08-078 (Order 97-56), § 220-72-011, filed 4/2/97, effective 5/3/97.]

WSR 22-02-070
PROPOSED RULES
POLLUTION LIABILITY
INSURANCE AGENCY
[Filed January 5, 2022, 11:06 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 20-07-029.

Title of Rule and Other Identifying Information: Chapter 374-45 WAC, Reporting and initial investigations.

Hearing Location(s): On February 9, 2022, at 11:30 a.m. - 1:00 p.m., virtual meeting; or February 10, 2022, at 11:30 a.m. - 1:00 p.m., virtual meeting. Meeting link can be found on the pollution liability insurance agency's (PLIA) website www.plia.wa.gov.

Date of Intended Adoption: March 12, 2022.

Submit Written Comments to: Phi Ly, P.O. Box 40930, Olympia, WA 98504-0930, email rules@plia.wa.gov, 800-822-3905, by February 6, 2022.

Assistance for Persons with Disabilities: Contact Xyzlinda Marshall, phone 360-407-0515, TTY 711 or 800-833-6388, email rules@plia.wa.gov, by February 6, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: PLIA provides an effective and efficient government funding model to support owners and operators in meeting environmental clean-up requirements for releases from heating oil tanks.

Heating oil tank owners and operators are required to comply with the state's clean-up rules, the Model Toxics Control Act (MTCA), and the requirements established in chapter 173-340 WAC when there is a suspected or known release from a heating oil tank. The proposed rules for reporting and initial investigations codifies and provides the outline for reporting the release and conducting an initial investigation of the release.

This proposal does not require changes to existing rules found in Title 374 WAC, Pollution liability insurance agency.

Reasons Supporting Proposal: This chapter supports the state's clean-up rules by outlining the reporting and initial investigation requirements for heating oil tank owners and operators. This chapter also aligns with the purpose and authority of the agency's advice and technical assistance program and reflects [the] existing process.

Statutory Authority for Adoption: RCW 70A.330.010 and 70A.330.800.

Statute Being Implemented: Not applicable.

Rule is not necessitated by federal law, federal or state court decision.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Phi Ly, 500 Columbia Street N.W., Olympia, WA 98501, 360-407-0517.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. Cost-benefit analysis is not required for an existing program. These proposed rules codify current program processes already established in interpretative guidance.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule.

January 5, 2022
Phi Ly
Legislative and Policy Manager

OTS-3543.1

Chapter 374-45 WAC
REPORTING AND INITIAL INVESTIGATIONS

NEW SECTION

WAC 374-45-010 Purpose. In order to aid the state in identifying and addressing heating oil contaminated property, this chapter sets forth the requirements for the public to report a release of heating oil from a heating oil tank and the process for the agency to conduct an initial investigation of the release. This chapter is promulgated under the authority of chapter 70A.330 RCW.

(1) Decisions by the agency are not binding on the department of ecology and do not preclude the department of ecology from requiring action based on other law.

(2) This chapter does not apply to releases from underground storage tank systems regulated under chapter 173-360A WAC. Such releases must be investigated and reported to the department of ecology in accordance with that chapter.

(3) Nothing in this chapter eliminates any obligations to comply with reporting requirements in other laws or permits.

[]

NEW SECTION

WAC 374-45-020 Definitions. Unless the context requires otherwise, the definitions in this section shall apply throughout this chapter.

(1) "Agency" means the Washington state pollution liability insurance agency.

(2) "Heating oil" means any petroleum product used for space heating in oil-fired furnaces, heaters, and boilers, including stove oil, diesel fuel, or kerosene. "Heating oil" does not include petroleum products used as fuels in motor vehicles, marine vessels, trains, buses, aircraft, or any off-highway equipment not used for space heating, or the generation of electrical energy.

(3) "Heating oil tank" means a tank and its connecting pipes, whether above or below ground, or in a basement, with pipes connected to the tank for space heating of human living or working space on the premises where the tank is located. "Heating oil tank" includes a decommissioned or abandoned heating oil tank. "Heating oil tank" does not include a tank used solely for industrial process heating purposes or generation of electrical energy.

(4) "MTCA" means the Model Toxics Control Act, chapter 70A.305 RCW and its implementing regulations, chapter 173-340 WAC.

(5) "Operator" means any person in control of, or having responsibility for, the daily operation of a heating oil tank.

(6) "Owner" means the person, or his or her authorized representative, legally responsible for a heating oil tank, its contents, and the premises upon which the heating oil tank is located.

(7) "Release" means any intentional or unintentional entry of any hazardous substance into the environment including, but not limited to, a spill, leak, emission, escape, or leaching into the environment.

(8) "Remedial action" has the same meaning as defined in RCW 70A.305.020.

[]

NEW SECTION

WAC 374-45-030 Reporting a release. (1) Any owner or operator of a heating oil tank, or owner of the property where a heating oil tank is located, who has information or suspects that heating oil has been released to the environment at the property and may be a threat to human health or the environment must report such information to the agency within 90 days of discovery.

(2) Reporting is met if information has been reported to department of ecology environmental report tracking system (ERTS).

(3) To the extent known, the report to the agency must include:

(a) The identification and address of the release;

(b) Circumstances of the release and the discovery; and

(c) Any remedial actions planned, completed, or underway.

(4) The following are examples of situations that a person should generally report under this section:

(a) Discovery of heating oil that has leaked or been dumped on the ground.

(b) Contamination in a water supply well.

(c) Contaminated seeps, sediment, or surface water.

(d) Vapors in a building, utility vault, or other structure that appear to be entering the structure from nearby contaminated soil or ground water.

(e) Free product on the surface of the ground or in the ground water.

(f) Any contaminated soil or unpermitted disposal of heating oil that would be classified as a hazardous waste under federal or state law.

(5) There is no requirement to report a release to the agency when the circumstances associated with the release have been provided to the agency through a notice of potential claim under chapter 374-70 WAC, a technical assistance program application under chapter 374-80 WAC, or application to the underground storage tank revolving loan and grant program.

[]

NEW SECTION

WAC 374-45-040 Initial investigation of a release. (1) An initial investigation is a review of a reported heating oil tank release by the agency and documentation of reported conditions. The purpose of the initial investigation is to determine:

(a) Whether there has been a release from a heating oil tank that may pose a threat to human health or the environment;

(b) Whether further remedial action is necessary to confirm the release or to address the threat posed by the release under MTCA to protect human health and the environment;

(c) Whether emergency remedial action is necessary to confirm the release or to address the threat posed by the release; and

(d) Whether referral to another authority is appropriate.

(2) The agency will complete an initial investigation unless:

(a) The circumstances associated with the suspected or confirmed release are known to the agency and have previously been, or are currently being, evaluated by the agency or other government agency; or

(b) The agency does not have a reasonable basis to believe that there has been a release or threatened release of a hazardous substance that may pose a threat to human health or the environment.

(3) The agency will complete an initial investigation within 90 days of a release being reported.

(4) The agency may rely on another government agency or a contractor to the agency to conduct an initial investigation on its behalf, provided the agency determines:

(a) The other agency or contractor is not suspected to have contributed to the release of heating oil; and

(b) The other agency or contractor has no conflict of interest.

(5) Within 30 days of completing an initial investigation of a release, the agency will make one of the following determinations:

(a) No release of heating oil occurred.

(b) A release of heating oil occurred but does not pose a threat to human health or the environment requiring remedial action under MTCA.

(c) A release of heating oil occurred that posed a threat to human health or the environment, a remedial action to address the threat has been completed, and no further remedial action is necessary to address the threat.

(d) A release of heating oil occurred that poses a threat to human health or the environment and further remedial action other than emergency remedial action is necessary to address the threat. The

agency will notify the owner and operator and the department of ecology of the agency's determination.

(e) A release of heating oil occurred that poses a threat to human health or the environment and an emergency remedial action is necessary to address the threat. The agency will notify the owner and operator and the department of ecology of the agency's determination.

[]

WSR 22-02-072
PROPOSED RULES
GREEN RIVER COLLEGE
[Filed January 5, 2022, 11:07 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-23-034.

Title of Rule and Other Identifying Information: The Department of Education (DOE) issued updated Title IX rules on May 22, 2020, which took effect August 14, 2020. These updated rules incorporate the Title IX regulations by amending Green River College's student conduct code requirements in chapter 132J-126 WAC. These rule changes are necessary to maintain compliance with DOE requirements. On August 24, 2021, DOE announced that it will no longer enforce the cross-examination requirement in the 2020 regulations. To comply with training and live hearing requirements in the 2020 federal regulations, the College rule changes also add authority to contract with the Washington office of administrative hearings (OAH) and other contractors to help with these duties. Nine new rules added to chapter 132J-126 WAC; and repealing WAC 132J-126-240, 132J-126-250, 132J-126-260, 132J-126-270, and 132J-300-010.

Hearing Location(s): On February 10, 2022, at 3:00 p.m., Zoom, https://us02web.zoom.us/j/82487284409, Meeting ID 824 8728 4409, Passcode 445881, One tap mobile +12532158782,,82487284409#,,,,*445881# US (Tacoma), +16699009128,,82487284409#,,,,*445881# US (San Jose); or dial by your location, +1 253 215 8782 US (Tacoma), +1 669 900 9128 US (San Jose), +1 346 248 7799 US (Houston), +1 312 626 6799 US (Chicago), +1 646 558 8656 US (New York), +1 301 715 8592 US (Washington DC), Meeting ID 824 8728 4409, Passcode 445881, find your local number https://us02web.zoom.us/u/kccpMjGTG.

Date of Intended Adoption: March 8, 2022.

Submit Written Comments to: Godfrey Drake, 12401 S.E. 320th Street, email gdrake@greenriver.edu, by February 10, 2022.

Assistance for Persons with Disabilities: Contact Jamie Hatleburg, phone 253-833-9111 ext. 3484, email JHatleburg@greenriver.edu, by February 7, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: DOE issued updated Title IX rules on May 22, 2020, which took effect August 14, 2020. These updated rules incorporate the Title IX regulations by amending Green River College's student conduct code requirements in chapter 132J-126 WAC and repealing chapter 132J-300 WAC, Grievance procedure——Sex discrimination. These rule changes are necessary to maintain compliance with DOE requirements. On August 24, 2021, DOE announced that it will no longer enforce the cross-examination requirement in the 2020 regulations. To comply with training and live hearing requirements in the 2020 federal regulations, the college rule changes also add authority to contract with OAH and other contractors to help with these duties.

Statutory Authority for Adoption: RCW 28B.50.140.

Statute Being Implemented: RCW 28B.50.140.

Rule is necessary because of federal law, DOE Title IX regulation updates May 22, 2020.

Name of Proponent: Green River College, public.

Name of Agency Personnel Responsible for Drafting and Implementation: Godfrey Drake, director of judicial affairs, 253-833-9111; and Enforcement: George Frasier, vice president of college advancement, 253-833-9111.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. The changes don't affect the college financially.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. [No information supplied by agency.]

A copy of the detailed cost calculations may be obtained by contacting Godfrey Drake, 12401 S.E. 320th Street, Auburn, WA 98092, phone 253-833-3397, email gdrake@greenriver.edu.

January 5, 2022
George P. Frasier
Vice President
of College Advancement

OTS-3429.1

SUPPLEMENTAL TITLE IX STUDENT CONDUCT PROCEDURES

NEW SECTION

WAC 132J-126-320 Prohibited conduct under Title IX. Pursuant to RCW 28B.50.140(13) and Title IX of the Education Amendments Act of 1972, 20 U.S.C. Sec. 1681, the college may impose disciplinary sanctions against a student who commits, attempts to commit, or aids, abets, incites, encourages, or assists another person to commit, an act(s) of "sexual harassment."

For purposes of this supplemental procedure, "sexual harassment" encompasses the following conduct:

(1) **Quid pro quo harassment.** A college employee conditioning the provision of an aid, benefit, or service of the college on an individual's participation in unwelcome sexual conduct.

(2) **Hostile environment.** Unwelcome conduct that a reasonable person would find to be so severe, pervasive, and objectively offensive that it effectively denies a person equal access to the college's educational programs or activities, or employment.

(3) **Sexual assault.** Sexual assault includes the following conduct:

(a) Nonconsensual sexual intercourse. Any actual or attempted sexual intercourse (anal, oral, or vaginal), however slight, with any object or body part, by a person upon another person, that is without consent and/or by force. Sexual intercourse includes anal or vaginal penetration by a penis, tongue, finger, or object, or oral copulation by mouth to genital contact or genital to mouth contact.

(b) Nonconsensual sexual contact. Any actual or attempted sexual touching, however slight, with any body part or object, by a person

upon another person that is without consent and/or by force. Sexual touching includes any bodily contact with the breasts, groin, mouth, or other bodily orifice of another individual, or any other bodily contact in a sexual manner.

(c) Incest. Sexual intercourse or sexual contact with a person known to be related to them, either legitimately or illegitimately, as an ancestor, descendant, brother, or sister of either wholly or half related. Descendant includes stepchildren and adopted children under the age of 18.

(d) Statutory rape. Consensual sexual intercourse between someone who is 18 years of age or older and someone who is under the age of 16.

(4) **Domestic violence.** Physical violence, bodily injury, assault, the infliction of fear of imminent physical harm, sexual assault, or stalking committed by a person with whom the victim shares a child in common, by a person who is cohabitating with or has cohabitated with the victim as a spouse, by a person similarly situated to a spouse of the victim under the domestic or family violence laws of the state of Washington, or by any other person against an adult or youth victim who is protected from that person's acts under the domestic or family violence laws of the state of Washington, RCW 26.50.010.

(5) **Dating violence.** Physical violence, bodily injury, assault, the infliction of fear of imminent physical harm, sexual assault, or stalking committed by a person:

(a) Who is or has been in a social relationship of a romantic or intimate nature with the victim; and

(b) Where the existence of such a relationship shall be determined based on a consideration of the following factors:

(i) The length of the relationship;

(ii) The type of relationship; and

(iii) The frequency of interaction between the persons involved in the relationship.

(6) **Stalking.** Engaging in a course of conduct directed at a specific person that would cause a reasonable person to fear for their safety or the safety of others, or suffer substantial emotional distress.

[]

NEW SECTION

WAC 132J-126-400 Order of precedence. This supplemental procedure applies to allegations of sexual harassment subject to Title IX jurisdiction pursuant to regulations promulgated by the United States Department of Education. See 34 C.F.R. Sec. 106. To the extent these supplemental hearing procedures conflict with the college's standard disciplinary procedures, WAC 132J-126-010 through 132J-126-300, these supplemental procedures shall take precedence. Green River College may, at its discretion, contract with an administrative law judge or other person to act as presiding officer and assign such presiding officer to exercise any or all of the duties in lieu of the student conduct committee and committee chair.

[]

NEW SECTION

WAC 132J-126-420 Title IX jurisdiction. (1) This supplemental procedure applies only if the alleged misconduct:

(a) Occurred in the United States;

(b) Occurred during a college educational program or activity; and

(c) Meets the definition of sexual harassment as that term is defined in this supplemental procedure.

(2) For purposes of this supplemental procedure, an "educational program or activity" is defined as locations, events, or circumstances over which the college exercised substantial control over both the respondent and the context in which the alleged sexual harassment occurred. This definition includes any building owned or controlled by a student organization that is officially recognized by the college.

(3) Proceedings under this supplemental procedure must be dismissed if the decision maker determines that one or all of the requirements of subsection (1)(a) through (c) of this section have not been met. Dismissal under this supplemental procedure does not prohibit the college from pursuing other disciplinary action based on allegations that the respondent violated other provisions of the college's student conduct code, WAC 132J-126-090.

(4) If the Title IX coordinator determines the facts in the investigation report are not sufficient to support Title IX jurisdiction and/or pursuit of a Title IX violation, the Title IX coordinator will issue a notice of dismissal in whole or part to both parties explaining why some or all of the Title IX claims have been dismissed.

[]

NEW SECTION

WAC 132J-126-430 Initiation of discipline. (1) Upon receiving the Title IX investigation report from the Title IX coordinator, the judicial officer will independently review the report to determine whether there are sufficient grounds to pursue a disciplinary action against the respondent for engaging in prohibited conduct under Title IX.

(2) If the judicial officer determines that there are sufficient grounds to proceed under these supplemental procedures, the judicial officer will initiate a Title IX disciplinary proceeding by filing a written disciplinary notice with the chair of the student conduct committee and serving the notice on the respondent and the complainant, and their respective advisors. The notice must:

(a) Set forth the basis for Title IX jurisdiction;

(b) Identify the alleged Title IX violation(s);

(c) Set forth the facts underlying the allegation(s);

(d) Identify the range of possible sanctions that may be imposed if the respondent is found responsible for the alleged violation(s); and

(e) Explain that the parties are entitled to be accompanied by their chosen advisors during the hearing and that:

(i) The advisors will be responsible for questioning all witnesses on the party's behalf;

(ii) An advisor may be an attorney; and

(iii) The college will appoint the party an advisor of the college's choosing at no cost to the party, if the party fails to do so.

(3) Explain that if a party fails to appear at the hearing, a decision of responsibility may be made in their absence.

[]

NEW SECTION

WAC 132J-126-440 Prehearing procedure. (1) Upon filing and serving the written disciplinary notice, the chair of the student conduct committee will send a hearing notice to all parties, in compliance with WAC 132J-126-190. In no event will the hearing date be set less than 10 days after the Title IX coordinator provided the final investigation report to the parties.

(2) A party may choose to have an attorney serve as their advisor at the party's own expense. This right will be waived unless, at least five days before the hearing, the attorney files a notice of appearance with the committee chair with copies to all parties and the student conduct officer.

(3) In preparation for the hearing, the parties will have equal access to all evidence gathered by the investigator during the investigation, regardless of whether the college intends to offer the evidence at the hearing.

[]

NEW SECTION

WAC 132J-126-450 Rights of parties. (1) The college's student conduct procedures, chapter 132J-126 WAC and this supplemental procedure shall apply equally to all parties.

(2) The college bears the burden of offering and presenting sufficient testimony and evidence to establish that the respondent is responsible for a Title IX violation by a preponderance of the evidence.

(3) The respondent will be presumed not responsible until such time as the disciplinary process has been finally resolved.

(4) During the hearing, each party shall be represented by an advisor. The parties are entitled to an advisor of their own choosing and the advisor may be an attorney. If a party does not choose an advisor, then the Title IX coordinator or chair of the student conduct committee will appoint an advisor of the college's choosing on the party's behalf at no expense to the party.

[]

NEW SECTION

WAC 132J-126-460 Evidence. The introduction and consideration of evidence during the hearing is subject to the following procedures and restrictions:

(1) Relevance: The committee chair shall review all questions for relevance and shall explain on the record their reasons for excluding any question based on lack of relevance.

(2) Relevance means that information elicited by the question makes facts in dispute more or less likely to be true.

(3) Questions or evidence about a complainant's sexual predisposition or prior sexual behavior are not relevant and must be excluded, unless such question or evidence:

(a) Is asked or offered to prove someone other than the respondent committed the alleged misconduct; or

(b) Concerns specific incidents of prior sexual behavior between the complainant and the respondent, which are asked or offered on the issue of consent.

(4) No negative inference: The committee may not make an inference regarding responsibility solely on a witness's or party's absence from the hearing or refusal to answer questions.

(5) Privileged evidence: The committee shall not consider legally privileged information unless the holder has effectively waived the privilege. Privileged information includes, but is not limited to, information protected by the following:

(a) Spousal/domestic partner privilege;

(b) Attorney-client and attorney work product privileges;

(c) Privileges applicable to members of the clergy and priests;

(d) Privileges applicable to medical providers, mental health therapists, and counselors;

(e) Privileges applicable to sexual assault and domestic violence advocates; and

(f) Other legal privileges identified in RCW 5.60.060.

[]

NEW SECTION

WAC 132J-126-470 Initial order. (1) In addition to complying with WAC 132J-126-210, the student conduct committee will be responsible for conferring and drafting an initial order that:

(a) Identifies the allegations of sexual harassment;

(b) Describes the grievance and disciplinary procedures, starting with filing of the formal complaint through the determination of responsibility, including notices to parties, interviews with witnesses and parties, site visits, methods used to gather evidence, and hearings held;

(c) Makes findings of fact supporting the determination of responsibility;

(d) Reaches conclusions as to whether the facts establish whether the respondent is responsible for engaging in sexual harassment in violation of Title IX;

(e) Contains a statement of, and rationale for, the student conduct committee determination of responsibility for each allegation;

(f) Describes any disciplinary sanction or conditions imposed against the respondent, if any;

(g) Describes to what extent, if any, complainant is entitled to remedies designed to restore or preserve complainant's equal access to the college's education programs or activities; and

(h) Describes the process for appealing the initial order to the college president.

(2) The chair of the student conduct committee will serve the initial order on the parties simultaneously.

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NEW SECTION

WAC 132J-126-480 Appeals. (1) All parties, including the student conduct officer in their capacity as a representative of the college, have the right to appeal from the determination of responsibility and/or from a dismissal, in whole or part, of a formal complaint during the investigative or hearing process. Appeals must be in writing and filed with the president's office within 21 days of service of the initial order or notice of dismissal. Appeals must identify the specific findings of fact and/or conclusions of law in the initial order or dismissal that the appealing party is challenging and must contain argument as to why the appeal should be granted. Failure to file a timely appeal constitutes a waiver of the right to appeal and the initial order or dismissal shall be deemed final.

(2) Upon receiving a timely appeal, the president's office will serve a copy of the appeal on all parties, who will have 10 days from the date of service to submit written responses to the president's office addressing issues raised in the appeal. Failure to file a timely response constitutes a waiver of the right to participate in the appeal. Upon receipt of written responses, the president's office shall serve copies of the responses to the other parties.

(3) Parties receiving a copy of the responses shall have five days in which to submit a written reply addressing issues raised in the responses to the president's office.

(4) The president or their delegate, based on their review of parties' submissions and the hearing or investigative record, will determine whether the grounds for appeal have merit, provide the rationale for this conclusion, and state whether a dismissal if affirmed or denied, or if the disciplinary sanctions and conditions imposed in the initial order are affirmed, vacated, or amended, and, if amended, set forth the new disciplinary sanctions and conditions.

(5) The president's office shall serve the final decision on the parties simultaneously.

(6) All administrative decisions reached through this process are and may be judicially appealed pursuant to applicable provisions of chapter 34.05 RCW including, but not limited to, the timelines set forth in RCW 34.05.542. No decisions or recommendations arising from this disciplinary procedure will be subject to grievance pursuant to any collective bargaining agreement.

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REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 132J-126-240	Supplemental procedures for sexual misconduct cases.
WAC 132J-126-250	Supplemental definitions.
WAC 132J-126-260	Supplemental complaint process.
WAC 132J-126-270	Supplemental appeal rights.

OTS-3557.1

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 132J-300-010	Grievance procedure——Sex discrimination.

WSR 22-02-073
PROPOSED RULES
HEALTH CARE AUTHORITY
[Filed January 5, 2022, 11:26 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-20-069.

Title of Rule and Other Identifying Information: WAC 182-535-1270 Oral health connections pilot project.

Hearing Location(s): On February 8, 2022, at 10:00 a.m. The health care authority (HCA) remains closed in response to the coronavirus disease 2019 (COVID-19) public health emergency. Until further notice, HCA continues to hold public hearings virtually without a physical meeting place. This promotes social distancing and the safety of the residents of Washington state. To attend the virtual public hearing, you must register in advance for this public hearing https://zoom.us/webinar/register/WN_1xrodxXpRxCFb9iBSr0GHw. After registering, you will receive a confirmation email containing information about joining the public hearing.

Date of Intended Adoption: Not sooner than February 9, 2022.

Submit Written Comments to: HCA rules coordinator, P.O. Box 42716, Olympia, WA 98504-2716, email arc@hca.wa.gov, fax 360-586-9727, by February 8, 2022.

Assistance for Persons with Disabilities: Contact HCA rules coordinator, phone 360-725-1306, fax 360-586-9727, telecommunication[s] relay service 711, email arc@hca.wa.gov, by January 21, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The agency is amending these rules to extend the program through December 31, 2023, or until pilot funds are completely dispersed, whichever comes first. Additionally, the agency is removing age limits and dual eligibility exclusions. The enhanced rate will now include an additional adult prophylaxis, an additional fluoride varnish application, two periodic exams, and two silver diamine fluoride treatment.

Reasons Supporting Proposal: See purpose.

Statutory Authority for Adoption: RCW 41.05.021, 41.05.160.

Statute Being Implemented: RCW 41.05.021, 41.05.160.

Rule is not necessitated by federal law, federal or state court decision.

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: Not applicable.

Name of Proponent: HCA, governmental.

Name of Agency Personnel Responsible for Drafting: Valerie Freudenstein, P.O. Box 42716, Olympia, WA 98504-2716, 360-725-1344; Implementation and Enforcement: Pixie Needham, P.O. Box 45506, Olympia, WA 98504-5506, 360-725-9967.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 does not apply to HCA rules unless requested by the joint administrative rules review committee or applied voluntarily.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. The proposed rule does not impose any costs on businesses.

January 5, 2022

Wendy Barcus
Rules Coordinator

OTS-3505.2

AMENDATORY SECTION (Amending WSR 18-24-077, filed 11/30/18, effective 1/1/19)

WAC 182-535-1270 Oral health connections pilot project. (1) The oral health connections pilot project is effective for dates of service from January 1, 2019, through December 31, ((~~2021~~)) 2023, or until pilot funds are exhausted, whichever comes first.

(2) The purpose of the oral health connections pilot project is to test the effect that enhanced oral health services have on the overall health of diabetic or pregnant medicaid clients receiving services in Cowlitz, Spokane, and Thurston counties.

(3) To be eligible for the oral health connections pilot project, a client must ((~~be~~)):

(a) ((~~Age twenty-one to sixty-four;~~

~~(b) Pregnant, diabetic, or both~~)) Be diabetic and age 21 or older; or

(b) Be pregnant and 16 years of age or older; and

(c) Be receiving services under subsection (6) of this section in Cowlitz, Spokane, or Thurston counties; and

(d) Be referred by a nondental primary health care provider, managed care organization, or a designated community organization to a qualified oral health connections pilot project dental provider. For the purposes of this section, a designated community organization is defined as an auxiliary group or groups that partner with the agency and Arcora foundation to implement the oral health connections pilot project or provide an attestation showing the client has been diagnosed with diabetes or pregnancy, or both.

(4) A client who qualifies for the oral health connections pilot project due to pregnancy may continue receiving services through the duration of the maternity cycle as defined in WAC 182-533-0315, but must ((~~actually~~)) be pregnant at the start of services.

(5) The following are excluded from the oral health connections pilot project:

(a) Family planning only ((~~and TAKE CHARGE~~)) programs under chapter 182-532 WAC; and

(b) Medical care services (MCS) program under WAC 182-508-0005((~~; and~~

~~(c) Clients who are enrolled in both medicaid and medicare~~)).

(6) Under the oral health connections pilot project, the medicaid agency pays an enhanced rate for the following services:

(a) One comprehensive oral exam, per client, per provider in a five-year period;

(b) One periodic exam, per client, per provider, every six months;

(c) One complete series of intraoral radiographic images per client in a three-year period;

((~~(c)~~)) (d) Four bitewing X-rays (radiographs) once per client in a ((~~twelve-month~~)) 12-month period;

((~~(d)~~)) (e) One adult prophylaxis, per client, every six months;

(f) Periodontal scaling and root planing – Four or more teeth per quadrant, once per quadrant per client in a two-year period;

((~~(e)~~)) (g) Periodontal scaling and root planing - Three or more teeth per quadrant, once per quadrant per client in a two-year period; ((~~and~~

~~(f)~~)) (h) Up to three additional periodontal maintenance visits in a ((~~twelve-month~~)) 12-month period. At least ((~~ninety~~)) 90 days must elapse following periodontal scaling and root planing or at least ((~~ninety~~)) 90 days must elapse following initial periodontal maintenance, and then every ((~~ninety~~)) 90 days afterwards for a total of three additional periodontal maintenance visits per eligible client in a ((~~twelve-month~~)) 12-month period;

(i) One fluoride varnish application, per client, every six months; and

(j) One silver diamine fluoride treatment, per tooth, per client, every six months.

(7) The services listed in subsection (6) of this section are the only services the agency pays at the enhanced rate. The agency pays for all other covered dental services at the standard rate.

(8) To receive the enhanced rate, dental providers must:

(a) Be enrolled to participate in the oral health connections pilot project;

(b) Meet the qualifications in WAC 182-535-1070;

(c) Provide the services in Cowlitz, Spokane, or Thurston counties; and

(d) Complete training designed specifically for the oral health connections pilot project.

(9) The agency assigns a special identifier to providers who complete the training in subsection (8)(d) of this section which allows them to receive the enhanced rate.

[Statutory Authority: RCW 41.05.021, 41.05.160, and 2017 c 1. WSR 18-24-077, § 182-535-1270, filed 11/30/18, effective 1/1/19.]

WSR 22-02-076
PROPOSED RULES
BUILDING CODE COUNCIL
[Filed January 5, 2022, 11:55 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-07-129.

Title of Rule and Other Identifying Information: Chapter 51-11C WAC, Adoption and amendment of the 2021 Washington State Energy Code, Commercial.

Hearing Location(s): On February 25, 2022, at 10 a.m., virtual meeting via Zoom; or March 11, 2022, at 10 a.m., virtual meeting via Zoom. In response to the governor's emergency proclamation there will not be a physical location. Please access the meeting via Zoom or conference phone provided in the agenda posted for that date on sbcc.wa.gov.

Date of Intended Adoption: April 15, 2022.

Submit Written Comments to: Washington State Building Code Council (SBCC), P.O. Box 41449, Olympia, WA 98504-1449, email sbcc@des.wa.gov, by March 11, 2021.

Assistance for Persons with Disabilities: Contact Annette Haworth, phone 360-407-9255, email sbcc@des.wa.gov, by February 18, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Update from the 2018 edition of the Washington State Energy Code (WSEC) to the 2021 edition, incorporating changes from the 2021 International Energy Conservation Code (IECC) and those code changes submitted to increase energy savings and provide better clarity. There are a few instances where two or more submitted proposals that were approved conflict, and options are provided. Testimony on the preferred option is requested.

Below are highlights of the significant changes in the 2021 WSEC. A complete description of all changes can be found at https://www.sbcc.wa.gov/state-codes-regulations-guidelines/rulemaking.

Section	Subject	Description of Change	Log Number/ Action
C401.2.2	Process form	This section was added to pull together all of the sections that reference requirements for process equipment elsewhere in the code.	21-GP1-129 AS 6/25/21
C402.1.1.1	Low energy buildings	This change clarifies that areas must meet the definition of an enclosed space to be considered a low energy building, making it clear that parking garages are not considered low energy buildings.	21-GP1-225 AS 7/09/21
C402.1.1.2	Semi-heated buildings	The semi-heated building provisions contains several proposed changes. The specification for other than electric resistance heating was removed to clarify that the previously allowed electric infrared heating equipment must also meet the limitations defined for semi-heated spaces. This also provides some clarity for the use of heat pumps with cooling disabled. Clarification is also proposed to specify that fenestration is still required to meet the code and is not considered part of the opaque wall. The term "standard reference" was updated to "baseline building design." The exceptions were modified to correlate with the other changes.	21-GP1-130 AM 7/16/21 21-GP1-158 AM 7/09/21

Section	Subject	Description of Change	Log Number/ Action
C402.1.3 footnote c and C402.1.4 footnote d (Option 1) C402.1.3 footnote c and C402.1.4 footnote d (Option 2)	CMU Walls footnote modification Elimination of footnote for CMU walls	There are two options offered for both opaque thermal envelope tables. Option 1 modifies the mass wall footnote c, limiting the application of the exception single wythe concrete block walls exposed on both sides. Option 2 removes the exception.	21-GP1-207 AS 7/16/21 21-GP1-208 AS 7/16/21
C402.1.3(i) Table	Continuous insulation, stainless steel penetrations	Footnote j was modified to include values for stainless steel penetrations used with continuous insulation. The definition of continuous insulation was also modified to include reference to stainless steel fasteners.	21-GP1-157 AS 7/16/21
C402.1.3/ C402.1.4 Table	Mass transfer decks	Clarification to the existing definition from the Seattle code and corresponding change to Tables C402.1.3 and C402.1.4 clarifying how this detail is accounted for in the thermal performance calculations.	21-GP1-150 AM 7/16/21
C402.1.4.3	PTAC U-factors	New section requires heat loss for PTAC, PTHP and other through-wall mechanical equipment to be calculated as part of the envelope using the U-factor compliance method, with corresponding changes to Tables C402.1.3 and C402.1.4.	21-GP1-160 AS 7/16/21
C402.2.8, C402.2.9	Thermal bridging concrete balconies and fenestration framing	New sections to provide guidance on control of thermal bridging at concrete balconies (C402.2.8) and fenestration frames (C402.2.9).	21-GP1-159 AM 8/20/21
C402.4 Table	Reduce fenestration U-values	Window U-factors are reduced, a U-factor is added for operable windows under "… all others." Window orientation has been changed to fixed and operable to align with IECC and the associated footnote struck. Values in Section C402.4.1.1.2 were also modified with a corresponding reduction in high performance fenestration requirements.	21-GP1-161 AM 7/30/21
C402.4.2	Minimum skylight fenestration	The minimum skylight area was amended to better match the ASHRAE 90.1 language and requires skylights in any space under a roof that meets the criteria, not just single story spaces.	21-GP1-131 AS 7/16/21
C402.5.2 and C402.5.3	Dwelling unit enclosure	IECC changed the model code to require air barrier testing, as has been required by the WSEC for the last few code cycles. The new language was modified to conform to existing WSEC requirements.	21-GP1-91 AM 7/16/21
C402.5.3	Building thermal envelope testing	The existing WSEC exception allowing up to 0.30 cfm per square foot leakage with corrective action is deleted and testing must not exceed the 0.25 cfm per square foot rate.	21-GP1-108 AS 7/16/21
C402.5.9	No vestibules required for doors to outdoor dining	New exception added to exempt doors accessing only outdoor seating areas.	21-GP1-162 AS 6/25/21
C403.1.1 and App D	HVAC total system performance ratio (TSPR)	Adds multi-family residential to the list of occupancy types required to comply with TSPR, as well as providing system updates and clarifications to the procedure.	21-GP1-69 AM 7/23/21
C403.1.4, C503.4.6	Space heating proposal	Requires heat pump space hearing rather than fossil fuel or electric space heating for all buildings to provide a reduction in carbon emissions. Exceptions are provided to allow electric resistance heating for small loads and as supplemental heating, and for fossil fuel auxiliary heat in climate zone 5 under certain conditions.	21-GP1-103 AM 8/27/21
C403.10.3	Refrigerant piping clarifications	Clarifies that field installed HVAC refrigerant piping, strainer do not need to meet the requirements in Table C403.10.3. Three new exceptions were also added to exempt radiant heating systems, low temperature buried piping, and strainers and valves associated with small diameter piping.	21-GP1-226 AM 8/20/21

Section	Subject	Description of Change	Log Number/ Action
C403.10.3.1	Protection of piping insulation	Clarification on the requirements for protection of piping insulation exposed to weather.	21-GP1-155 AM 6/25/21
C403.15	Indoor horticulture dehumidification	Adds requirements for dehumidification efficiency for indoor growing facilities.	21-GP1-95 AM 8/13/21
C403.2.2.1	Over 150 percent ventilation - Dedicated outdoor air system (DOAS) with energy recovery	Allows greater than 150 percent ventilation if the DOAS has a very efficient energy recovery ventilators (ERV) and doesn't use supplemental heat.	21-GP1-188 AM 7/23/21
C403.2.4	5 horsepower (HP) threshold for variable flow	Decreases the size threshold for variable speed drive requirements from 7.5 to 5.0 horsepower. Correlating change in Section C404.13, Item 4 as well.	21-GP1-163 AM 8/27/21
C403.3.7, C40 3.3.7.1	New subsection to C403.3 Equipment Selection	C403.3.7 Hydronic Coil Selection C403.3.7.1 Chilled-Water Coil Selection Two new subsections based on ASHRAE 90.1 to require minimum temperature difference for hydronic coils for increased pump efficiency and primary equipment efficiency.	21-GP1-52 AM 7/30/21
C403.3.2.4	Extend HP requirement from packaged to include split systems	Requires packaged and split systems providing heating and cooling, or cooling only to be heat pumps. The requirement previously applied to packaged systems with both heating and cooling.	21-GP1-164 AS 6/25/21
C403.3.2.4, C403.4.1.1	Packaged electric heating and cooling equipment	Requires that the specified heat pump be a heat pump with defrost and the ability to operate in heat pump mode whenever the air temperature is over 25 degrees and the unit is not in defrost.	21-GP1-194 AM 8/13/21
C403.3.4	Boiler controls	New section with criteria for combustion air controls and minimum stake gas oxygen concentration levels for boiler systems, applicable to building and process boilers. Also adds associated definitions.	21-GP1-139 AS 6/25/21
C403.3.4.2 (new)	High capacity space heating boiler	Adds requirements from ASHRAE 90.1 for high capacity gas-fired hot water boiler systems to have condensing boilers.	21-GP1-133 AS 6/25/21
C403.3.5	DOAS fan power	Updates language and reformats the heat/energy recovery requirements with DOAS to improve clarity. It also provides a calculation procedure for watts per cfm and clarifies which fans are required to be included in this calculation. Also adds a definition of DOAS.	21-GP1-110 AM 7/23/21
C403.3.5.1	60 percent enthalpy ERV required for DOAS, except R1/R2	Increase the ERV effectiveness to 60 percent enthalpy recovery effectiveness or 68 percent minimum sensible recovery effectiveness, from the previous values of 50/60 percent. The exception is also limited to 650 square feet, with a smaller allowance for occupant load.	21-GP1-165 AM 7/23/21
C403.3.5.1	DOAS demand control ventilation (DCV) exception	Clarifies the application of the demand control ventilation exception to the requirement for energy recovery with DOAS.	21-GP1-111 AM 7/23/21
C403.3.5.1, C403.3.6, C406.7	DOAS sensible recovery readiness	Makes various language updates and content location changes to improve code clarity and incorporates the ASHR [ASHRAE] 1060 calculation for sensible recovery effectiveness.	21-GP1-113 AM 7/23/21
C403.3.5.5, C403.7.3	DOAS tempering	Adds supplemental heating and cooling capacity sizing and control requirements to DOAS and makes changes for consistency with Section C403.7.3.	21-GP1-239 AM 8/13/21
C403.3.7 new section	Hydronic system max flow in piping system	Add a new section and table based on ASHRAE 90.1 language to limit the flow rate in critical circuits of hydronic systems to minimize flow resistance.	21-GP1-166 AM 8/13/21
C403.4.1	DR thermostats	Adds a requirement for demand responsive controls for thermostats in all buildings except health care and assisted living. It does not require participation in any demand response programs.	21-GP1-97 AM 8/13/21

Section	Subject	Description of Change	Log Number/ Action
C403.4.11	Direct digital control (DDC) controls	Clarify that for example standalone mini-split heat pump and PTHP's installed in a residential apartment building that have no need for an interface between each other require a central DDC system. This change would require water source heat pumps or water source VRF systems (for example) that are part of a central system to have central DDC controls. Add definition from 90.1-2019.	21-GP1-227 AM 8/20/21
C403.4.12 new section	Pressure independent control valves (PICV)	New section to require modulating PICVs where the flow rate over coils is over five gpm.	21-GP1-167 AM 6/25/21
C403.4.4	Part load controls	Modification to allow the operation of thermal energy storage systems without reduced capacity at part-load conditions.	21-GP1-54 AS 7/30/21
C403.5	Group R2 exclusion for economizer exception 1	Modify exception 1 to exclude Group R-2, to prohibit the installation of PTHP and PTVP without economizer when combined with a DOAS.	21-GP1-185 AS 8/13/21
C403.5 Exceptions 1 and 5	Airside economizer	Clarifies the language of exception 1 and exception 5 to specify the condensing unit portion of a split system can be installed outdoors as long as the supply fan coil portion of the unit is installed indoors and not in a mechanical room. Also adds a definition for mechanical room.	21-GP1-228 AM 8/20/21
C402.5.11 and C403.4.1.6	Operable openings	IECC added a section requiring operable openings to be interlocked with the HVAC system. The language was modified to correlate with the existing WSEC requirement in Section C403.4.1.6.	21-GP1-240 AM 8/27/21
C403.7.1	DCV	Replaces the current DCV language with a new section and removes the energy recover [recovery] exception and reduces various thresholds. Requires gas sensors in spaces and systems required to have VSD control. Correlating changes to C403.3.5.1 and C503.4.4.	21-GP1-190 AM 8/13/21 21-GP1-168 AS 6/25/21
C403.7.5	Garage ventilation	Clarify that the requirements include repair garages and require VFD control in garages with systems 5 hp and greater.	21-GP1-191 AS 8/13/21 21-GP1-169 AM 6/25/21
C403.7.5.2	Parking garage vent controls	Clarifications to correlate with requirements in the mechanical code.	21-GP1-229 AS 8/13/21
C403.7.6	Increase ERV effectiveness, except R1/R2	IECC separated out residential occupancies under the ERV requirements. This proposal increases the enthalpy recovery ratio from 50 to 60 percent for other than R-2 occupancies.	21-GP1-170 AS 6/25/21
C403.7.7.1.3	Kitchen DCV	Adds a definition for demand control kitchen ventilation and cleans up language and incorporates a requirement for title DCKV on hoods over 2000 cfm.	21-GP1-236 AM 8/13/21
C403.8, C503.4	Fan power allowance tables	Updates the approach to fan power limitations and aligns with the Title 24 method. It also moves the threshold down to cover smaller nameplate HP fans.	21-GP1-138 AM 7/23/21
C404.11.1	Pool water heaters over 2000 gallons	Requires heat pump water heaters on heated pools over 2000 gallons.	21-GP1-177 AS 7/23/21
C404.14	DR water heaters	Bring in demand response requirements for water heaters between 40 and 120 gallons to provide grid flexibility as a step towards decarbonization.	21-GP1-99 AM 8/27/21
C404.2.1, C404.7, C503.59	Heat pump water heating	Provide heat pump water heating rather than fossil fuel or electric resistance water heating in commercial buildings to provide a reduction in carbon emissions. Exceptions are provided to allow electric resistance heating for hand washing facilities.	21-GP1-136 AM 8/13/21

Section	Subject	Description of Change	Log Number/ Action
C404.3.1 Table	Allow eight feet of pipe length between circ pipe and lavatory, instead of just one or two	Allows eight feet of pipe length between circulating pipe and lavatory, instead of just one or two to permit circulating piping to run in ceiling cavity.	21-GP1-173 AS 6/25/21
C404.6.1	Storage tank insulation for higher temperature storage	Requires thicker insulation for service water heating storage tanks designed for storage temperatures over 130 degrees.	21-GP1-174 AS 7/16/21
C404.7.1	Require thermostatic balancing valves and thermostatic mixing valves inch	Require service water circulation systems with multiple risers or zones and variable flow circulation pumps to use self-actuating thermostatic balancing valves. Also, where electronic thermostatic mixing valves are used, configure valves to remain closed or maintain current valve position upon power loss.	21-GP1-175 AS 7/16/21
C404.7.1, 404.7.1.1, C404.7.1.2	Circulation pump	Requires ECM motors for all service water heating circulation pumps.	21-GP1-182 AM 7/16/21
C404.7.3.1	Pipe insulation 1 inch thicker on circulation system piping	New section to require thicker insulation for service water system piping in the circulation loop.	21-GP1-176 AS 7/16/21
C405.13	Uninterrupted power supply (UPS) efficiency for computer rooms	Adds new section with requirements for UPS efficiency for computer rooms based on energy star requirements.	21-GP1-137 AS 8/20/21
C405.2	Require LLLC (luminaire-level lighting controls) lighting or digital lighting control system for large open office areas.	Require LLLC or enhanced digital lighting control system for open office areas larger than 5000 sf. Permit several adjacent fixtures within one daylight zone to be controlled together. Reduce allowance for 24/7 lighting from 0.02 down to 0.01 watts per sf.	21-GP1-178 AM 7/09/21
C405.4.2.1/ C405.4.2.2	Interior lighting allowance	Clarifies the methodology for choosing the correct allowance for buildings or spaces that are occupied at different times for different purposes.	21-GP1-76 AM 7/09/21
C405.2.1	Occupant sensor controls	Clarification and alignment of WSEC requirements with IECC 2021 formatting.	21-GP1-93 AM 7/09/21
C405.2.1 Exception 4	Timer switches	Eliminates the exception for timer switches. Correlating change to Section C405.2.2.	21-GP1-92 AS 7/09/21
C405.2.1.4, C405.2.8	Parking garage lighting	Correlation of the parking garage occupant sensor controls with the ASHRAE 90.1 requirements.	21-GP1-127 AS 7/09/21
C405.2.4	Daylight harvesting	Changing the fixture number threshold to a wattage-based threshold.	21-GP1-026 AM 7/09/21
C405.2.7.3	Lighting setback	Decreases the lamp wattage for luminaires requiring activity sensor control.	21-GP1-125 AM 7/09/21
C405.3	Plant light efficacy	Sets a new metric for lighting for plant growth, along with a definition of photosynthetic photon efficacy, and reduces the exception threshold.	21-GP1-98 AM 7/09/21
C405.4.2(2) footnotes/ C405.2.2.1	Additional interior lighting power	Revises the footnotes on display and ornamental lighting and what use types can take advantage of which types of increased lighting.	21-GP1-94 AM 8/27/21
C405.5.1	Exterior building grounds lighting	Lowers the threshold for lighting efficacy requirements from 50 watts to 25 watts and simplifies the language.	21-GP1-204 AM 7/09/21
C405.5.3	Exterior lighting	Updates the exterior lighting tables in response to changes in technology, with an approximate 40 percent reduction across the board.	21-GP1-198 AM 7/09/21
C405.7.1	Electrical receptacles at gas appliances	Requires electric receptacles at dwelling unit gas appliances, to enable future installation of electric appliances.	21-GP1-179 AM 8/13/21

Section	Subject	Description of Change	Log Number/ Action
C406	HVAC applications	Adds load management requirements for new buildings to prepare buildings to interact efficiency with the evolving electrical grid in the future. Corresponding change also made to Section C403.4.11.1. Reformats Section C406 and sets credit requirements by occupancy type. The metric was changed to carbon emission and a standard of 0.1 percent reduction per point was set as the basis.	21-GP1-206 AM 8/27/21
C406	Additional efficiency	Increases the required number of energy efficiency credits to be achieved. The requirements were increased approximately 16 percent, if the heat pump water heating proposal is adopted, and by approximately 33 percent if it is not.	21-GP1-146 AM 8/27/21
C406.1	Additional energy efficiency credit requirements	Clarifies which space conditioning categories are subject to C406 compliance and clarifies application language.	21-GP1-230 AM 7/30/21
C406	A number of new options were added to C406 by proposals: Low-Carbon district energy Heat pump dryers Enhanced commercial kitchen equipment High performance temperature maintenance system High efficiency circulation systems Low flow showerheads for R-1 and R-2 occupancies Clarification of service water heat pump efficiencies Offsite Renewables		21-GP1-121 21-GP1-231 21-GP1-106 21-GP1-213 21-GP1-215 21-GP1-218 21-GP1-212 21-GP1-120 All AM 8/27/21
C407	Total building performance	Increases the stringency of the building performance factors used to set emissions targets which are based on regulated loads only by 10 percent over the previous code. Note that if the carbon emissions factors in Table C407.3(1) are updated during development of the 2022 code, the Building Performance Factors in Table C407.3(2) should be updated by Pacific Northwest National Laboratory (PNNL) to match the intent of this proposal. Added a second metric for compliance based on site energy performance that includes all loads (regulated and unregulated). The target for this new site energy metric is based on a tiered improvement from the 2018 WSEC to a 0.3 site energy use performance index by 2030 compared to the Appendix G Standard 90.1-2004 baseline (see table and graph below). This is meant to meet the intent of the Washington state policy goal of having a code in 2030 that will result in new buildings that use 30 percent of the site energy of a building built to the 2006 WSEC. Adds allowances for reductions in site energy to be satisfied by use of on-site or off-site renewable energy sources and improvements to unregulated loads, as approved by the jurisdiction. The remaining existing carbon metric will not allow credit for improvements in unregulated loads or renewable energy systems, thus preserving the energy efficiency of the building itself. Sets criteria for how off-site renewable energy systems will be credited patterned after those in ASHRAE Standards 189.1 and 228. This includes discounting of credit, requirements for tracking renewable energy certificates, and other documentation.	21-GP1-70 AM 8/27/21
C407.3	Low-Carbon district energy x 2	Add section on how to utilize low carbon district energy systems in total building performance. Adds associated definitions.	21-GP1-122 AM 8/27/21
Table C407.3(1)	Updated carbon emissions factor	Updates the carbon emissions factor metric for electricity to 0.44 based on the Clean Energy Transformation Act effects.	21-GP1-156 AS 6/25/21

Section	Subject	Description of Change	Log Number/ Action
C408	Lower Commissioning exception thresholds	Reduces commissioning exception thresholds.	21-GP1-101 AM 8/20/21
C409	Metering	Editorial changes for clarification throughout the section.	21-GP1-222 21-GP1-238 21-GP1-223 AM 8/27/21
C410	Refrigeration	IECC completely restructured the refrigeration sections for the 2021 code. The result here is a hybrid of the changes to the 2021 code, including the new tables and modifications to retain some of the existing WSEC language to retain requirements for some federally unregulated applications.	21-GP1-128 AM 8/27/21
C411	Renewable energy	Requires on-site renewable energy generation for commercial buildings over 10,000 square feet.	21-GP1-78 AM 8/27/21
C411.1, C502.1, C503.1, C505.1	Solar readiness provision	Provides guidance on how solar readiness requirements are applied to existing buildings.	21-GP1-115 AS 8/20/21
C412	Compressed air	New section proposed to regulate compressed air systems based on language from the Seattle code and California's Title 24 (2022 edition). This would apply to process loads.	21-GP1-193 AM 8/20/21
C501.2, C503.2, C503.3, C505.1	Change in space conditioning	IECC relocated change in space conditioning to C503 Additions for the 2021 code. This proposal moves those requirements into the change of occupancy or use Section C505.	21-GP1-114 AM 8/27/21
C502, C503, new C506	Historic buildings	Reverts the WSEC language back to the base IECC model code language.	21-GP1-102 AS 8/27/21
C503.3.1	Roof retrofit	Clarification of roof replacement when existing roof is uninsulated.	21-GP1-151 AS 6/25/21
Table C503.4	PTHP PTAC	Adds two rows to Table C503.4 to cover replacement of PTAC, PTHP, PVAC and PVHP for economizer compliance options.	21-GP1-183 AS 8/27/21
C503.6	Reduce threshold for LPA compliance from 50 percent to 20 percent	Requires alterations replacing 20 percent or more of existing lighting fixtures to comply with the lighting power allowance in Section C405. The previous threshold was 50 percent.	21-GP1-180 AM 7/09/21
App F	F101.3.2 Table	Updates to the EUI table of the outcome-based energy budget based on the 2018 status report to the legi20219slature towards the 70 percent reduction goal.	21-GP1-90 AM 6/25/21

Reasons Supporting Proposal: The proposal helps increase energy efficiency towards the goals in RCW 19.27A.020, 19.27A.160, and Executive Order 16-07 and provides additional clarity in regulations to assist both builders and enforcers.

Statutory Authority for Adoption: RCW 19.27A.020, 19.27A.025, 19.27A.160.

Statute Being Implemented: Chapters 19.27A, 19.27 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: SBCC and various stakeholders, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Krista Braaksma, 1500 Jefferson [Street] S.E., P.O. Box 41449, Olympia, WA, 360-407-9278; and Enforcement: Local jurisdictions.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Stoyan

Bumbalov, 1500 Jefferson [Street] S.E., P.O. Box 41449, Olympia, WA 98504-1449, phone 360-407-9277, email Stoyan.bumbalov@des.wa.gov.

The proposed rule does impose more-than-minor costs on businesses. There are costs imposed by the proposed rules but the costs do not fall disproportionately on small businesses. These rules will not affect the distribution of impacted work, whether by small businesses or not, doing the work. The rules do not impact employment, reporting or recordkeeping.

Description: SBCC is filing a proposed rule to adopt the updated 2021 edition of IECC with state amendments, known as the 2021 WSEC: Chapter 51-11C WAC. Since 1985, SBCC has been responsible to update to new editions of the building code per RCW 19.27.074.

The administrative compliance requirements are under the authority of the local government. RCW 19.27.050. Enforcement activities including permit issuance, plan review and approval, and inspections occur at the local level. Requirements for construction document submittal and other reporting requirements are determined by the local jurisdiction and are consistent with previously established policies. The proposed amendments to chapter 51-11C WAC include specific technical requirements for building construction to be consistent with national standards.

WSEC is updated every three years by SBCC. The code development process conducted by the model code organization is open to all interest groups within the design and construction industry and from governmental organizations. See www.iccsafe.org for more information about the model code development process.

Professional Services: Washington has had a statewide building code in effect since 1974. The local enforcement authority having jurisdiction administers the codes through the building and/or fire departments. Administrative procedures for state building code compliance are established and will not be changed by the adoption of the update to the current building codes. Small businesses will employ the same types of professional services for the design and construction of buildings and systems to comply with the state building code.

The proposed rule updates the state building code and does not require additional equipment, supplies, labor, or other services. Services needed to comply with the building code are existing within the construction industry as required by the local authority having jurisdiction.

Costs of Compliance for Businesses: SBCC accepts proposals to amend WSEC to meet the legislative goals. The statewide code amendment proposal process is defined in chapter 51-04 WAC and SBCC by-laws. Proposals must increase the energy efficiency in buildings. Each proponent must identify where a proposed amendment has an economic impact and must quantify costs. SBCC developed a specific set of forms for WSEC, so proponents could identify where a proposed amendment was editorial, technical, or a policy change.

SBCC received 161 proposals to improve WSEC. The energy code technical advisory group (TAG) recommended approval of 118 amendments as submitted or as modified. Twenty-three proposed amendments were identified by TAG as having a significant cost.

TAG and SBCC economic workgroup determined there is a cost for compliance on businesses for the following proposed state amendments. SBCC recommended filing the proposed rule to allow input through the public hearing process.

1. WSEC C403.1.4, C503.4.6 Heat pump space heating (Proposal 21-GP1-103): Requires heat pump space hearing [heating] rather than fos-

sil fuel or electric space heating for all buildings to provide a reduction in carbon emissions. Exceptions are provided to allow electric resistance heating for small loads and as supplemental heating, and for fossil fuel auxiliary heat in climate zone 5 under certain conditions. Cost: $0.24 per square foot. Energy Savings: Cost savings of $0.70 per square foot or $2.70 per square foot including the social cost of carbon.

2. WSEC C404.2.1, C404.7, C503.5 Heat pump water heating (Proposal 21-GP1-136): Provide heat pump water heating rather than fossil fuel or electric resistance water heating in commercial buildings to provide a reduction in carbon emissions. Exceptions are provided to allow electric resistance heating for hand washing facilities. Cost: $2.47 per square foot, with a $2.43 per square foot lifecycle cost increase without taking into account the social cost of carbon. When accounting for the adjusted social cost of carbon, there is an estimated $0.38 per square foot savings, with an average energy savings of 5.5 kBtu per square foot.

3. WSEC C405.7.1 Electrical receptacles at gas appliances (Proposal 21-GP1-179): Requires electric receptacles at dwelling unit gas appliances, to enable future installation of electric appliances. Cost: $250 per receptacle; square foot cost will vary depending on how many gas appliances are installed.

4. WSEC C411 Renewable energy (Proposal 21-GP1-078): Requires onsite renewable energy generation for commercial buildings over 10,000 square feet. Cost: $0.05 per square foot to install 0.50 W/square feet PV system. Energy Savings: Three - 17 percent in annual energy savings. The payback for this measure is disputed, with the proponent stating a 17 year payback and the PUD association stating an average 25 year payback, with a worst case of 98 years.

5. WSEC Tables C402.1.3, C402.1.4 CMU Walls footnotes Option 1 (Proposal 21-GP1-207): This change (Option 1) would modify the mass wall footnote in both tables, limiting the application of the exception to single wythe concrete block walls exposed on both sides. Cost: The estimated cost of installing interior insulation would be equivalent to the cost of insulating the cores, with a net result of no cost increase. Energy Savings: The estimated annual energy savings is 0.2 kBtu per square foot for those buildings no longer able to apply the exception.

6. WSEC Tables C402.1.3, C402.1.4 CMU Walls footnotes Option 2 (Proposal 21-GP1-208): This change (Option 2) would eliminate the mass wall footnote on both tables, requiring CMU walls to be insulated to the R-value or U-factor in the table. Cost: The estimated cost is between $2.52 and $2.99 per square foot. Energy Savings: 0.2 kBtu per square foot.

7. WSEC C403.1.1, Appendix D HVAC Total system performance ratio (Proposal 21-GP1-069): Adds multifamily residential to the list of occupancy types required to comply, as well as providing system updates and clarifications to the procedure. Cost: For multifamily, it will add to the design costs at an estimated $0.02 per square foot. It will also require additional plan review time.

8. WSEC C403.15 Indoor horticulture dehumidification (Proposal 21-GP1-095): Adds requirements for dehumidification efficiency for indoor growing facilities. Cost: $8.11 per square foot. Energy Savings: 80 to 81 kBtu per square foot.

9. WSEC C404.14 Demand response water heaters (Proposal 21-GP1-099): Bring in demand response requirements for water heaters between 40 and 120 gallons to provide grid flexibility as a step towards

decarbonization. Cost: If the heat pump water heater proposal is adopted, there will be no incremental cost for demand responsive controls. If not, there will be an estimated $1000 incremental cost. Energy Savings: Although a HP water heater would deliver a 60 percent savings on average, the intent is to serve peak energy.

10. WSEC C412 Compressed air (Proposal 21-GP1-193): New section proposed to regulate compressed air systems based on language from the Seattle code and California's Title 24 (2022 edition). This would apply to process loads. There is a significant first cost that varies on the size of the installed system. The modeled system was based on worst case scenarios in the California cost benefit modeling and show a first cost of just over $300,000 (not broken down by square footage), with ongoing maintenance costs. Energy Savings: Based on the same model, annual energy savings totaled over 274,000 kWh with a seven percent reduction of carbon emissions.

11. WSEC Table C406.1 Additional energy efficiency (Proposal 21-GP1-146): Increases the required number of energy efficiency credits to be achieved. The requirements were increased approximately 16 percent, if the heat pump water heating proposal is adopted, and by approximately 33 percent if it is not. The cost will vary greatly depending on the type of building and the measures selected. Not all measures are appropriate for all building types. Energy Efficiency: There will be some variation here as well, since not all building types have the same credit requirements. However, the average credit increase is eight, with each point corresponding to a 0.1 percent carbon reduction for an average 0.8 percent reduction.

12. WSEC C406.3 Load management credits (Proposal 21-GP1-206): Adds load management requirements for new buildings to prepare buildings to interact efficiency with the evolving electrical grid in the future. Costs: Range from $19,900 for a 240,000 square foot hospital to $453 for a 5,000 square foot office or restaurant, with simple payback ranging from 1.1 year (restaurant) to 25.0 years (warehouse), with a 3.66 year statistical average. Demand responsive lighting controls cost approximately $0.0825 per square foot. Energy Savings: Annual energy savings ranged from $5,700 for hospital to $117 for the 5,000 square foot office, with the statistical average of a 3.66-year payback.

13. WSEC C503.6 Reduced threshold for existing lighting replacement compliance (Proposal 21-GP1-180): Requires alterations replacing 20 percent or more of existing lighting fixtures to comply with the lighting power allowance in Section C405. The previous threshold was 50 percent. Cost: Estimate of $0.75 per square foot. Energy Savings: Estimate of 0.13 kWh per square foot.

14. WSEC C403.3.4 Boiler controls (Proposal 21-GP1-139): New section with criteria for combustion air controls and minimum stake gas oxygen concentration levels for boiler systems, applicable to building and process boilers. Cost: Estimated cost of $0.098 per square foot with ongoing maintenance costs. Energy Savings 2.116 kBtu per square foot.

15. WSEC C403.8.1, C503.4 (Proposal 21-GP1-138): Updates the approach to fan power limitations and aligns with the Title 24 method. It also moves the threshold down to cover smaller nameplate HP fans. Cost: $0.29 per square foot. Savings: 0.372 kWh per square foot (B/C ratio average of 3.8 across all building types) or about two percent energy savings per building.

16. WSEC C402.1.4.3 PTAC U-factors (Proposal 21-GP1-160): Requires heat loss for PTAC, PTHP and other through-wall mechanical

equipment to be calculated as part of the envelope U-factor compliance method. Cost: $0.24 per square foot. Energy Savings: 36 kWh per year per dwelling/sleeping unit or about 0.013 kWh per square foot per year.

17. WSEC C403.3.2.4 Require heat pump for split systems (Proposal 21-GP1-164): Requires packaged and split systems providing heating and cooling, or cooling only to be heat pumps. The requirement previously applied to packaged systems with both heating and cooling. Cost: Estimated at $0.10 per square foot. Energy Savings: Estimated at 5.4 kBtu per square foot per year, or approximately a 60 percent reduction of heating energy.

18. WSEC C403.3.4.2 High capacity space heating boiler (Proposal 21-GP1-133): Adds requirements from ASHRAE 90.1 for high capacity gas-fired hot water boiler systems to have condensing boilers. Cost: Average estimate of $0.10 per kWh across various building types and climate zones. Energy Savings: Using the Standard 90.1 scalar ratio, the economic analysis shows an average scalar ratio of 4.2. The maximum scalar ratio of 17.2 for boilers with a life expectancy of 25 years. Models and estimates show that all prototypes fall within the maximum scalar ratio and are cost effective.

19. WSEC C403.3.5.1 Require 60 percent enthalpy energy recover ventilation with DOAS (Proposal 21-GP1-165): Increase the ERV effectiveness to 60 percent enthalpy recovery effectiveness or 68 percent minimum sensible recovery effectiveness, from the previous values of 50/60 percent. The exception is also limited to 650 square feet, with a smaller allowance for occupant load. Cost: Estimate of $0.10 per square foot. Energy Savings: 0.1 kWh per square foot per year, assuming HVAC is one-third of total energy use, or a two percent reduction in annual HVAC energy.

20. WSEC C403.4.1 Demand responsive thermostat controls (Proposal 21-GP1-097): Adds a requirement for demand responsive controls for thermostats in all buildings except health care and assisted living. It does not require participation in any demand response programs. Cost: $0.03 per square foot, based on an assumption of $30 per unit controlling a 1000 square foot zone. Energy Savings: A California study reported an annual energy savings of 83 to 274 kWh.

21. WSEC C403.7.1 Demand control ventilation (Proposal 21-GP1-190): Replace the existing DCV section with updated language and expanded scope to require DCV in more spaces and systems, and removes the exemption for energy recovery. Cost and savings are based on ASHRAE 90.1 Addendum b, scaled down to show as cost effective in the office of financial management (OFM) lifecycle cost tool. Cost: $300 per zone. Energy Savings: The ASHRAE model showed savings of 108 kWh and 75 therms for a two-zone model. For the cost savings of 47 kWh and 33 therms (for two zones) were found to be cost effective in the OFM calculator.

22. WSEC C405.5.1 Exterior building lighting (Proposal 21-GP1-204): Lowers the threshold for lighting efficacy requirements from 50 watts to 25 watts and simplifies the language. Cost: With LED fixtures as the dominant light source, there is no cost associated to achieve the higher efficacy requirement. Energy Savings: Estimated at 0.109 kWh per square foot, assuming 4,380 hours of operation.

23. WSEC C405.5.3 Exterior lighting (Proposal 21-GP1-198): Updates the exterior lighting tables in response to changes in technology, with an approximate 40 percent reduction across the board. Cost: Limited economic impact on building owners, tenants, and business[es]. The values in the table have not been updated since 2016. As of 2016,

LED technology was relatively new, and the efficacy was around 82 lm/W. As of 2021, exterior LEDs are easily 105 lm/W and many exceed 120 lm/W. In 2016, light loss factors for LEDs were somewhat an unknown. As of 2021, the lighting industry's knowledge is deeper and different light loss factors are used now. These values are change in available lighting technology as well as informed design practices. Energy Savings: 0.08 kWh per square foot, assumed at 30,000 square foot parking lot, with the LPD reduced by 40 percent.

Loss of Sales or Revenue: The proposed rules make the state code for building construction consistent with national standards. Businesses with new products or updated test or design standards are recognized in the updated building code. For these businesses there will be a gain in sales and revenue.

The results of reduced energy use in buildings include avoiding the need for new power generation, reducing environmental impact, and providing local employment. The legislative findings state that energy efficiency is the cheapest, quickest, and cleanest way to meet rising energy needs, confront climate change, and boost our economy.

Cost of Compliance for Small Businesses: The majority of businesses affected by the updates to the building codes are small businesses; over 95 percent of those listed in the construction and related industries have under 50 employees. The costs per employee are comparable between the largest businesses and the majority of small businesses. The cost to comply with the updated codes is not a disproportionate impact on small business. Where SBCC found the cost of compliance for small businesses to be disproportionate, the proposed rule mitigates the cost. The proposed rules include a definition of small business and provide exceptions for compliance with the updated rule.

Small Businesses Involved in the Development of the Rule: SBCC conducted open public meetings of the energy code TAG, available via zoom and telephone conference bridge, and allowed comment on every item on every agenda. SBCC appointed over 100 representatives of all segments of the business and construction community to serve on TAGs.

List of Industries: Below is a list of industries required to comply with the commercial energy code:

2017 Industry NAICS Code	NAICS Code Title	Minor Cost Estimate	1% of Avg Annual Payroll	0.3% of Avg Annual Gross Business Income
236116	New Multifamily Housing Construction (except For-Sale Builders)	$32,067.43	$17,160.94 2020 Dataset pulled from USBLS	$32,067.43 2020 Dataset pulled from DOR
236118	Residential Remodelers	$1,457.74	$1,457.74 2020 Dataset pulled from USBLS	$901.20 2020 Dataset pulled from DOR
236210	Industrial Building Construction	$59,169.45	$59,169.45 2020 Dataset pulled from ESD	$53,925.71 2020 Dataset pulled from DOR
236220	Commercial and Institutional Building Construction	$41,552.81	$18,126.81 2020 Dataset pulled from ESD	$41,552.81 2020 Dataset pulled from DOR
238110	Poured Concrete Foundation and Structure Contractors	$3,442.28	$5,027.07 2019 Dataset pulled from CBP	$3,442.28 2020 Dataset pulled from DOR
238120	Structural Steel and Precast Concrete Contractors	$15,401.97	$20,212.19 2019 Dataset pulled from CBP	$15,401.97 2020 Dataset pulled from DOR

2017 Industry NAICS Code	NAICS Code Title	Minor Cost Estimate	1% of Avg Annual Payroll	0.3% of Avg Annual Gross Business Income
238130	Framing Contractors	$2,234.30	$3,139.71 2019 Dataset pulled from CBP	$2,234.30 2020 Dataset pulled from DOR
238140	Masonry Contractors	$1,900.60	$3,582.13 2019 Dataset pulled from CBP	$1,900.60 2020 Dataset pulled from DOR
238150	Glass and Glazing Contractors	$5,255.36	$9,574.95 2019 Dataset pulled from CBP	$5,255.36 2020 Dataset pulled from DOR
238160	Roofing Contractors	$3,589.99	$5,007.86 2019 Dataset pulled from CBP	$3,589.99 2020 Dataset pulled from DOR
238170	Siding Contractors	$1,905.61	$2,485.86 2019 Dataset pulled from CBP	$1,905.61 2020 Dataset pulled from DOR
238190	Other Foundation; Structure; and Building Exterior Contractors	$4,622.07	$4,141.38 2019 Dataset pulled from CBP	$4,622.07 2020 Dataset pulled from DOR
238210	Electrical Contractors and Other Wiring Installation Contractors	$5,941.60	$9,599.33 2019 Dataset pulled from CBP	$5,941.60 2020 Dataset pulled from DOR
238220	Plumbing; Heating; and Air-Conditioning Contractors	$5,353.76	$11,047.00 2019 Dataset pulled from CBP	$5,353.76 2020 Dataset pulled from DOR
238290	Other Building Equipment Contractors	$4,335.21	$16,142.07 2019 Dataset pulled from CBP	$4,335.21 2020 Dataset pulled from DOR
238310	Drywall and Insulation Contractors	$3,725.66	$9,461.67 2019 Dataset pulled from CBP	$3,725.66 2020 Dataset pulled from DOR
238990	All Other Specialty Trade Contractors	$3,585.74	$3,677.28 2019 Dataset pulled from CBP	$3,585.74 2020 Dataset pulled from DOR
321214	Truss Manufacturing	$28,620.35	$23,341.04 2020 Dataset pulled from ESD	$28,620.35 2020 Dataset pulled from DOR
321911	Wood Window and Door Manufacturing	$45,151.12	$18,811.08 2020 Dataset pulled from ESD	$45,151.12 2020 Dataset pulled from DOR
321992	Prefabricated Wood Building Manufacturing	$5,391.09	$5,391.09 2020 Dataset pulled from ESD	$4,888.53 2020 Dataset pulled from DOR
327310	Cement Manufacturing	$50,878.29	$44,741.20 2020 Dataset pulled from ESD	$50,878.29 2020 Dataset pulled from DOR
327320	Ready-Mix Concrete Manufacturing	$64,317.30	$46,126.21 2020 Dataset pulled from ESD	$64,317.30 2020 Dataset pulled from DOR
327331	Concrete Block and Brick Manufacturing	$15,030.60	$15,030.60 2020 Dataset pulled from ESD	$10,431.02 2020 Dataset pulled from DOR
332311	Prefabricated Metal Building and Component Manufacturing	$21,638.20	$10,043.73 2020 Dataset pulled from USBLS	$21,638.20 2020 Dataset pulled from DOR

2017 Industry NAICS Code	NAICS Code Title	Minor Cost Estimate	1% of Avg Annual Payroll	0.3% of Avg Annual Gross Business Income
332312	Fabricated Structural Metal Manufacturing	$22,220.31	$16,337.10 2020 Dataset pulled from USBLS	$22,220.31 2020 Dataset pulled from DOR
332321	Metal Window and Door Manufacturing	$26,369.28	$14,505.40 2020 Dataset pulled from ESD	$26,369.28 2020 Dataset pulled from DOR
332322	Sheet Metal Work Manufacturing	$23,337.23	$23,337.23 2020 Dataset pulled from ESD	$16,556.52 2020 Dataset pulled from DOR
335121	Residential Electric Lighting Fixture Manufacturing	$2,011.37	$2,011.37 2020 Dataset pulled from USBLS	$1,502.01 2020 Dataset pulled from DOR
335122	Commercial; Industrial; and Institutional Electric Lighting Fixture Manufacturing	$6,357.34	--	$6,357.34 2020 Dataset pulled from DOR
335129	Other Lighting Equipment Manufacturing	$6,281.32	$6,281.32 2020 Dataset pulled from ESD	$2,494.40 2020 Dataset pulled from DOR
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	$24,486.53	$16,589.10 2020 Dataset pulled from ESD	$24,486.53 2020 Dataset pulled from DOR
541310	Architectural Services	$9,221.65	$9,221.65 2020 Dataset pulled from ESD	$3,738.99 2020 Dataset pulled from DOR
541330	Engineering Services	$14,801.92	$14,801.92 2020 Dataset pulled from USBLS	$7,177.43 2020 Dataset pulled from DOR
111419	Other Food Crops Grown Under Cover	$3,263.61	$3,263.61 2020 Dataset pulled from USBLS	$3,047.66 2020 Dataset pulled from DOR
111998	All Other Miscellaneous Crop Farming	$11,782.08	$11,782.08 2020 Dataset pulled from USBLS	$3,518.45 2020 Dataset pulled from DOR

A copy of the statement may be obtained by contacting Stoyan Bumbalov, 1500 Jefferson [Street] S.E., P.O. Box 41449, Olympia, WA 98504-1449, phone 360-407-9277, email Stoyan.bumbalov@des.wa.gov.

January 5, 2021 [2022]
Andrew S. Klein
Acting Counsel Chair

OTS-3533.2

Chapter 51-11C WAC
STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((~~2018~~)) 2021 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, COMMERCIAL

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-10100 Section C101—Scope and general requirements.

C101.1 Title. This code shall be known as the *Washington State Energy Code*, and shall be cited as such. It is referred to herein as "this code."

The 2021 edition of the Washington State Energy Code is hereby adopted. The Washington State Energy Code adopted under chapter 51-11C WAC shall become effective in all counties and cities of this state on July 1, 2023.

C101.2 Scope. This code applies to *commercial buildings* and the buildings sites and associated systems and equipment. References in this code to Group R shall include Group I-1, Condition 2 assisted living facilities licensed by Washington state under chapter 388-78A WAC and Group I-1, Condition 2 residential treatment facilities licensed by Washington state under chapter 246-337 WAC. Building areas that contain Group R sleeping units, regardless of the number of stories in height, are required to comply with the commercial sections of the energy code.

EXCEPTION: The provisions of this code do not apply to *temporary growing structures* used solely for the commercial production of horticultural plants including ornamental plants, flowers, vegetables, and fruits. A temporary growing structure is not considered a building for the purposes of this code. However, the installation of other than listed, portable mechanical equipment or listed, portable lighting fixtures is not allowed.

C101.3 Intent. This code shall regulate the design and construction of buildings for the use and conservation of energy over the life of each building. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve this objective. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-10100, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, and chapters 19.27, 19.27A, and 34.05 RCW. WSR 17-17-162, § 51-11C-10100, filed 8/23/17, effective 10/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-10100, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10100, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-10200 Section C102—Alternative materials, design and methods of construction and equipment.

C102.1 General. The provisions of this code are not intended to prevent the installation of any material, or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. ((~~An alternative material, design or method of construction shall be *approved* where~~)) The code official shall have the authority to approve an alternate material, design or method of construction upon the written application of the owner or the owner's authorized agent. The *code official* shall

first find((s)) that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, energy conservation, and safety. ((Where the alternative material, design or method of construction is not approved,)) The code official shall respond to the applicant, in writing, stating the reasons why the alternative was approved or was not approved.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-10200, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10200, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-10300 Section C103—Construction documents.

C103.1 General. Construction documents and other supporting data shall be submitted in one or more sets, or in a digital format where allowed by the building official, with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require necessary construction documents to be prepared by a registered design professional.

EXCEPTION: The *code official* is authorized to waive the requirements for construction documents or other supporting data if the *code official* determines they are not necessary to confirm compliance with this code.

C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, as applicable:

1. Energy compliance path per Section C401.
2. Insulation materials and their *R*-values.
((2.)) 3. Fenestration *U*-factors and SHGCs.
((3.)) 4. Area-weighted *U*-factor and SHGC calculations.
((4.)) 5. Mechanical system design criteria.
((5.)) 6. Mechanical and service water heating system and equipment types, sizes and efficiencies.
((6.)) 7. Economizer description.
((7.)) 8. Equipment and systems controls.
((8.)) 9. Fan motor horsepower (hp) and controls.
((9.)) 10. Duct sealing, duct and pipe insulation and location.
((10.)) 11. Lighting fixture schedule with wattage and control narrative.
((11.)) 12. Location of daylight zones on floor plan.

((~~12.~~)) 13. Air barrier details including all air barrier boundaries and associated square foot calculations on all six sides of the air barrier as applicable.

C103.2.1 Building thermal envelope depiction. The building's thermal envelope shall be represented on the construction documents.

C103.3 Examination of documents. The *code official* shall examine or cause to be examined the accompanying construction documents and shall ascertain whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances.

C103.3.1 Approval of construction documents. When the *code official* issues a permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "Reviewed for Code Compliance." Such *approved* construction documents shall not be changed, modified or altered without authorization from the *code official*. Work shall be done in accordance with the *approved* construction documents.

One set of construction documents so reviewed shall be retained by the *code official*. The other set shall be returned to the applicant, kept at the site of work and shall be open to inspection by the *code official* or a duly authorized representative.

C103.3.2 Previous approvals. This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

C103.3.3 Phased approval. The *code official* shall have the authority to issue a permit for the construction of part of an energy conservation system before the construction documents for the entire system have been submitted or *approved*, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire energy conservation system will be granted.

C103.4 Amended construction documents. Changes made during construction that are not in compliance with the *approved* construction documents shall be resubmitted for approval as an amended set of construction documents.

C103.5 Retention of construction documents. One set of *approved* construction documents shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.

C103.6 Building documentation and close out submittal requirements. The construction documents shall specify that the documents described in this section be provided to the building owner or owner's authorized agent within a maximum of 90 days of the date of receipt of the certificate of occupancy.

C103.6.1 Record documents. Construction documents shall be updated by the installing contractor and architect or engineer of record to convey a record of the completed work. Such updates shall include building envelope, mechanical, plumbing, electrical and control drawings

red-lined, or redrawn if specified, that show all changes to size, type and locations of components, equipment and assemblies. Record documents shall include the location and model number of each piece of equipment as installed. The architect, engineer of record or installing contractor is required to provide consolidated record drawings in compliance with this section to the building owner or owner's authorized agent with the timeline specified in Section C103.6.

C103.6.2 Building operations and maintenance information. Required regular maintenance actions for equipment and systems shall be clearly stated on a readily visible label on the equipment. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product and the manufacture date or installation date.

C103.6.2.1 Manuals. An operating and maintenance manual shall be provided for each component, device, piece of equipment, and system governed by this code. The manual shall include all of the following:

1. Submittal data indicating all selected options for each piece of equipment and control devices.
2. Manufacturer's operation manuals and maintenance manuals for each device, piece of equipment, and system requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions, cleaning and recommended relamping shall be clearly identified.
3. Name and address of at least one service agency.
4. Controls system inspection schedule, maintenance and calibration information, wiring diagrams, schematics, and control sequence descriptions. A schedule for inspecting and recalibrating all lighting controls. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, on the graphic where settings may be changed.
5. A narrative of how each system is intended to operate, including recommended setpoints. Sequence of operation alone is not acceptable for this requirement.

C103.6.3 Compliance documentation. All energy code compliance forms and calculations shall be delivered in one document to the building owner as part of the project record documents or manuals, or as a standalone document. This document shall include the specific energy code year utilized for compliance determination for each system. NFRC certificates for the installed windows, list of total area for each NFRC certificate, the interior lighting power compliance path (building area, space-by-space) used to calculate the lighting power allowance.

For projects complying with Section C401.2 Item 1, the documentation shall include:

1. The envelope insulation compliance path (prescriptive or component performance).
2. All completed code compliance forms, and all compliance calculations including, but not limited to, those required by sections C402.1.5, C403.2.12.1, C405.4, and C405.5.

For projects complying with Section C401.2 Item 2, the documentation shall include:

1. A list of all proposed envelope component types, areas and *U*-values.
2. A list of all lighting area types with areas, lighting power allowance, and installed lighting power density.

3. A list of each HVAC system modeled with the assigned and proposed system type.

4. Electronic copies of the baseline and proposed model input and output file. The input files shall be in a format suitable for rerunning the model and shall not consist solely of formatted reports of the inputs.

C103.6.4 Systems operation training. Training of the maintenance staff for equipment included in the manuals required by Section C103.6.2 shall include at a minimum:

1. Review of manuals and permanent certificate.

2. Hands-on demonstration of all normal maintenance procedures, normal operating modes, and all emergency shutdown and start-up procedures.

3. Training completion report.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-10300, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-10300, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-10300, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-10300, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10300, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-10400 Section C104—((~~Inspections~~)) Fees.

((**C104.1 General.** ~~Construction or work for which a permit is required shall be subject to inspection by the *code official*, his or her designated agent, or an *approved agency*, and such construction or work shall remain visible and able to be accessed for inspection purposes until *approved*.~~ Approval as a result of an inspection ~~shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain visible and able to be accessed for inspection purposes. Neither the *code official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material, product, system or building component required to allow inspection to validate compliance with this code.~~

~~C104.2 Required inspections.~~ ~~The *code official*, his or her designated agent, or an *approved agency*, upon notification, shall make the inspections set forth in Sections C104.2.1 through C104.2.6.~~

~~C104.2.1 Footing and foundation insulation.~~ ~~Inspections shall verify footing and/or foundation insulation *R*-value, location, thickness, depth of burial and protection of insulation as required by the code, *approved* plans and specifications.~~

C104.2.2 Thermal envelope. Inspections shall be made before application of interior finish and shall verify that envelope components with the correct type of insulation, the *R*-values, the correct location of insulation, the correct fenestration, the *U*-factor, SHGC, VT, and air leakage controls are properly installed as required by the code, *approved* plans and specifications, including envelope components in future tenant spaces of multitenant buildings.

C104.2.3 Plumbing system. Inspections shall verify the type of insulation, the *R*-values, the protection required, controls, and heat traps as required by the code, *approved* plans and specifications.

C104.2.4 Mechanical system. Inspections shall verify the installed HVAC equipment for the correct type and size, controls, duct and piping insulation *R*-values, duct system and damper air leakage, minimum fan efficiency, energy recovery and economizer as required by the code, *approved* plans and specifications.

C104.2.5 Electrical system. Inspections shall verify lighting system controls, components, meters, motors and installation of an electric meter for each dwelling unit as required by the code, *approved* plans and specifications.

C104.2.6 Final inspection. The final inspection shall include verification of the installation and proper operation of all required building controls, and documentation verifying activities associated with required building commissioning have been conducted in accordance with Section C408.

C104.3 Reinspection. A building shall be reinspected when determined necessary by the *code official*.

C104.4 Approved inspection agencies. The *code official* is authorized to accept reports of *approved* inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability relevant to the building components and systems they are inspecting.

C104.5 Inspection requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the *code official* when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

C104.6 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the *code official* for inspection and testing.

C104.7 Approval. After the prescribed tests and inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the *code official*.

C104.7.1 Revocation. The *code official* is authorized to, in writing, suspend or revoke a notice of approval issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure, premise, or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.))

C104.1 Fees. A permit shall not be issued until the fees prescribed in Section C104.2 have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.

C104.2 Schedule of permit fees. A fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.

C104.3 Work commencing before permit issuance. Any person who commences any work before obtaining the necessary permits shall be subject to an additional fee established by the *code official*, which shall be in addition to the required permit fees.

C104.4 Related fees. The payment of the fee for the construction, *alteration*, removal or demolition of work done in connection to or concurrently with the work or activity authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

C104.5 Refunds. The *code official* is authorized to establish a refund policy.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-10400, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-10400, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-10400, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-122, § 51-11C-10400, filed 12/3/14, effective 1/3/15. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10400, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10500 Section C105—((~~Validity~~)) Inspections.

C105.1 General. ((~~If a portion of this code is held to be illegal or void, such a decision shall not affect the validity of the remainder of this code.~~)) Construction or work for which a permit is required shall be subject to inspection by the *code official*, his or her designated agent, or an *approved agency*, and such construction or work shall remain visible and able to be accessed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain visible and able to be accessed for inspection purposes. Neither the *code official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material, product, system or building component required to allow inspection to validate compliance with this code.

C105.2 Required inspections. The *code official*, his or her designated agent, or an *approved agency*, upon notification, shall make the inspections set forth in Sections C105.2.1 through C105.2.6.

C105.2.1 Footing and foundation insulation. Inspections shall verify footing and/or foundation insulation *R*-value, location, thickness, depth of burial and protection of insulation as required by the code, *approved* plans and specifications.

C105.2.2 Thermal envelope. Inspections shall be made before application of interior finish and shall verify that envelope components with the correct type of insulation, the *R*-values, the correct location of insulation, the correct fenestration, the *U*-factor, SHGC, VT, and air leakage controls are properly installed as required by the code, *approved* plans and specifications, including envelope components in future tenant spaces of multitenant buildings.

C105.2.3 Plumbing system. Inspections shall verify the type of insulation, the *R*-values, the protection required, controls, and heat traps as required by the code, *approved* plans and specifications.

C105.2.4 Mechanical system. Inspections shall verify the installed HVAC equipment for the correct type and size, controls, duct and piping insulation *R*-values, duct system and damper air leakage, minimum fan efficiency, energy recovery and economizer as required by the code, *approved* plans and specifications.

C105.2.5 Electrical system. Inspections shall verify lighting system controls, components, meters, motors and installation of an electric meter for each dwelling unit as required by the code, *approved* plans and specifications.

C105.2.6 Final inspection. The final inspection shall include verification of the installation and proper operation of all required building controls, and documentation verifying activities associated with required building commissioning have been conducted in accordance with Section C408.

C105.3 Reinspection. A building shall be reinspected when determined necessary by the *code official*.

C105.4 Approved inspection agencies. The *code official* is authorized to accept reports of *approved* inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability relevant to the building components and systems they are inspecting.

C105.5 Inspection requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the *code official* when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

C105.6 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the *code official* for inspection and testing.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10500, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-10600 Section C106—((~~Referenced standards~~)) Notice of approval.

((~~**C106.1 Referenced codes and standards.** The codes and standards referenced in this code shall be those listed in Chapter 5, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections C106.1.1 and C106.1.2.~~

~~**C106.1.1 Conflicts.** Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.~~

~~**C106.1.2 Provisions in referenced codes and standards.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.~~

~~**C106.2 Application of references.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.~~

~~**C106.3 Other laws.** The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law. In addition to the requirements of this code, all occupancies shall conform to the provisions included in the State Building Code (chapter 19.27 RCW). In case of conflicts among the codes enumerated in RCW 19.27.031 (1) through (4) and this code, an earlier named code shall govern over those following. In the case of conflict between the duct sealing and insulation requirements of this code and the duct insulation requirements of Sections 603 and 604 of the *International Mechanical Code*, the duct insulation requirements of this code, or where applicable, a local jurisdiction's energy code shall govern.~~))

C106.1 Approval. After the prescribed tests and inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the *code official*.

C106.2 Revocation. The *code official* is authorized to, in writing, suspend or revoke a notice of approval issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure, premise, or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-10600, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10600, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10700 Section C107—((~~Fees~~)) Validity.

((~~**C107.1 Fees.** A permit shall not be issued until the fees prescribed in Section C107.2 have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.~~

~~**C107.2 Schedule of permit fees.** A fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.~~

~~**C107.3 Work commencing before permit issuance.** Any person who commences any work before obtaining the necessary permits shall be subject to an additional fee established by the *code official*, which shall be in addition to the required permit fees.~~

~~**C107.4 Related fees.** The payment of the fee for the construction, *alteration*, removal or demolition of work done in connection to or concurrently with the work or activity authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.~~

~~**C107.5 Refunds.** The *code official* is authorized to establish a refund policy.~~))

C107.1 General. If a portion of this code is held to be illegal or void, such a decision shall not affect the validity of the remainder of this code.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10700, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-10800 Section C108—((~~Stop work order~~)) Referenced standards.

((~~**C108.1 Authority.** Whenever the *code official* finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or dangerous or unsafe, the *code official* is authorized to issue a stop work order.~~

~~**C108.2 Issuance.** The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.~~

~~**C108.3 Emergencies.** Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work.~~

~~**C108.4 Failure to comply.** Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condi-~~

~~tion, shall be liable to a fine as set by the applicable governing authority.~~))

C108.1 Referenced codes and standards. The codes and standards referenced in this code shall be those listed in Chapter 5, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections C108.1.1 and C108.1.2.

C108.1.1 Conflicts. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

C108.1.2 Provisions in referenced codes and standards. Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

C108.2 Application of references. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section, or provision of this code.

C108.3 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law. In addition to the requirements of this code, all occupancies shall conform to the provisions included in the State Building Code (chapter 19.27 RCW). In case of conflicts among the codes enumerated in RCW 19.27.031 (1) through (4) and this code, an earlier named code shall govern over those following. In the case of conflict between the duct sealing and insulation requirements of this code and the duct insulation requirements of Sections 603 and 604 of the *International Mechanical Code*, the duct insulation requirements of this code, or where applicable, a local jurisdiction's energy code shall govern.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-10800, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10800, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10900 Section C109—((~~Board of appeals~~)) Stop work order.

((**~~C109.1 General.~~** ~~In order to hear and decide appeals of orders, decisions or determinations made by the *code official* relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The *code official* shall be an ex officio member of said board but shall have no vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *code official*.~~

~~**C109.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall have no authority to waive requirements of this code.~~

~~**C109.3 Qualifications.** The board of appeals shall consist of members who are qualified by experience and training and are not employees of the jurisdiction.~~))

C109.1 Authority. Whenever the *code official* finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or dangerous or unsafe, the *code official* is authorized to issue a stop work order.

C109.2 Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

C109.3 Emergencies. Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work.

C109.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine as set by the applicable governing authority.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-10900, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-11000 Section C110—((~~Violations~~)) Board of appeals.

((~~It shall be unlawful for any person, firm, or corporation to erect or construct any building, or remodel or rehabilitate any existing building or structure in the state, or allow the same to be done, contrary to or in violation of any of the provisions of this code.~~))

C110.1 General. In order to hear and decide appeals of orders, decisions or determinations made by the *code official* relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The *code official* shall be an ex officio member of said board but shall have no vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *code official*.

C110.2 Limitations on authority. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall have no authority to waive requirements of this code.

C110.3 Qualifications. The board of appeals shall consist of members who are qualified by experience and training and are not employees of the jurisdiction.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-11000, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-11100 Section C111—((~~Liability~~)) Violations. ((~~Nothing contained in this code is intended to be nor shall be construed to create or form the basis for any liability on the part of any city or county or its officers, employees or agents for any injury or damage resulting from the failure of a building to conform to the provisions of this code.~~)) It shall be unlawful for any person, firm, or corporation to erect or construct any building, or remodel or rehabilitate any existing building or structure in the state, or allow the same to be done, contrary to or in violation of any of the provisions of this code.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-11100, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-11C-11200 Section C112—Liability. Nothing contained in this code is intended to be nor shall be construed to create or form the basis for any liability on the part of any city or county or its officers, employees, or agents for any injury or damage resulting from the failure of a building to conform to the provisions of this code.

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AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20201 Section C202.1—A.

ABOVE-GRADE WALL. ((~~A wall enclosing *conditioned space*~~)) That portion of a wall in the building envelope that is not a below-grade wall. This includes between-floor spandrels, peripheral edges of floors, roof ((~~and~~

~~basement~~)) knee walls, dormer walls, gable end walls, walls enclosing a mansard roof and skylight shafts.

ACCESS (TO). That which enables a device, appliance or equipment to be reached by *ready access* or by a means that first requires the removal or movement of a panel or similar obstruction.

ADDITION. An extension or increase in the *conditioned space* floor area, number of stories, or height of a building or structure.

AIR BARRIER. One or more materials joined together in a continuous manner to restrict or prevent the passage of air through the *building thermal envelope* and its assemblies.

AIR CURTAIN. A device, installed at the building entrance, that generates and discharges a laminar air stream intended to prevent the infiltration of external, unconditioned air into the conditioned spaces, or the loss of interior, conditioned air to the outside.

ALTERNATING CURRENT-OUTPUT UNINTERRUPTIBLE POWER SUPPLY (AC-OUTPUT UPS). A combination of convertors, switches and energy storage devices, such as batteries, constituting a power system for maintaining continuity of load power in case of input power failure. Input power failure occurs when voltage and frequency are outside rated steady state and transient tolerance bands or when distortion or interruptions are outside the limits specified for the uninterruptible power supply. An *AC-output UPC* is an uninterruptible power supply that supplies power with a continuous flow of electric charge that periodically reverses direction.

ALTERATION. Any construction, retrofit or renovation to an existing structure other than repair or addition. Also, a change in a building, electrical, gas, mechanical or plumbing system that involves an extension, addition or change to the arrangement, type or purpose of the original installation.

APPROVED. Acceptable to the *code official*.

APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, or furnishing product certification research reports, when such agency has been *approved* by the *code official*.

ATTIC AND OTHER ROOFS. ((~~All other~~)) Roofs other than roofs with insulation entirely above deck and metal building roofs, including roofs with insulation entirely below (inside of) the roof structure (i.e., attics, cathedral ceilings, and single-rafter ceilings), roofs with insulation both above and below the roof structure, and roofs without insulation ((~~but excluding roofs with insulation entirely above deck and metal building roofs~~)).

AUTOMATIC. Self-acting, operating by its own mechanism when actuated by some impersonal influence, as, for example, a change in current strength, pressure, temperature or mechanical configuration (see "Manual").

AUTOMATIC CONTROL DEVICE. A device capable of automatically controlling equipment and devices without manual intervention.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20201, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20201, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20201, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20202 Section C202.2—B.

BELOW-GRADE WALL. That portion of a wall in the building envelope that is entirely below the finish grade and in contact with the ground.

BIOGAS. A mixture of hydrocarbons that is a gas at 60°F (15.5°C) and one atmosphere of pressure that is produced through the anaerobic digestion of organic matter.

BIOMASS. Nonfossilized and biodegradable organic material originating from plants, animals and/or micro-organisms, including products, by-products, residues and waste from agriculture, forestry and related industries as well as the nonfossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of nonfossilized and biodegradable organic material.

BLOCK. A generic concept used in energy simulation. It can include one or more thermal zones. It represents a whole building or portion of a building with the same use type served by the same HVAC system type.

BOILER, MODULATING. A boiler that is capable of more than a single firing rate in response to a varying temperature or heating load.

BOILER SYSTEM. One or more boilers, their piping and controls that work together to supply steam or hot water to heat output devices remote from the boiler.

BUBBLE POINT. The refrigerant liquid saturation temperature at a specified pressure.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy, including any mechanical systems, service water heating systems and electric power and lighting systems located on the building site and supporting the building.

BUILDING COMMISSIONING. A process that verifies and documents that the building systems have been installed and function according to the approved construction documents.

BUILDING ENTRANCE. Any doorway, set of doors, revolving door, vestibule or other form of portal (including elevator doors such as in parking garages) that is ordinarily used to gain access to the building or to exit from the building by its users and occupants. This does not include doors solely used to directly enter mechanical, electrical and other building utility service equipment rooms, or doors for emergency egress only. Where buildings have separate one-way doors to enter or leave, any doors ordinarily used to leave the building are also deemed a building entrance.

BUILDING SITE. A contiguous area of land that is under the ownership or control of one entity.

BUILDING THERMAL ENVELOPE. The *below-grade walls*, *above-grade walls*, floors, ceilings, roofs, and any other building element assemblies that ((~~enclose *conditioned space* or provides a boundary between *conditioned space*, *semiheated space* and exempt or unconditioned space~~)) meet one or more of the following criteria:

1. Separate a *conditioned space* from a *semiheated space*, a refrigerated space in accordance with Section C410.2, a low energy space in accordance with Section C402.1.1, or an area that is not an *enclosed space*.

2. Separate a *semiheated space* from a *conditioned space*, a refrigerated space, a low energy space or an area that is not an *enclosed space*.

3. Separate a refrigerated space from a low energy space or an area that is not an *enclosed space*.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20202, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20202, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20202, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20203 Section C202.3—C.

C-FACTOR (THERMAL CONDUCTANCE). The coefficient of heat transmission (surface to surface) through a building component or assembly, equal to the time rate of heat flow per unit area and the unit temperature difference between the warm side and cold side surfaces (Btu/h ft^2 × °F) [W/(m^2 × K)].

CAPTIVE KEY DEVICE. A lighting control that will not release the key that activates the override when the lighting is on.

CAVITY INSULATION. Insulating material located between framing members.

CEILING FAN. A nonportable device suspended from a ceiling or overhead structure for circulating air via the rotation of the blades. See also **LARGE-DIAMETER CEILING FAN.**

CERTIFIED COMMISSIONING PROFESSIONAL. An individual who is certified by an ANSI/ISO/IEC 17024:2012 accredited organization to lead, plan, coordinate and manage commissioning teams and implement the commissioning process.

CHANGE OF OCCUPANCY. A change in the use of a building or a portion of a building that results in any of the following:

1. A change of occupancy classification.

2. A change from one group to another group within an occupancy classification.

3. Any change in use within a group for which there is a change in the application of the requirements of this code.

CIRCULATING HOT WATER SYSTEM. A specifically designed water distribution system where one or more pumps are operated in the service hot water piping to circulate heated water from the water-heating equipment to the fixture supply and back to the water-heating equipment.

CLERESTORY FENESTRATION. See **"FENESTRATION."**

CLIMATE ZONE. A geographical region based on climatic criteria as specified in this code.

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

COEFFICIENT OF PERFORMANCE (COP) - COOLING. The ratio of the rate of heat removal to the rate of energy input, in consistent units, for a complete refrigerating system or some specific portion of that system under designated operating conditions.

COEFFICIENT OF PERFORMANCE (COP) - HEATING. The ratio of the rate of heat removal to the rate of heat delivered to the rate of energy input, in consistent

units, for a complete heat pump system, including the compressor and, if applicable, auxiliary heat, under designated operating conditions.

COMMERCIAL BOILER. A type of boiler with a capacity (rated maximum input) of 300,000 Btu/h or more and serving a space heating or water heating load in a commercial building.

COMMERCIAL BUILDING. For this code, all buildings that are not included in the definition of "Residential buildings."

COMMUNITY RENEWABLE ENERGY SYSTEM. An off-site renewable energy system for which the owner has purchased or leased renewable energy capacity along with other subscribers.

COMPRESSED AIR SYSTEM. A system of at least one compressor providing compressed air at 40 psig or higher.

COMPUTER ROOM. A room whose primary function is to house equipment for the processing and storage of electronic data and that has a design total *information technology equipment (ITE)* equipment power density less than or equal to 20 watts per square foot (215 watts per m^2) of conditioned floor area or a design *ITE* equipment load less than or equal to 10 kW. See also **DATA CENTER.**

CONDENSING UNIT. A factory-made assembly of refrigeration components designed to compress and liquefy a specific refrigerant. The unit consists of one or more refrigerant compressors, refrigerant condensers (air-cooled, evaporatively cooled, or water-cooled), condenser fans and motors (where used) and factory-supplied accessories.

CONDITIONED FLOOR AREA. The horizontal projection of the floors associated with the *conditioned space*.

CONDITIONED SPACE. An area, room or space that is enclosed within the building thermal envelope and that is directly heated or cooled or that is indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping or other sources of heating or cooling. Elevator shafts, stair enclosures, enclosed corridors connecting *conditioned spaces*, and *enclosed spaces* through which conditioned air is intentionally transferred at a rate exceeding three air changes per hour are considered *conditioned spaces* for the purposes of the *building thermal envelope* requirements.

CONTINUOUS INSULATION (CI). Insulating material that is continuous across all structural members without metal thermal bridges other than fasteners that have a total cross-sectional area not greater than 0.04 percent (0.12 percent where all metal thermal bridges are stainless steel) of the envelope surface through which they penetrate, and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

CONTROLLED PLANT GROWTH ENVIRONMENT. Group F and U buildings or spaces that are used exclusively for and specifically controlled to facilitate and enhance plant growth and production by manipulating various indoor environmental conditions. Technologies include indoor agriculture, cannabis growing, hydroponics, aquaculture and aquaponics. Controlled indoor environment variables include, but are not limited to, temperature, air quality, humidity, and carbon dioxide.

CONTROLLED RECEPTACLE. An electrical receptacle that is controlled by an *automatic control device.*

CURTAIN WALL. Fenestration products used to create an external nonload-bearing wall that is designed to separate the exterior and interior environments.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20203, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-20203, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20203, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20203, filed 2/1/13, effective 7/1/13.]

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Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20204 Section C202.4—D.

DATA ACQUISITION SYSTEM. An electronic system managed by the building owner to collect, tabulate and display metering information.

DATA CENTER. A room or series of rooms that share *data center systems* whose primary function is to house equipment for the processing and storage of electronic data, which has a design total *information technology equipment (ITE)* power density exceeding 20 watts per square foot (215 watts per m^2) of conditioned area and a total design *ITE* equipment load greater than 10 kW.

DATA CENTER SYSTEMS. HVAC systems, electrical systems, equipment, or portions thereof used to condition *ITE* or electrical systems in a *data center*.

DAYLIGHT RESPONSIVE CONTROL. A device or system that provides automatic control of electric light levels based on the amount of daylight in a space.

DAYLIGHT ZONE. The portion of the building interior floor area that is illuminated by natural daylight through sidelit and toplit fenestration.

DECORATIVE APPLIANCE, VENTED. A vented appliance wherein the primary function lies in the aesthetic effect of the flames.

DEDICATED OUTDOOR AIR SYSTEM (DOAS). A ventilation system that supplies 100 percent outdoor air primarily for the purpose of ventilation and that is a separate system from the zone space-conditioning system.

DEMAND CONTROL KITCHEN VENTILATION (DCKV). A system that provides automatic, continuous control over exhaust hood and make-up air fan speed in response to temperature, optical or infrared (IR) sensors that monitor cooking activity or through direct communication with cooking appliances.

DEMAND CONTROL VENTILATION (DCV). A ventilation system capability that provides for the automatic reduction of outdoor air intake below design rates when the actual occupancy of spaces served by the system is less than design occupancy.

DEMAND RECIRCULATION WATER SYSTEM. A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe.

DEMAND RESPONSE SIGNAL. A signal that indicates a price or a request to modify electricity consumption for a limited time period.

DEMAND RESPONSIVE CONTROL. A control capable of receiving and automatically responding to a *demand response signal*.

DESICCANT DEHUMIDIFICATION SYSTEM. A mechanical dehumidification technology that uses a solid or liquid material to remove moisture from the air.

DIRECT DIGITAL CONTROL (DDC). A type of control where controlled and monitored analog or binary data such as temperature and contact closures are converted to digital format for manipulation and calculations by a digital computer or microprocessor, then converted back to analog or binary form to control physical devices.

DIRECTLY OWNED OFF-SITE RENEWABLE ENERGY SYSTEM. An off-site renewable energy system owned by the building project owner.

DOOR, GARAGE. Nonswinging doors rated by ((~~ASMA~~)) DASMA 105 with a single panel or horizontally hinged sectional panels.

DOOR, NONSWINGING. Roll-up, tilt-up, metal coiling and sliding doors, access hatches, and all other doors that are not swinging doors or garage doors with less than or equal to 14 percent glazing.

DOOR, SWINGING. Doors that are hinged on one side and revolving doors.

DUCT. A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

DUCT SYSTEM. A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.

DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

DX-DEDICATED OUTDOOR AIR SYSTEM UNITS (DX-DOAS UNITS). A type of air-cooled, water-cooled or water source factory assembled product that dehumidifies 100 percent outdoor air to a low dew point and includes reheat that is capable of controlling the supply dry-bulb temperature of the dehumidified air to the designated supply air temperature. This conditioned outdoor air is then delivered directly or indirectly to the conditioned spaces. It may precondition outdoor air by containing an enthalpy wheel, sensible wheel, desiccant wheel, plate heat exchanger, heat pipes, or other heat or mass transfer apparatus.

DYNAMIC GLAZING. Any fenestration product that has the fully reversible ability to change its performance properties, including *U*-factor, SHGC, or VT.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20204, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-20204, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20204, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20204, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20205 Section C202.5—E.

ECONOMIZER, AIR. A duct and damper arrangement and automatic control system that allows a cooling system to supply outside air to reduce or eliminate the need for mechanical cooling during mild or cold weather.

ECONOMIZER, WATER. A system where the supply air of a cooling system is cooled indirectly with water that is itself cooled by heat or mass transfer to the environment without the use of mechanical cooling.

((~~**ELECTRICAL LOAD COEFFICIENT (ELC).** In a *data center*, the ratio of the sum of three specific electrical losses (or losses calculated from efficiencies) to the *ITE* load itself. Specifically, *ELC* equals the sum of the incoming (to *ITE*) electrical service losses, UPS losses, and *ITE* distribution losses all divided by the peak *ITE* load. The design *ELC* is calculated at the full load design condition with active redundant equipment engaged, and the annual *ELC* is calculated the same way because it is assumed that *ITE* runs constantly at full power all year.~~))

ENCLOSED SPACE. A volume surrounded by solid surfaces such as walls, floors, roofs, and openable devices such as doors and operable windows. Unconditioned crawlspaces, attics, and parking garages with natural or mechanical ventilation are not considered *enclosed spaces.*

END USE CATEGORY. A load or group of loads that consume energy in a common or similar manner.

ENERGY ANALYSIS. A method for estimating the annual energy use of the *proposed design* and *standard reference design* based on estimates of energy use.

ENERGY COST. The total estimated annual cost for purchased energy for the building functions regulated by this code, including applicable demand charges.

ENERGY RECOVERY VENTILATION SYSTEM. Systems that employ air-to-air heat exchangers to recover energy from exhaust air for the purpose of preheating, precooling, humidifying or dehumidifying outdoor ventilation air prior to supplying the air to a space, either directly or as part of an HVAC system.

ENERGY SIMULATION TOOL. An *approved* software program or calculation-based methodology that projects the annual energy use of a building.

ENERGY SOURCE METER. A meter placed at the source of the incoming energy that measures the energy delivered to the whole building or metered space.

ENTHALPY RECOVERY RATIO (ERR). Change in the enthalpy of the *outdoor air* supply divided by the difference between the *outdoor air* and entering exhaust air enthalpy, expressed as a percentage.

ENTRANCE DOOR. A vertical fenestration product used for occupant ingress, egress and access in nonresidential buildings including, but not limited to, exterior entrances utilizing latching hardware and automatic closers and containing over 50 percent glazing specifically designed to withstand heavy duty usage.

EQUIPMENT ROOM. A space that contains either electrical equipment, mechanical equipment, machinery, water pumps or hydraulic pumps that are a function of the building's services.

EXTERIOR WALL. Walls including both above-grade walls and below-grade walls.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20205, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20205, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20206 Section C202.6—F.

FAN, EMBEDDED. A fan that is part of a manufactured assembly where the assembly includes functions other than air movement.

FAN ARRAY. Multiple fans in parallel between two plenum sections in an air distribution system.

FAN BRAKE HORSEPOWER (BHP). The horsepower delivered to the fan's shaft. Brake horsepower does not include the mechanical drive losses (belts, gears, etc.).

((~~**FAN EFFICIENCY GRADE (FEG).** A numerical rating identifying the fan's aerodynamic ability to convert shaft power, or impeller power in the case of a direct-driven fan, to air power.~~))

FAN ELECTRICAL INPUT POWER (Fan kW_{design}). The electrical input power in kilowatts required to operate an individual fan or fan array at design conditions. It includes the power consumption of motor controllers, if present.

FAN ENERGY INDEX (FEI). The ratio of the electric input power of a reference fan to the electric input power of the actual fan as calculated in accordance with AMCA 208.

FAN SYSTEM. Includes all the fans that contribute to the movement of air through a point of a common duct, plenum, or cabinet.

FAN SYSTEM, COMPLEX. A *fan system* that combines supply, exhaust and/or other fans, or is not captured by other *fan system* types.

FAN SYSTEM, EXHAUST/RELIEF. A *fan system* dedicated to the removal of air from interior spaces to the outdoors.

FAN SYSTEM, MULTI-ZONE VARIABLE AIR VOLUME (VAV). A *fan system* that serves three or more space-conditioning zones where airflow to each zone is individually controlled based on heating, cooling and/or ventilation requirements, indoor fan airflow varies as a function of load, and the sum of the minimum zone airflows is 40 percent or less of the fan system design conditions.

FAN SYSTEM, RETURN. A *fan system* dedicated to removing air from interior where some or all the air is to be recirculated except during economizer operation.

FAN SYSTEM, SINGLE-CABINET. A *fan system* where a single fan, single fan array, a single set of fans operating in parallel, or fans or fan arrays in series and embedded in the same cabinet, that both supplies air to a space and recirculates the air.

FAN SYSTEM, SUPPLY-ONLY. A *fan system* that provides supply air to interior spaces and does not recirculate the air.

FAN SYSTEM, TRANSFER. A fan system that exclusively moves air from one occupied space to another.

FAN SYSTEM AIRFLOW (cfm). The sum of the airflow of all fans with *fan electrical input power* greater than 1 kW at *fan system design conditions*, excluding the airflow that passes through downstream fans with fan input power less than 1 kW.

FAN SYSTEM BHP. The sum of the fan brake horsepower of all fans that are required to operate at fan system design conditions to supply air from the heating or cooling source to the *conditioned space(s)* and return it to the source or exhaust it to the outdoors.

FAN SYSTEM DESIGN CONDITIONS. Operating conditions that can be expected to occur during normal system operation that result in the highest supply fan airflow rate to conditioned spaces served by the system, other than during air economizer operation.

FAN SYSTEM ELECTRICAL INPUT POWER (Fan $kW_{design, system}$). The sum of the fan electrical input power (Fan kW_{design}) of all fans that are required to operate at fan system design conditions to supply air from the heating or cooling source to the conditioned spaces, return it to the source, exhaust it to the outdoors, or transfer it to another space.

FAN SYSTEM MOTOR NAMEPLATE HP. The sum of the motor nameplate horsepower of all fans that are required to operate at design conditions to supply air from the heating or cooling source to the *conditioned space(s)* and return it to the source or exhaust it to the outdoors.

FAULT DETECTION AND DIAGNOSTICS (FDD) SYSTEM. A software platform that utilizes building analytic algorithms to convert data provided by sensors and devices to automatically identify faults in building systems and provide a prioritized list of actionable resolutions to those faults based on cost or energy avoidance, comfort and maintenance impact.

FENESTRATION. Products classified as either skylights or vertical fenestration.

SKYLIGHTS. Glass or other transparent or translucent glazing material installed at a slope of less than 60 degrees (91.05 rad) from horizontal, including unit skylights, tubular daylighting devices and glazing materials in solariums, sunrooms, roofs, *greenhouses,* and sloped walls.

VERTICAL FENESTRATION. Windows that are fixed or operable, doors with more than 50 percent glazed area and glazed block composed of glass or other transparent or translucent glazing materials and installed at a slope not less than 60 degrees (91.05 rad) from horizontal. Opaque areas such as spandrel panels are not considered vertical fenestration.

CLERESTORY FENESTRATION. An upper region of vertical fenestration provided for the purpose of admitting daylight beyond the perimeter of a space. The entire clerestory fenestration assembly is installed at a height greater than 8 feet above the finished floor.

FENESTRATION AREA. Total area of the fenestration measured using the rough opening, and including the glazing, sash and frame.

FENESTRATION PRODUCT, FIELD-FABRICATED. A fenestration product whose frame is made at the construction site of standard dimensional lumber or other materials that were not previously cut, or otherwise formed with the specific intention of being used to fabricate a fenestration product or exterior door. Field fabricated does not include site-built fenestration.

FENESTRATION PRODUCT, SITE-BUILT. A fenestration designed to be made up of field-glazed or field-assembled units using specific factory cut or otherwise factory-formed framing and glazing units. Examples of site-built fenestration include storefront systems, curtain walls, and atrium roof systems.

***F*-FACTOR.** The perimeter heat loss factor for slab-on-grade floors (Btu/h × ft × $^{\circ}_{F}$) [W/(m × K)].

FLOOR AREA, NET. The actual occupied area not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms and closets.

FURNACE ELECTRICITY RATIO. The ratio of furnace electricity use to total furnace energy computed as ratio = (3.412 × E_{AE})/1000 × E_F + 3.412 × E_{AE}) where E_{AE} (average annual auxiliary electrical consumption) and E_F (average annual fuel energy consumption) are defined in Appendix N to Subpart B of Part 430 of Title 10 of the Code of Federal Regulations and E_F is expressed in millions of Btus per year.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20206, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20206, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20206, filed 2/1/13, effective 7/1/13.]

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AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20207 Section C202.7—G.

GENERAL LIGHTING. Interior lighting that provides a substantially uniform level of illumination throughout ((~~an area~~)) a space. *General lighting* shall not include lighting that provides a dissimilar level of illumination to serve a specific application or decorative feature within such area.

GREENHOUSE. A ((~~permanent~~)) structure or a thermally isolated area of a building that maintains a specialized sunlit environment ((~~that is used~~)) exclusively used for, and is essential to, the cultivation, protection or maintenance of plants. Greenhouses are those that are erected for a period of 180 days or more.

GROUP R. Buildings or portions of buildings that contain any of the following occupancies as established in the *International Building Code*:

1. Group R-1.

2. Group R-2 where located more than three stories in height above grade plane.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20207, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20207, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20207, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20208 Section C202.8—H.

HEAT TRAP. An arrangement of piping and fittings, such as elbows, or a commercially available heat trap that prevents thermosyphoning of hot water during standby periods.

HEAT TRAP, PIPE CONFIGURED. A pipe configured heat trap is either, as applicable:

1. A device specifically designed for the purpose or an arrangement of tubing that forms a loop of 360 degrees; or

2. Piping that from the point of connection to the water heater (inlet or outlet) includes a length of piping directed downward before connection to the vertical piping of the supply water or hot-water distribution system.

HEATED SLAB-ON-GRADE FLOOR. Slab-on-grade floor construction in which the heating elements, hydronic tubing, or hot air distribution system is in contact with, or placed within or under, the slab.

HEATED WATER CIRCULATION SYSTEM. A water distribution system having one or more recirculation pumps that pump water from a heated water source through a dedicated hot water circulation pipe or piping system.

HIGH SPEED DOOR. A nonswinging door used primarily to facilitate vehicular access or material transportation, with a minimum opening rate of 32 inches (813 mm) per second, a minimum closing rate of 24 inches (610 mm) per second and that includes an automatic-closing device.

HISTORIC BUILDINGS. ((~~Buildings that are listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate state or local law.~~)) Any building or structure that is one or more of the following:

1. Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.

2. Designated as historic under an applicable state or local law.

3. Certified as a contributing resource within a National Register-listed, state-designated or locally designated historic district.

HUMIDISTAT. A regulatory device, actuated by changes in humidity, used for automatic control of relative humidity.

HVAC TOTAL SYSTEM PERFORMANCE RATIO (HVAC TSPR). The ratio of the sum of a building's annual heating and cooling load in thousands of Btus to the sum of annual carbon emissions in pounds from energy consumption of the building HVAC systems. Carbon emissions shall be calculated by multiplying site energy consumption by the carbon emission factors from Table C407.1.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20208, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20208, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20208, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20209 Section C202.9—I.

IEC DESIGN H MOTOR. An electric motor that meets all of the following:

1. It is an induction motor designed for use with three-phase power.

2. It contains a cage rotor.

3. It is capable of direct-on-line starting.

4. It has 4, 6 or 8 poles.

5. It is rated from 0.4 kW to 1600 kW at a frequency of 60 Hz.

IEC DESIGN N MOTOR. An electric motor that meets all of the following:

1. It is an inductor motor designed for use with three-phase power.
2. It contains a cage rotor.
3. It is capable of direct-on-line starting.
4. It has 2, 4, 6 or 8 poles.
5. It is rated from 0.4 kW to 1600 kW at a frequency of 60 Hz.

INFILTRATION. The uncontrolled inward air leakage into a building caused by the pressure effects of wind or the effect of differences in the indoor and outdoor air density or both.

INFORMATION TECHNOLOGY EQUIPMENT (ITE). ((~~ITE includes~~)) Items including computers, data storage, servers ((~~and network/communications~~)), network, and communication equipment.

INSULATION ENTIRELY ABOVE DECK. A roof with all insulation:
1. Installed above (outside of) the roof structure; and
2. Continuous (i.e., uninterrupted by framing members).

INTEGRATED ENERGY EFFICIENCY RATIO (IEER). A single-number figure of merit expressing cooling part-load EER efficiency for unitary air-conditioning and heat pump equipment on the basis of weighted operation at various load capacities for the equipment.

INTEGRATED HVAC SYSTEM. An HVAC system designed to handle both sensible and latent heat removal. Integrated HVAC systems may include, but are not limited to, HVAC systems with a sensible heat ratio of 0.65 or less and the capability of providing cooling, dedicated outdoor air systems, single package air conditioners with at least one refrigerant circuit providing hot gas reheat, and stand-alone dehumidifiers modified to allow external heat rejection.

INTEGRATED PART LOAD VALUE (IPLV). A single number figure of merit based on part-load EER, COP, or kW/ton expressing part-load efficiency for air conditioning and heat pump equipment on the basis of weighted operation at various load capacities for equipment.

INTEGRATED SEASONAL COEFFICIENT OF PERFORMANCE (ISCOP). A seasonal efficiency number that is a combined value based on the formula listed in AHRI Standard 920 of the two COP values for the heating season of a DX-DOAS unit water or air source heat pump, expressed in W/W.

INTEGRATED SEASONAL MOISTURE REMOVAL EFFICIENCY (ISMRE). A seasonal efficiency number that is a combined value based on the formula listed in AHRI Standard 920 of the four dehumidification moisture removal efficiency (MRE) ratings required for DX-DOAS units, expressed in lb. of moisture/kWh.

INTERNAL CURTAIN SYSTEM. A system consisting of moveable panels of fabric or plastic film used to cover and uncover the space enclosed in a *greenhouse* on a daily basis.

ISOLATION DEVICES. Devices that isolate HVAC zones so they can be operated independently of one another. Isolation devices include separate systems, isolation dampers and controls providing shutoff at terminal boxes.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20209, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20209, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20209, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20212 Section C202.12—L.

LABELED. Equipment, materials or products to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, *approved agency* or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

LARGE-DIAMETER CEILING FAN. A ceiling fan that is greater than seven feet (2134 mm) in diameter. These fans are sometimes referred to as High-Volume, Low-Speed (HVLS) fans.

LARGEST NET CAPACITY INCREMENT. The largest increase in capacity when switching between combinations of base compressors that is expected to occur under the *compressed air system* control scheme.

LINER SYSTEM (LS). A system that includes the following:

1. A continuous vapor barrier liner membrane that is installed below the purlins and that is uninterrupted by framing members.

2. An uncompressed, unfaced insulation resting on top of the liner membrane and located between the purlins.

For multilayer installations, the last rated *R*-value of insulation is for unfaced insulation draped over purlins and then compressed when the metal roof panels are attached.

LISTED. Equipment, materials, products or services included in a list published by an organization acceptable to the *code official* and concerned with evaluation of products or services that maintains periodic inspection of production of *listed* equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

LOW-CARBON DISTRICT ENERGY EXCHANGE SYSTEM. Any system serving multiple buildings providing energy in the form of a circulated fluid that can accept or reject heat from individual buildings. Energy can be indirectly converted to meet building heating or cooling loads by serving as the heat source or sink for heat-pump systems. Examples include, but are not limited to, low temperature condenser water, ground source condenser water, or sewer heat recovery.

Low-carbon district energy exchange systems must demonstrate that 25 percent of the annual district-system-net-load-met (sum of heating and cooling energy provided to attached buildings) comes from heat recovery between connected buildings, waste heat, or *renewable energy resources* and no more than 25 percent of the annual heat input to the system comes from fossil fuel or electric-resistance sources.

LOW-CARBON DISTRICT HEATING AND COOLING OR HEATING ONLY SYSTEM. Any system serving multiple buildings providing energy in the form of direct heating and cooling, or heating only to a building. Energy can be directly converted to meet building heating or cooling loads through a heat exchanger. Examples include, but are not limited to, steam, hot water, and chilled water.

Low-carbon district systems must demonstrate the following:

1. Distribution losses must be accounted for and may not exceed 10 percent of the annual load delivered to buildings served by the system.

2. Twenty-five percent of the annual district-system-net-load-met (sum of heating and cooling energy provided to attached buildings) comes from heat recovery between connected buildings, waste heat or *renewable energy resources* and no more than 25 percent of the annual heat input to the system comes from fossil fuel or electric resistance sources; or

3. No more than 10 percent of the system annual heat input to the system comes from fossil fuel or electric resistance sources.

LOW-SLOPED ROOF. A roof having a slope less than 2 units vertical in 12 units horizontal.

LOW-VOLTAGE DRY-TYPE DISTRIBUTION TRANSFORMER. A transformer that is air-cooled, does not use oil as a coolant, has an input voltage less than or equal to 600 volts and is rated for operation at a frequency of 60 hertz.

LOW-VOLTAGE LIGHTING. A lighting system consisting of an isolating power supply, the low voltage luminaires, and associated equipment that are all identified for the use.

LUMINAIRE. A complete lighting unit consisting of a lamp or lamps together with the housing designed to distribute the light, position and protect the lamps, and connect the lamps to the power supply.

LUMINAIRE-LEVEL LIGHTING CONTROL. A lighting system consisting of one or more *luminaires* where each *luminaire* has embedded lighting control logic, occupancy and ambient light sensors, and local override switching capability, where required. Each *luminaire* shall also have local or central wireless networking capabilities to detect and share information with other *luminaires* to adjust to occupancy and/or daylight in the space.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20212, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-062, § 51-11C-20212, filed 5/2/17, effective 6/2/17; WSR 16-24-070, § 51-11C-20212, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20212, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20212, filed 2/1/13, effective 7/1/13.]

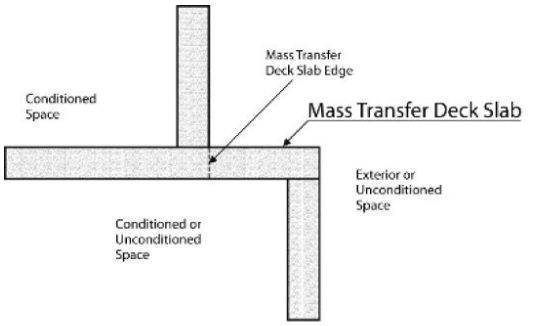
AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20213 Section C202.13—M.

MANUAL. Capable of being operated by personal intervention (see "Automatic").

MASS TRANSFER DECK SLAB ((EDGE)). ((~~That portion of the above-grade wall made up of the concrete slab where it extends past the footprint of the floor above, and there is space (conditioned or unconditioned) below the slab.~~)) A concrete slab designed to transfer structural load from the building perimeter wall or column line above, laterally to an offset wall or column line below, and which has conditioned or semiheated space on the inside of the upper wall and exterior or unconditioned space on the outside of the upper wall. The area of the slab edge shall be defined as the thickness of the slab multiplied by the ((~~perimeter~~)) length of the edge condition. Examples of this condition in-

clude, but are not limited to, the transition from an above-grade structure to a below-grade structure or the transition from a tower to a podium. A cantilevered ((~~balconies do not meet this definition~~)) concrete balcony does not constitute a mass transfer deck slab.



MECHANICAL COOLING. Reducing the temperature of a gas or liquid by using vapor compression, absorption, desiccant dehumidification combined with evaporative cooling, or another energy-driven thermodynamic cycle. Indirect or direct evaporative cooling alone is not considered mechanical cooling.

MECHANICAL HEATING. Raising the temperature of a gas or liquid by use of fossil fuel burners, electric resistance heaters, heat pumps, or other systems that require energy to operate.

MECHANICAL LOAD COEFFICIENT (MLC). In a *data center*, the ratio of the cooling system's net use of energy to that of the *ITE*. ((~~The design MLC is calculated for a local peak weather condition (stipulated in ASHRAE Standard 90.4) and equals the sum of all active cooling equipment input power, divided by total power into the *ITE*.~~)) The annual MLC is calculated using hourly ((~~TMY3~~)) weather data for the data center's location and equals the sum of all energy flowing into the cooling system to respond to that weather, minus any energy successfully recovered to avoid any new energy use, all divided by the energy flowing into the *ITE* during the same period.

MECHANICAL ROOM. A room or space in which mechanical equipment and appliances are located that has sufficient room for access and maintenance of the equipment or appliances with room energy doors closed.

METAL BUILDING ROOF. A roof that:

1. Is constructed with a metal, structural, weathering surface;
2. Has no ventilated cavity; and
3. Has the insulation entirely below deck (i.e., does not include composite concrete and metal deck construction nor a roof framing system that is separated from the superstructure by a wood substrate) and whose structure consists of one or more of the following configurations:

a. Metal roofing in direct contact with the steel framing members;

b. Metal roofing separated from the steel framing members by insulation;

c. Insulated metal roofing panels installed as described in a or b.

METAL BUILDING WALL. A *wall* whose structure consists of metal spanning members supported by steel structural members (i.e., does not include spandrel glass or metal panels in curtain *wall systems*).

METER. A device that measures the flow of energy.

MICROCELL. A wireless communication facility consisting of an antenna that is either: (a) Four (4) feet in height and with an area of not more than 580 square inches; or (b) if a tubular antenna, no more than four (4) inches in diameter and no more than six (6) feet in length; and the associated equipment cabinet that is six (6) feet or less in height and no more than 48 square feet in floor area.

MULTI-PASS. A heat pump water heater control strategy requiring multiple passes of water through the heat pump to reach the final target storage water temperature.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20213, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20213, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20213, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20214 Section C202.14—N.

NAMEPLATE HORSEPOWER. The nominal motor output power rating stamped on the motor nameplate.

NEMA DESIGN A MOTOR. A squirrel-cage motor that meets all of the following:

1. It is designed to withstand full-voltage starting and developing locked-rotor torque as shown in paragraph 12.38.1 of NEMA MG 1.
2. It has pull-up torque not less than the values shown in paragraph 12.40.1 of NEMA MG 1.
3. It has breakdown torque not less than the values shown in paragraph 12.39.1 of NEMA MG 1.
4. It has a locked-rotor current higher than the values shown in paragraph 12.35.1 of NEMA MG 1 for 60 Hz and paragraph 12.35.2 of NEMA MG 1 for 50 Hz.
5. It has a slip at rated load of less than 5 percent for motors with fewer than 10 poles.

NEMA DESIGN B MOTOR. A squirrel-cage motor that meets all of the following:

1. It is designed to withstand full-voltage starting.
2. It develops locked-rotor, breakdown and pull-up torques adequate for general application as specified in Sections 12.38, 12.39 and 12.40 of NEMA MG 1.
3. It draws locked-rotor current not to exceed the values shown in paragraph 12.35.1 of NEMA MG 1 for 60 Hz and paragraph 12.35.2 of NEMA MG 1 for 50 Hz.
4. It has a slip at rated load of less than 5 percent for motors with fewer than 10 poles.

NEMA DESIGN C MOTOR. A squirrel-cage motor that meets all of the following:

1. It is designed to withstand full-voltage starting and developing locked-rotor torque for high-torque applications up to the values shown in paragraph 12.38.2 of NEMA MG 1 (incorporated by reference; see Sec. 431.15).
2. It has pull-up torque not less than the values shown in paragraph 12.40.2 of NEMA MG 1.

3. It has breakdown torque not less than the values shown in paragraph 12.39.2 of NEMA MG 1.

4. It has a locked-rotor current not to exceed the values shown in paragraph 12.35.1 of NEMA MG 1 for 60 Hz and paragraph 12.35.2 of NEMA MG 1 for 50 Hz.

5. It has a slip at rated load of less than 5 percent.

NETWORKED GUEST ROOM CONTROL SYSTEM. A control system, ((~~accessible~~)) with access from the front desk or other central location associated with a Group R-1 building, that is capable of identifying the ((~~occupancy~~)) rented and unrented status of each guest room according to a timed schedule, and is capable of controlling HVAC in each hotel and motel guest room separately.

NONSTANDARD PART LOAD VALUE (NPLV). A single-number part-load efficiency figure of merit calculated and referenced to conditions other than IPLV conditions, for units that are not designed to operate at ARI standard rating conditions.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20214, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20214, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20215 Section C202.15—O.

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment or appliances to be regulated accordingly.

ON-SITE RENEWABLE ENERGY. Energy ((~~derived from solar radiation, wind, waves, tides, landfill gas, biogas, biomass, or the internal heat of the earth. The energy system providing on-site renewable energy shall be located on the project site~~)) from *renewable energy resources* harvested at the building site.

OPAQUE DOOR. A door that is not less than 50 percent opaque in surface area.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20215, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20215, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20215, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20216 Section C202.16—P.

PERSONAL WIRELESS SERVICE FACILITY. A wireless communication facility (WCF), including a microcell, which is a facility for the transmission and/or reception of radio frequency signals and which may include antennas, equipment shelter or cabinet, transmission cables, a support structure to achieve the necessary elevation, and reception and/or transmission devices or antennas.

PHOTOSYNTHETIC PHOTON EFFICACY (PPE). Photosynthetic photon flux divided by input electric power in units of micromoles per second per watt, or micromoles per joule as defined by ANSI/ASABE S640.

POWERED ROOF/WALL VENTILATORS. A fan consisting of a centrifugal or axial impeller with an integral driver in a weather-resistant housing and with a base designed to fit, usually by means of a curb, over a wall or roof opening.

POWER-OVER-ETHERNET LIGHTING (POE). Lighting sources powered by DC current utilizing Ethernet cables.

PRIMARY STORAGE. Compressed air storage located upstream of the distribution system and any pressure flow regulators.

PROCESS BOILER. A type of boiler with a capacity (rated maximum input) of 300,000 Btu/h or more that serves a process.

PROPOSED DESIGN. A description of the proposed building used to estimate annual energy use and carbon emissions from energy consumption for determining compliance based on total building performance and *HVAC total performance ratio*.

PUBLIC LAVATORY FAUCET. A lavatory faucet that is not intended for private use as defined by the *Uniform Plumbing Code* and that is supplied with both potable cold and hot water.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20216, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20216, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20216, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20218 Section C202.18—R.

RADIANT HEATING SYSTEM. A heating system that transfers heat to objects and surfaces within a conditioned space, primarily by infrared radiation.

READY ACCESS (TO). That which enables a device, appliance or equipment to be directly reached, without requiring the removal or movement of any panel or similar obstruction.

REFRIGERANT DEW POINT. The refrigerant vapor saturation temperature at a specified pressure.

REFRIGERATED WAREHOUSE COOLER. An enclosed storage space that has a total chilled storage area of 3,000 ft^2 or greater and is designed to maintain a temperature of greater than 32°F but less than 55°F.

REFRIGERATED WAREHOUSE FREEZER. An enclosed storage space that has a total chilled storage area of 3,000 ft^2 or greater and is designed to maintain a temperature at or below 32°F.

REFRIGERATION SYSTEM, LOW TEMPERATURE. Systems for maintaining food product in a frozen state in refrigeration applications.

REFRIGERATION SYSTEM, MEDIUM TEMPERATURE. Systems for maintaining food product above freezing in refrigeration applications.

REGISTERED DESIGN PROFESSIONAL. An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

RENEWABLE ENERGY RESOURCES. Energy derived from solar radiation, wind, waves, tides, *biogas*, *biomass* or extracted from hot fluid or steam heated within the earth.

RENEWABLE POWER PURCHASE AGREEMENT. A power purchase agreement for off-site renewable energy where the owner agrees to purchase renewable energy output and the associated renewable energy certificates at a fixed price schedule.

REPAIR. The reconstruction or renewal of any part of an existing building.

REPLACEMENT AIR. Outdoor air that is used to replace air removed from a building through an exhaust system. Replacement air may be derived from one or more of the following: Make-up air, supply air, transfer air and infiltration. However, the ultimate source of all replacement air is outdoor air. When replacement air exceeds exhaust, the result is exfiltration.

REROOFING. The process of recovering or replacing an existing roof covering. See "Roof Recover" and "Roof Replacement."

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) as well as Group R-2 and R-3 buildings three stories or less in height above grade plane.

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof covering, underlayment, roof deck, insulation, vapor retarder and interior finish. See also *attic and other roofs*, *metal building roof*, roof with *insulation entirely above deck* and *single-rafter roof*.

ROOF RECOVER. The process of installing an additional *roof covering* over a prepared existing *roof covering* without removing the existing *roof covering*.

ROOF REPAIR. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

ROOF REPLACEMENT. The process of removing the existing roof covering, repairing any damaged substrate and installing a new *roof covering*.

ROOFTOP MONITOR. A raised section of a roof containing vertical fenestration along one or more sides.

***R*-VALUE (THERMAL RESISTANCE).** The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area ($h \cdot ft^2 \cdot {}^\circ F/Btu$) [$(m^2 \cdot K)/W$].

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20218, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20218, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-054, § 51-11C-20218, filed 11/25/14, effec-

tive 5/1/15. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20218, filed 2/1/13, effective 7/1/13.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20219 Section C202.19—S.

SATURATED-CONDENSING TEMPERATURE. The saturation temperature corresponding to the measured refrigerant pressure at the condenser inlet for single component and azeotropic refrigerants, and the arithmetic average of the dew point and *bubble point* temperatures corresponding to the refrigerant pressure at the condenser entrance for zeotropic refrigerants.

SEMI-HEATED SPACE. An *enclosed space* within a building, including adjacent connected spaces separated by an uninsulated component (e.g., basements, utility rooms, garages, corridors), which:

1. Is heated but not cooled, and has an installed heating system output capacity greater than or equal to 3.4 Btu/(h-ft^2) but not greater than 8 Btu/(h-ft^2);

2. Is not a *walk-in* ((~~or~~)) *cooler, walk-in freezer, refrigerated warehouse cooler* or *refrigerated warehouse freezer* space.

SENSIBLE RECOVERY EFFECTIVENESS. Change in the dry-bulb temperature of the outdoor air supply divided by the difference between the outdoor air and return air dry-bulb temperatures, expressed as a percentage, governed by AHRI Standard 1060.

SERVICE WATER HEATING. Heating water for domestic or commercial purposes other than space heating and process requirements.

SIDELIT. See Section ((~~C405.2.4.2~~)) C405.2.5.2.

SINGLE-PASS. A heat pump water heater control strategy using variable flow or variable capacity to deliver water from the heat pump at the final target storage water temperature in a single-pass through the heat exchanger with variable incoming water temperatures.

SINGLE-RAFTER ROOF. A roof where the roof above and the ceiling below are both attached to the same wood rafter and where insulation is located in the space between these wood rafters.

SKYLIGHT. See "Fenestration."

SLAB BELOW GRADE. Any portion of a slab floor in contact with the ground which is more than 24 inches below the final elevation of the nearest exterior grade.

SLAB-ON-GRADE FLOOR. That portion of a slab floor of the building envelope that is in contact with the ground and that is either above grade or is less than or equal to 24 inches below the final elevation of the nearest exterior grade.

SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not *sleeping units*.

SMALL ELECTRIC MOTOR. A general purpose, alternating current, single speed induction motor.

SMALL BUSINESS. Any business entity (including a sole proprietorship, corporation, partnership or other legal entity) which is owned and operated independently from all other businesses, which has the purpose of making a profit, and which has fifty or fewer employees.

SOLAR HEAT GAIN COEFFICIENT (SHGC). The ratio of the solar heat gain entering the space through the fenestration assembly to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is then reradiated, conducted or convected into the space.

SOLAR ZONE. A clear area or areas reserved solely for current and future installation of photovoltaic or solar hot water systems.

SPACE CONDITIONING CATEGORY. Categories are based on the allowed peak space conditioning output capacity per square foot of conditioned floor area, or the design set point temperature, for a building or space. Space conditioning categories include: Low energy, semi-heated, conditioned, refrigerated walk-in and warehouse coolers, and refrigerated walk-in and warehouse freezers.

STAND-ALONE DEHUMIDIFIER. A product with the sole purpose of dehumidifying the space that does not include a portable air conditioner, room air conditioner, or packaged terminal air conditioner. Stand-alone dehumidifier is a self-contained, electrically operated, and mechanically encased assembly consisting of:

1. A refrigerated surface (evaporator) that condenses moisture from the atmosphere;
2. A refrigerating system, including an electric motor;
3. An air-circulating fan; and
4. A means for collecting or disposing of the condensate.

STANDARD REFERENCE DESIGN. A version of the *proposed design* that meets the minimum requirements of this code and is used to determine the maximum annual energy use requirement and carbon emissions from energy consumption for compliance based on total building performance and *HVAC total system performance ratio*.

STEEL-FRAMED WALL. A *wall* with a cavity (insulated or otherwise) whose exterior surfaces are separated by steel framing members (i.e., typical steel stud *walls* and curtain *wall systems*).

STOREFRONT. A system of doors and windows mulled as a composite fenestration structure that has been designed to resist heavy use. *Storefront* systems include, but are not limited to, exterior fenestration systems that span from the floor level or above to the ceiling of the same story on commercial buildings, with or without mulled windows and doors.

SUBSYSTEM METER. A meter placed downstream of the energy supply meter that measures the energy delivered to a load or a group of loads.

SYSTEM. A combination of equipment and auxiliary devices (e.g., controls, accessories, interconnecting means and terminal elements) by which energy is transformed so it performs a specific function, such as HVAC, *service water heating* or lighting.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20219, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20219, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20219, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20220 Section C202.20—T.

TEMPERATURE MAINTENANCE. The system used to maintain the temperature of the building service hot water delivery system, typically by circulation and reheating or by a heat trace system.

TEMPORARY GROWING STRUCTURE. A temporary growing structure has sides and roof covered with polyethylene, polyvinyl or similar flexible synthetic material and is used to provide plants with either frost protection or increased heat retention. Temporary structures are those that are erected for a period of less than 180 days.

TESTING UNIT ENCLOSURE AREA. The area sum of all the boundary surfaces that define the dwelling unit, sleeping unit, or occupiable conditioned space including top/ceiling, bottom/floor and all side walls. This does not include interior partition walls within the dwelling unit, sleeping unit, or occupiable conditioned space. Wall height shall be measured from the finished floor of the conditioned space to the finished floor or roof/ceiling air barrier above.

THERMAL DISTRIBUTION EFFICIENCY (TDE). The resistance to changes in air heat as air is conveyed through a distance of air duct. TDE is a heat loss calculation evaluating the difference in the heat of the air between the air duct inlet and outlet caused by differences in temperatures between the air in the duct and the duct material. TDE is expressed as a percent difference between the inlet and outlet heat in the duct.

THERMOSTAT. An automatic control device used to maintain temperature at a fixed or adjustable set point.

TIME SWITCH CONTROL. An automatic control device or system that controls lighting or other loads, including switching off, based on time schedules.

TOPLIT. See Section ((~~C405.2.4.3~~)) C405.2.5.3.

TUBULAR DAYLIGHTING DEVICE (TDD). A nonoperable skylight device primarily designed to transmit daylight from a roof surface to an interior ceiling surface via a tubular conduit. The device consists of an exterior glazed weathering surface, a light transmitting tube with a reflective inside surface and an interior sealing device, such as a translucent ceiling panel.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20220, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20220, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20220, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-20221 Section C202.21—U.

***U*-FACTOR (THERMAL TRANSMITTANCE).** The coefficient of heat transmission (air to air) through a building component or assembly, equal to the time rate

of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/h • ft^2 • °F) [W/(m^2 • K)].

UNCONDITIONED SPACE. An *enclosed space* within a building that is not a *conditioned space*, a *semi-heated space* or a low energy space in accordance with Section C402.1.1. Crawlspaces, attics and parking garages with natural or mechanical *ventilation* are not considered *enclosed spaces*.

UNHEATED SLAB-ON-GRADE FLOOR. A slab-on-grade floor that is not a heated slab-on-grade floor.

UNIFORM ILLUMINATION. A quality of illumination delivered by a lighting system typically comprised of similar fixtures mounted at a regular spacing interval. This lighting system provides a uniform contrast ratio of no greater than 5:1 maximum-to-minimum ratio throughout the entire area served, including task areas.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20221, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20221, filed 2/1/13, effective 7/1/13.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

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AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-20222 Section C202.22—V.

VARIABLE REFRIGERANT FLOW SYSTEM. An engineered direct-expansion (DX) refrigerant system that incorporates a common condensing unit, at least one variable capacity compressor, a distributed refrigerant piping network to multiple indoor fan heating and cooling units each capable of individual zone temperature control, through integral zone temperature control devices and a common communications network. Variable refrigerant flow utilizes three or more steps of control on common interconnecting piping.

VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

VENTILATION AIR. That portion of supply air that comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space.

VERTICAL FENESTRATION. See **"FENESTRATION."**

VISIBLE TRANSMITTANCE [VT]. The ratio of visible light entering the space through the fenestration product assembly to the incident visible light, visible transmittance, includes the effects of glazing material and frame and is expressed as a number between 0 and 1. For skylights, VT shall be measured and rated in accordance with NFRC 202.

VISIBLE TRANSMITTANCE - ANNUAL [VT-ANNUAL]. The ratio of visible light entering the space through the fenestration product assembly to the incident visible light during the course of a year, ((~~visible transmittance,~~)) which includes the effects of glazing material, frame, and light well or tubular conduit, and is expressed as a number between 0 and 1. For tubular daylighting devices, VT-annual shall be measured and rated in accordance with NFRC 203.

VOLTAGE DROP. A decrease in voltage caused by losses in the wiring system that connect the power source to the load.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-20222, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20222, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20222, filed 2/1/13, effective 7/1/13.]

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AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-20223 Section C202.23—W.

WALK-IN COOLER. An enclosed storage space capable of being refrigerated to temperatures above 32°F (0°C) and less than 55°F (12.8°C) that can be walked into, has a ceiling height of not less than 7 feet (2134 mm) and has a total chilled storage area of less than 3,000 square feet (279 m^2).

WALK-IN FREEZER. An enclosed storage space capable of being refrigerated to temperatures at or below 32°F (0°C) that can be walked into, has a ceiling height of not less than 7 feet (2134 mm) and has a total chilled storage area of less than 3,000 square feet (279 m^2).

WALL. That portion of the *building envelope*, including opaque area and *fenestration*, that is vertical or tilted at an angle of 60 degrees from horizontal or greater. This includes *above-grade walls* and *below-grade walls*, between-floor spandrels, peripheral edges of floors, ((~~and~~)) foundation *walls*, roof and basement knee walls, dormer walls, gable end walls, walls enclosing a mansard roof, and skylight shafts.

WATER HEATER. Any heating appliance or equipment that heats potable water and supplies such water to the potable hot water distribution system.

WOOD-FRAMED AND OTHER WALLS. All other *wall* types, including wood stud *walls*.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-20223, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-20223, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-30310 Section 303.1—Identification.

C303.1 Identification. Materials, systems and equipment shall be identified in a manner that will allow a determination of compliance with the applicable provisions of this code.

C303.1.1 Building thermal envelope insulation. An *R*-value identification mark shall be applied by the manufacturer to each piece of *building thermal envelope* insulation 12 inches (305 mm) or greater in width. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and *R*-value of insulation installed in each element of the *building thermal envelope*. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled *R*-value, installed density, coverage area and number of bags installed shall be *listed* on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the areas covered and *R*-value of installed thickness shall be *listed* on the certification. For insulated siding, the *R*-value shall be labeled on the product's package and shall be listed on the certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

EXCEPTION: For roof insulation installed above the deck, the *R*-value shall be labeled as required by the material standards specified in Table 1508.2 of the *International Building Code*.

C303.1.1.1 Blown or sprayed roof/ceiling insulation. The thickness of blown-in or sprayed fiberglass and cellulose roof/ceiling insulation shall be written in inches (mm) on markers for every 300 square feet (28 m^2) of attic area throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers of not less than 1 inch (25 mm) in height. Each marker shall face the attic access opening. Spray polyurethane foam thickness and installed *R*-value shall be *listed* on certification provided by the insulation installer.

C303.1.2 Insulation mark installation. Insulating materials shall be installed such that the manufacturer's *R*-value mark is readily observable upon inspection. For insulation materials that are installed without an observable manufacturer's *R*-value mark, such as blown or draped products, an insulation certificate complying with Section C303.1.1 shall be left immediately after installation by the installer, in a conspicuous location within the building, to certify the installed *R*-value of the insulation material.

C303.1.3 Fenestration product rating. *U*-factors of fenestration shall be determined as follows:

1. For windows, doors and skylights, *U*-factor ratings shall be determined in accordance with NFRC 100.

2. Where required for garage doors and rolling doors, *U*-factor ratings shall be determined in accordance with either NFRC 100 or ANSI/DASMA 105.

U-factors shall be determined by an accredited, independent laboratory, and labeled and certified by the manufacturer.

Products lacking such a labeled *U*-factor shall be assigned a default *U*-factor from Table C303.1.3(1), C303.1.3(2) or C303.1.3(4). The solar heat gain coefficient (SHGC) and *visible transmittance* (VT) of glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled SHGC or VT shall be assigned a default SHGC or VT from Table C303.1.3(3). For tubular daylighting devices, VT_{annual} shall be measured and rated in accordance with NFRC 203.

EXCEPTION: Units without NFRC ratings produced by a small business may be assigned default *U*-factors from Table C303.1.3(5) for vertical fenestration.

C303.1.4 Insulation product rating. The thermal resistance (*R*-value) of insulation shall be determined in accordance with the U.S. Federal Trade Commission *R*-value rule (C.F.R. Title 16, Part 460) in units of h × ft^2 × °F/Btu at a mean temperature of 75°F (24°C).

C303.1.4.1 Insulated siding. The thermal resistance (*R*-Value) shall be determined in accordance with ASTM C1363. Installation for testing shall be in accordance with the manufacturer's installation instructions.

C303.1.5 Spandrel panels in glass curtain walls. Table C303.1.5 provides default *U*-factors for the spandrel section of glass and other curtain wall systems. Design factors that affect performance are the type of framing, the type of spandrel panel and the *R*-value of insulation. Four framing conditions are considered in the table. The first is the common case where standard aluminum mullions are used. Standard mullions provide a thermal bridge through the insulation, reducing its effectiveness. The second case is for metal framing members that have a thermal break. A thermal break frame uses a urethane or other nonmetallic element to separate the metal exposed to outside conditions from the metal that is exposed to interior conditions. The third case is for structural glazing or systems where there are no exposed mullions on the exterior. The fourth case is for the condition where there is no framing or the insulation is continuous and uninterrupted by framing. The columns in the table can be used for any specified level of insulation between framing members installed in framed curtain walls or spandrel panels.

C303.1.5.1 Window wall application. Where "window wall" or similar assembly that is discontinuous at intermediate slab edges is used, the slab edge *U*-value shall be as listed in Appendix Table A103.3.7.1(3) or as determined using an approved calculation.

C303.1.5.2 Table value assumptions. In addition to the spandrel panel assembly, the construction assembly *U*-factors assume an air gap between the spandrel panel (with an *R*-value of 1.39) and one layer of 5/8-inch gypsum board (with an *R*-value of 0.56) that provides the interior finish. The gypsum board is assumed to span between the window sill and a channel at the floor. For assemblies that differ from these assumptions, custom *U*-factors can be calculated to account for any amount of continuous insulation or for unusual construction assemblies using Equations 3-1, 3-2 or 3-3 where appropriate. Spandrel panel *U*-factors for assemblies other than those covered by Table C303.1.5 or Equations 3-1 through 3-3 may be determined using an alternate approved methodology. Equations 3-1 through 3-3 do not calculate the value of any insulation inboard of the curtain wall assembly.

Aluminum without Thermal Break

(Equation 3-1)

$$U_{overall} = \left[\frac{1}{(R_{gypsum} + R_{airgap}) + \left[\frac{1}{0.2798 + \left(\frac{0.8929}{R_{addedinsulation} + \left(\frac{1}{U_{centerofglass}} \right)} \right)} \right]} \right]$$

Aluminum with Thermal Break
(Equation 3-2)

$$U_{overall} = \left[\frac{1}{(R_{gypsum} + R_{airgap}) + \left[\frac{1}{0.1808 + \left(\frac{0.8874}{R_{addedinsulation} + \left(\frac{1}{U_{centerofglass}}\right)}\right)}\right]}\right]$$

Structural Glazing
(Equation 3-3)

$$U_{overall} = \left[\frac{1}{(R_{gypsum} + R_{airgap}) + \left[\frac{1}{0.1151 + \left(\frac{0.9487}{R_{addedinsulation} + \left(\frac{1}{U_{centerofglass}}\right)}\right)}\right]}\right]$$

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-30310, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-30310, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-30310, filed 2/1/13, effective 7/1/13.]

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AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40100 Section C401—General.

C401.1 Scope. The provisions in this chapter are applicable to commercial buildings and their building sites.

C401.2 Application. Commercial buildings shall comply with one of the following:

1. ((~~The requirements of Sections C402, C403, C404, C405, C406, C408, C409, C410, and C411.~~)) Prescriptive compliance. The prescriptive compliance option requires compliance with Sections C402 through C406, and Sections C408, C409, C410, and C411.

2. Total building performance. The ((~~requirements of~~)) total building performance option requires compliance with Section C407.

3. When adopted by the local jurisdiction, the requirements of Appendix F, Outcome-Based Energy Budget, Sections C408, C409, C410, C411 and any specific sections in Table C407.2 as determined by the local jurisdiction. The Proposed Total UA of the proposed building shall be no more than 20 percent higher than the Allowed Total UA as defined in Section C402.1.5.

C401.2.1 Application to existing buildings. ((~~Work on existing buildings shall comply with Chapter 5 in addition to the applicable provisions of Chapter 4.~~)) Additions, alterations, repairs and changes of occupancy to existing buildings shall comply with Chapter 5.

C401.2.2 Application to process equipment. Energy using equipment used by a manufacturing, industrial, or commercial process other than for conditioning spaces or maintaining comfort and amenities for the occupants shall comply with Section C403.3.2, Tables C403.3.2(1) through (16) inclusive, Sections C403.7.7, C403.9.2.1, C403.10.3, C403.11.2, C403.11.3, C404.2, Table C404.2, and Sections C405.8, C410, and C412.

C401.3 Thermal envelope certificate. A permanent thermal envelope certificate shall be completed by an *approved* party. Such certificate shall be posted on a wall in the space where the space conditioning equipment is located, a utility room or other *approved* location. If located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels. A copy of the certificate shall also be included in the construction files for the project. The certificate shall include:

1. *R*-values of insulation installed in or on ceilings, roofs, walls, foundations and slabs, crawlspace walls and floors, and ducts outside *conditioned spaces*.

2. *U*-factors and *solar heat gain coefficients* (SHGC) of fenestration.

3. Results from any building envelope air leakage testing performed on the building.

Where there is more than one value for any component of the building envelope, the certificate shall indicate the area-weighted average value where available. If the area-weighted average is not available, the certificate shall list each value that applies to 10 percent or more of the total component area.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40100, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40100, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-40100, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40100, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40100, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40211 Section C402.1.1—Low energy buildings.

C402.1.1 Low energy buildings, semi-heated buildings and greenhouses. Low energy buildings shall comply with Section C402.1.1.1. Semi-heated buildings and spaces shall comply with Section C402.1.1.2. Greenhouses shall comply with Section C402.1.1.3.

C402.1.1.1 Low energy buildings. The following buildings, or enclosed portions thereof, separated from the remainder of the building by *building thermal envelope* assemblies complying with this code shall be exempt from all thermal envelope provision of this code:

1. Those that are heated and/or cooled with a peak design rate of energy usage less than 3.4 Btu/h × ft^2 (10.7 W/m^2) or 1.0 watt/ft^2 (10.7 W/m^2) of floor area for space conditioning purposes.

2. Those that do not contain *conditioned space*.

3. Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

C402.1.1.2 Semi-heated buildings and spaces. The building envelope of *semi-heated* buildings, or portions thereof, shall comply with the same requirements as that for conditioned spaces in Section C402, except as modified by this section. The total installed output capacity of mechanical space conditioning systems serving a *semi-heated* building or space shall comply with Section C202. Building envelope assemblies separating conditioned space from *semi-heated space* shall comply with exterior envelope insulation requirements. *Semi-heated spaces* ((~~heated by mechanical systems that do not include electric resistance heating equipment~~)) are not required to comply with the opaque wall insulation provisions of Section C402.2.3 for walls that separate *semi-heated* spaces from the exterior or low energy spaces. Fenestration that forms part of the *building thermal envelope* enclosing semi-heated spaces shall comply with Section C402.4. *Semi-heated spaces* shall be calculated separately from other conditioned spaces for compliance purposes.

Opaque walls in *semi-heated* spaces shall be calculated as fully code compliant opaque walls for both the target and proposed for the Target UA calculations for Component Performance compliance per Section C402.1.5, and for the ((~~Standard Reference~~)) Baseline Building Design for Total Building Performance compliance per Section C407. The capacity of heat trace temperature maintenance systems complying with Section C404.7.2 that are provided for freeze protection of piping and equipment only shall not be included in the total installed output capacity of mechanical space conditioning systems.

EXCEPTION: ((~~Building or space may comply as semi-heated when served by one or more of the following system alternatives:~~
~~1. Electric infrared heating equipment for localized heating applications.~~
~~2. Heat pumps with cooling capacity permanently disabled, as preapproved by the jurisdiction.~~))
Provided the total installed heating output capacity of mechanical space conditioning does not exceed the criteria for semi-heated space as defined in Section C202, a semi-heated building or space may comply with this section when served by heat pumps without electric resistance back up and connected to a heating only thermostat.

C402.1.1.3 Greenhouses. *Greenhouse* structures or areas that comply with all of the following shall be exempt from the building envelope requirements of this code:

1. Exterior opaque envelope assemblies complying with Sections C402.2 and C402.4.4.

EXCEPTION: Low energy greenhouses that comply with Section C402.1.1.1.

2. Interior partition building thermal envelope assemblies that separate the *greenhouse* from conditioned space complying with Sections C402.2, C402.4.3 and C402.4.4.

3. ((~~Nonopaque envelope~~)) Fenestration assemblies complying with the thermal envelope requirements in Table C402.1.1.3. The *U*-factor for the ((~~nonopaque roof~~)) skylight shall be for the roof assembly or a roof that includes the assembly and an internal curtain system.

EXCEPTION: Unheated *greenhouses*.

4. No mechanical cooling is provided.

5. For heated greenhouses, heating is provided by a radiant heating system, a condensing natural gas-fired or condensing propane-fired heating system, or a heat pump with cooling capacity permanently disabled as preapproved by the jurisdiction.

Table C402.1.1.3

((~~Non-Opaque~~)) Fenestration Thermal Envelope Maximum Requirements

((~~Component *U*-Factor BTU/h-ft^2-°F~~	~~Climate Zone 5 and Marine 4~~
~~Non-opaque roof~~	~~0.5~~
~~Non-opaque SEW wall~~	~~0.7~~
~~Non-opaque N wall~~	~~0.6~~))

Component	*U*-Factor BTU/h-ft^2-°F
Skylights	0.5
Vertical fenestration	0.6

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40211, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40211, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40211, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40211, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40211, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40212 Section C402.1.2—Equipment buildings.

C402.1.2 Equipment buildings. Buildings that comply with all of the following shall be exempt from the building thermal envelope provisions of this code:

1. Are separate buildings with floor area no more than 500 square feet (50 m^2).
2. Are intended to house ((~~electronic~~)) electric equipment with installed equipment power totaling at least 7 watts per square foot (75 W/m^2) and not intended for human occupancy.
3. Are served by mechanical cooling and heating systems sized in accordance with Sections C403.1.2 and C403.3.1.
4. Have a heating system capacity not greater than 17,000 Btu/hr (5 kW) and a heating thermostat set point that is restricted to not more than 50°F (10°C).
5. Have an average wall and roof *U*-factor less than 0.200.

EXCEPTION: Where the cooling and heating system is a heat pump, the heating capacity is allowed to exceed 17,000 Btu/h provided the heat pump cooling efficiency is at least 15 percent better than the requirements in Tables C403.3.2(2) and C403.3.2(14).

C402.1.2.1 Standalone elevator hoistways. Elevator hoistways that comply with all of the following shall be exempt from the building thermal envelope and envelope air barrier provisions of this code:

1. Are separate from any other conditioned spaces in the building (do not serve or open into any conditioned, semi-heated or indirectly conditioned space).

2. Have heating and/or cooling equipment sized only to serve the expected elevator loads with thermostat setpoints restricted to heating to no higher than 40°F and cooling to no lower than 95°F.

3. Have an area weighted average wall, roof and floor (where applicable) *U*-factor of less than or equal to 0.20. Calculations must include any floor-slab-edges that penetrate the hoistway and thus are considered part of the above-grade walls.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40212, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40212, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40212, filed 2/1/13, effective 7/1/13.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

OPTION 1

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-402121 Table C402.1.3—Opaque thermal envelope assembly *R-value* requirements.

Table C402.1.3
Opaque Thermal Envelope Insulation Component Minimum Requirements, *R-value* Method[a, ((i)) j]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	Group R
Roofs		
Insulation entirely above deck	R-38ci	R-38ci
Metal buildings[b]	R-25 + ((~~R-11~~)) R-22 LS	R-25 + ((~~R-11~~)) R-22 LS
Attic and other	R-49	R-49
Walls, Above Grade[i]		
Mass[h]	R-9.5ci[c]	R-13.3ci
Mass transfer deck slab edge[g]	((~~R-5~~	~~R-5~~))
Metal buildings	((~~R-19ci or R-13 + 13ci~~)) R-13 + R-14ci	((~~R-19ci or R-13 + 13ci~~)) R-13 + R-14ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci
Wood framed and other	((~~R-21 int or R-15 + 5ci std~~)) R-13 + R-7.5ci std or R-20 + R-3.8ci std	R-13 + R-7.5ci std or R-20 + R-3.8ci std or R-25 std
Walls, Below Grade		
Below-grade wall[d,h]	Same as above grade	Same as above grade

CLIMATE ZONE	5 AND MARINE 4	
	All Other	Group R
Floors		
Mass[f]	R-30ci	R-30ci
Joist/framing	R-30[e]	R-30[e]
Slab-on-Grade Floors		
Unheated slabs	R-10 for 24" below	R-10 for 24" below
Heated slabs	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab
((~~**Opaque Doors**~~[g]		
~~Nonswinging~~	~~R-4.75~~	~~R-4.75~~))

For SI: 1 inch = 25.4 mm. ci = Continuous insulation. NR = No requirement.

LS = Liner system—A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

a Assembly descriptions can be found in Chapter 2 and Appendix A.

b Where using *R*-value compliance method, a thermal spacer block with minimum thickness of 1/2-inch and minimum *R*-value of R-3.5 shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.4.

c Exception: ((~~Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of~~)) Single wythe concrete block walls complying with ASTM C90 meeting all of the following:
1. The single wythe concrete block must be exposed on both sides. There are no interior or exterior wall coverings.
2. All cores must be filled and at least 50 percent of cores must be filled with vermiculite or equivalent fill insulation((~~; and~~)).
((~~2.~~)) 3. The concrete block must have a nominal thickness of 8 inches or greater.
4. The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall *R*-value from Table ((~~C402.1.3/*U*-factor from Table C402.1.4~~)) C402.1.3.

d Where heated slabs are below grade, they shall comply with the insulation requirements for heated slabs.

e Steel floor joist systems shall be insulated to R-38 + R-10ci.

f "Mass floors" shall include floors weighing not less than:
1. 35 pounds per square foot of floor surface area; or
2. 25 pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.

g ((~~Not applicable to garage doors. See Table C402.1.4.~~)) Component performance in accordance with Section C402.1.5 shall be required for buildings with a mass transfer deck slab.

h Peripheral edges of intermediate concrete floors are included in the above-grade mass wall category and therefore must be insulated as above-grade mass walls unless they meet the definition of Mass Transfer Deck Slab Edge. The area of the peripheral edges of concrete floors shall be defined as the thickness of the slab multiplied by the perimeter length of the edge condition. See Table A103.3.7.2 for typical default *U*-factors for above-grade slab edges and footnote [c] for typical conditions of above-grade slab edges.

i ((~~For roof, wall or floor assemblies where the proposed assembly would not be continuous insulation, an alternate nominal *R*-value compliance option for assemblies with isolated metal penetrations of otherwise continuous insulation is:~~)) Where the total area of through-wall mechanical equipment is greater than 1 percent of the opaque *above-grade wall area*, use of the *R*-value method is not permitted. See Section C402.1.4.3.

j For roof, wall or floor assemblies where the proposed assembly would not be *continuous insulation*, alternate nominal *R*-value compliance options for assemblies with isolated metal fasteners that penetrate otherwise *continuous insulation* are as shown in columns B and C of Table C402.1.3(i):

Table C402.1.3(i)
Continuous Insulation Equivalents

Column A	Column B	Column C
Assemblies with continuous insulation (see definition)	**Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%**	**Alternate option for assemblies with metal penetrations, greater than or equal to 0.08% but less than 0.12%**
R-9.5ci	R-11.9ci	R-13ci
R-11.4ci	R-14.3ci	R-15.7ci
R-13.3ci	R-16.6ci	R-18.3ci
R-15.2ci	((~~R-19.0ci~~)) R-19ci	R-21ci
R-30ci	R-38ci	R-42ci
R-38ci	R-48ci	R-53ci
R-13 + R-7.5ci	R-13 + R-9.4ci	R-13 + R-10.3ci
R-13 + R-10ci	R-13 + R-12.5ci	R-13 + R-13.8ci
R-13 + R-12.5ci	R-13 + R-15.6ci	R-13 + R-17.2ci
R-13 + R-13ci	R-13 + R-16.3ci	R-13 + R-17.9ci
R-19 + R-8.5ci	R-19 + R-10.6ci	R-19 + R-11.7ci
R-19 + R-14ci	R-19 + R-17.5ci	R-19 + R-19.2ci

Column A	Column B	Column C
Assemblies with continuous insulation (see definition)	**Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%**	**Alternate option for assemblies with metal penetrations, greater than or equal to 0.08% but less than 0.12%**
R-19 + R-16ci	R-19 + R-20ci	R-19 + R-22ci
R-20 + R-3.8ci	R-20 + R-4.8ci	R-20 + R-5.3ci
R-21 + R-5ci	R-21 + R-6.3ci	R-21 + R-6.9ci

Notes for Table C402.1.3(j)

((~~This~~)) These alternate nominal *R*-value compliance options ((~~is~~)) are allowed for projects complying with all of the following:

1a. The ratio of the cross-sectional area, as measured in the plane of the surface, of metal penetrations of otherwise continuous insulation to the opaque surface area of the assembly is greater than 0.0004 (0.04%), but less than 0.0008 (0.08%), for use of Column B equivalents, and greater than or equal to 0.008 (0.08%), but less than 0.0012 (0.12%), for use of Column C equivalents.

1b. Where all metal penetrations are stainless steel, Column B is permitted to be used for penetrations greater than 0.12%, but less than 0.24% of opaque surface area, and Column C is permitted to be used for penetrations greater than or equal to 0.24%, but less than 0.48% of opaque surface area.

2. The metal penetrations of otherwise continuous insulation are isolated or discontinuous (e.g., brick ties or other discontinuous metal attachments, offset brackets supporting shelf angles that allow insulation to go between the shelf angle and the primary portions of the wall structure). No continuous metal elements (e.g., metal studs, z-girts, z-channels, shelf angles) penetrate the otherwise continuous portion of the insulation.

3. Building permit drawings shall contain details showing the locations and dimensions of all the metal penetrations (e.g., brick ties or other discontinuous metal attachments, offset brackets, etc.) of otherwise continuous insulation. In addition, calculations shall be provided showing the ratio of the cross-sectional area of metal penetrations of otherwise continuous insulation to the overall opaque wall area.

For other cases where the proposed assembly is not continuous insulation, see Section C402.1.4 for determination of *U*-factors for assemblies that include metal other than screws and nails.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-402121, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-402121, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-402121, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-402121, filed 2/1/13, effective 7/1/13.]

OPTION 2

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-402121 Table C402.1.3—Opaque thermal envelope assembly *R-value* requirements.

Table C402.1.3
Opaque Thermal Envelope Insulation Component Minimum Requirements, *R-value* Method[a, ((i)) j]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	R-38ci	R-38ci

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Metal buildings[b]	R-25 + ((~~R-11~~)) R-22 LS	R-25 + ((~~R-11~~)) R-22 LS
Attic and other	R-49	R-49
Walls, Above Grade[i]		
Mass[h]	R-9.5ci((~~[c]~~))	R-13.3ci
Mass transfer deck slab edge[g]	((~~R-5~~	~~R-5~~))
Metal buildings	((~~R-19ci or R-13 + 13ci~~)) R-13 + R-14ci	((~~R-19ci or R-13 + 13ci~~)) R-13 + R-14ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci
Wood framed and other	((~~R-21 int or R-15 + 5ci std~~)) R-13 + R-7.5ci std or R-20 + R-3.8ci std	R-13 + R-7.5ci std or R-20 + R-3.8ci std or R-25 std
Walls, Below Grade		
Below-grade wall[d,h]	Same as above grade	Same as above grade
Floors		
Mass[f]	R-30ci	R-30ci
Joist/framing	R-30[e]	R-30[e]
Slab-on-Grade Floors		
Unheated slabs	R-10 for 24" below	R-10 for 24" below
Heated slabs	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab
((~~**Opaque Doors[g]**~~		
~~Nonswinging~~	~~R-4.75~~	~~R-4.75~~))

For SI: 1 inch = 25.4 mm. ci = Continuous insulation. NR = No requirement.

LS = Liner system—A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

a Assembly descriptions can be found in Chapter 2 and Appendix A.

b Where using *R*-value compliance method, a thermal spacer block with minimum thickness of 1/2-inch and minimum *R*-value of R-3.5 shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.4.

c ((~~Exception: Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:~~
~~1. At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and~~
~~2. The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall *R*-value from Table C402.1.3/*U*-factor from Table C402.1.4.~~)) Reserved.

d Where heated slabs are below grade, they shall comply with the insulation requirements for heated slabs.

e Steel floor joist systems shall be insulated to R-38 + R-10ci.

f "Mass floors" shall include floors weighing not less than:
1. 35 pounds per square foot of floor surface area; or
2. 25 pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.

g ((~~Not applicable to garage doors. See Table C402.1.4.~~)) Component performance in accordance with Section C402.1.5 shall be required for buildings with a mass transfer deck slab.

h Peripheral edges of intermediate concrete floors are included in the above-grade mass wall category and therefore must be insulated as above-grade mass walls unless they meet the definition of Mass Transfer Deck Slab Edge. The area of the peripheral edges of concrete floors shall be defined as the thickness of the slab multiplied by the perimeter length of the edge condition. See Table A103.3.7.2 for typical default *U*-factors for above-grade slab edges and footnote [c] for typical conditions of above-grade slab edges.

i ((~~For roof, wall or floor assemblies where the proposed assembly would not be continuous insulation, an alternate nominal *R*-value compliance option for assemblies with isolated metal penetrations of otherwise continuous insulation is:~~)) Where the total area of through-wall mechanical equipment is greater than 1 percent of the opaque *above-grade wall area*, use of the *R*-value method is not permitted. See Section C402.1.4.3.

j For roof, wall or floor assemblies where the proposed assembly would not be *continuous insulation*, alternate nominal *R*-value compliance options for assemblies with isolated metal fasteners that penetrate otherwise *continuous insulation* are as shown in columns B and C of Table C402.1.3(i):

Table C402.1.3(i)
Continuous Insulation Equivalents

Column A	Column B	Column C
Assemblies with continuous insulation (see definition)	**Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%**	**Alternate option for assemblies with metal penetrations, greater than or equal to 0.08% but less than 0.12%**
R-9.5ci	R-11.9ci	R-13ci

Column A	Column B	Column C
Assemblies with continuous insulation (see definition)	**Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%**	**Alternate option for assemblies with metal penetrations, greater than or equal to 0.08% but less than 0.12%**
R-11.4ci	R-14.3ci	R-15.7ci
R-13.3ci	R-16.6ci	R-18.3ci
R-15.2ci	((~~R-19.0ci~~)) R-19ci	R-21ci
R-30ci	R-38ci	R-42ci
R-38ci	R-48ci	R-53ci
R-13 + R-7.5ci	R-13 + R-9.4ci	R-13 + R-10.3ci
R-13 + R-10ci	R-13 + R-12.5ci	R-13 + R-13.8ci
R-13 + R-12.5ci	R-13 + R-15.6ci	R-13 + R-17.2ci
R-13 + R-13ci	R-13 + R-16.3ci	R-13 + R-17.9ci
R-19 + R-8.5ci	R-19 + R-10.6ci	R-19 + R-11.7ci
R-19 + R-14ci	R-19 + R-17.5ci	R-19 + R-19.2ci
R-19 + R-16ci	R-19 + R-20ci	R-19 + R-22ci
R-20 + R-3.8ci	R-20 + R-4.8ci	R-20 + R-5.3ci
R-21 + R-5ci	R-21 + R-6.3ci	R-21 + R-6.9ci

Notes for Table C402.1.3(j)

((~~This~~)) These alternate nominal *R*-value compliance options ((~~is~~)) are allowed for projects complying with all of the following:

1a. The ratio of the cross-sectional area, as measured in the plane of the surface, of metal penetrations of otherwise continuous insulation to the opaque surface area of the assembly is greater than 0.0004 (0.04%), but less than 0.0008 (0.08%), for use of Column B equivalents, and greater than or equal to 0.008 (0.08%), but less than 0.0012 (0.12%), for use of Column C equivalents.

1b. Where all metal penetrations are stainless steel, Column B is permitted to be used for penetrations greater than 0.12%, but less than 0.24% of opaque surface area, and Column C is permitted to be used for penetrations greater than or equal to 0.24%, but less than 0.48% of opaque surface area.

2. The metal penetrations of otherwise continuous insulation are isolated or discontinuous (e.g., brick ties or other discontinuous metal attachments, offset brackets supporting shelf angles that allow insulation to go between the shelf angle and the primary portions of the wall structure). No continuous metal elements (e.g., metal studs, z-girts, z-channels, shelf angles) penetrate the otherwise continuous portion of the insulation.

3. Building permit drawings shall contain details showing the locations and dimensions of all the metal penetrations (e.g., brick ties or other discontinuous metal attachments, offset brackets, etc.) of otherwise continuous insulation. In addition, calculations shall be provided showing the ratio of the cross-sectional area of metal penetrations of otherwise continuous insulation to the overall opaque wall area.

For other cases where the proposed assembly is not continuous insulation, see Section C402.1.4 for determination of *U*-factors for assemblies that include metal other than screws and nails.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-402121, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-402121, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-402121, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-402121, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40213 Section C402.1.3—Insulation component *R*-value method.

C402.1.3 Insulation component *R-value*-based method. *Building thermal envelope* opaque assemblies shall comply with the requirements of Section C402.2 based on the climate zone specified in Chapter 3. For opa-

que portions of the *building thermal envelope* intended to comply on an insulation component *R-value* basis, the *R-values* for cavity insulation and continuous insulation shall not be less than that specified in Table C402.1.3. Where cavity insulation is installed in multiple layers, the cavity insulation *R*-values shall be summed to determine compliance with the cavity insulation *R*-value requirements. Where continuous insulation is installed in multiple layers, the continuous insulation *R*-values shall be summed to determine compliance with the continuous insulation *R*-value requirements. Cavity insulation *R*-values shall not be used to determine compliance with the continuous insulation *R*-value requirements in Table C402.1.3. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *R*-values from the "Group R" column of Table C402.1.3. Commercial buildings or portions of commercial buildings enclosing occupancies other than Group R shall use the *R*-values from the "All other" column of Table C402.1.3.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40213, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-13-089, § 51-11C-40213, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40213, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-122, § 51-11C-40213, filed 12/3/14, effective 1/3/15. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40213, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40214 Section C402.1.4—Assembly *U*-factor, *C*-factor, or *F*-factor-based method.

C402.1.4 Assembly *U*-factor, *C*-factor, or *F*-factor-based method. Building thermal envelope opaque assemblies shall meet the requirements of Section C402.2 based on the climate zone specified in Chapter 3. Building thermal envelope opaque assemblies intended to comply on an assembly *U*-, *C*-, or *F*-factor basis shall have a *U*-, *C*-, or *F*-factor not greater than that specified in Table C402.1.4. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *U*-, *C*-, or *F*-factor from the "Group R" column of Table C402.1.4. Commercial buildings or portions of commercial buildings enclosing occupancies other than Group R shall use the *U*-, *C*-, or *F*-factor from the "All other" column of Table C402.1.4. The *U*-factors for typical construction assemblies are included in Appendix A. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Appendix A, values shall be calculated in accordance with the ASHRAE *Handbook—Fundamentals* using the framing factors listed in Appendix A where applicable and shall include the thermal bridging effects of framing materials.

C402.1.4.1 Roof/ceiling assembly. The maximum roof/ceiling assembly *U*-factor shall not exceed that specified in Table C402.1.4 based on construction materials used in the roof/ceiling assembly.

C402.1.4.1.1 Suspended ceilings. Insulation installed on suspended ceilings having removable ceiling tiles shall not be considered part of the assembly *U*-factor of the roof/ceiling construction.

C402.1.4.1.2 Joints staggered. Continuous insulation board shall be installed not less than two layers, and the edge joints between each layer of insulation shall be staggered, except where insulation tapers to the roof deck at a gutter edge, roof drain, or scupper.

C402.1.4.2 Thermal resistance of cold-formed steel stud walls. *U*-factors of walls with cold-formed steel studs shall be permitted to be determined in accordance with Equation 4-1:

Equation 4-1:

$$U = 1/[Rs + (ER)]$$

Where:

Rs	=	The cumulative *R-value* of the wall components along the path of heat transfer, excluding the cavity insulation and steel studs.
ER	=	The effective *R-value* of the cavity insulation with steel studs as specified in Table C402.1.4.2.

C402.1.4.3 Thermal resistance of mechanical equipment penetrations. When the total area of penetrations from through-wall mechanical equipment or equipment listed in Table C403.3.2(4) exceeds 1 percent of the opaque *above-grade wall* area, the mechanical equipment penetration area shall be calculated as a separate wall assembly with a default *U*-factor of 0.5. Mechanical system ducts and louvers, including those for supply, exhaust and relief, and for condenser air intake and outlet, are not considered to be mechanical equipment for the purposes of this section.

EXCEPTION: Where mechanical equipment has been tested in accordance with *approved* testing standards, the mechanical equipment penetration area is permitted to be calculated as a separate wall assembly using the *U*-factor determined by such test.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40214, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40214, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40214, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40214, filed 2/1/13, effective 7/1/13.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

OPTION 1

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-402141 Table C402.1.4—Opaque thermal envelope requirements, *U*-factor method.

Table C402.1.4
Opaque Thermal Envelope Requirements[a,f]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	U-0.027	U-0.027
Metal buildings	U-0.031	U-0.031
Attic and other	U-0.021	U-0.021
Joist or single rafter	U-0.027	U-0.027
Walls, Above Grade[k]		
Mass[g]	U-0.104[d]	U-0.078
Mass transfer deck slab[i] ((~~edge~~))	U-0.20	U-0.20
Metal building	((~~U-0.052~~)) U-0.050	((~~U-0.052~~)) U-0.050
Steel framed	U-0.055	U-0.055
Wood framed and other	((~~U-0.054~~)) U-0.051	U-0.051
Walls, Below Grade		
Below-grade wall[b, g]	Same as above grade	Same as above grade
Floors		
Mass[e]	U-0.031	U-0.031
Joist/framing	U-0.029	U-0.029
Slab-on-Grade Floors		
Unheated slabs	F-0.54	F-0.54
Heated slabs[c]	F-0.55	F-0.55
Opaque Doors		
Nonswinging door	U-0.31	U-0.31
Swinging door[h]	U-0.37	U-0.37
((~~Nonswinging door~~	~~U-0.34~~	~~U-0.34~~))
Garage door <14% glazing	U-0.31	U-0.31
Garage door ≥14% and <50% glazing[i]	U-0.34	U-0.34

[a] Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from Appendix A is required unless otherwise allowed by Section C402.1.4.

[b] Where heated slabs are below grade, they shall comply with the *F*-factor requirements for heated slabs.

[c] Heated slab *F*-factors shall be determined specifically for heated slabs. Unheated slab factors shall not be used.

[d] Exception: ((~~Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both~~)) Single wythe concrete block walls complying with ASTM C90 meeting all of the following:
1. The single wythe concrete block wall must be exposed on both sides. There are no interior or exterior wall coverings.
2. All cores must be filled and at least 50 percent of cores must be filled with vermiculite or equivalent fill insulation((~~; and~~)).
((~~2.~~)) 3. The concrete block must have a nominal thickness of 8 inches or greater.
4. The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall ((~~*R*-value from Table C402.1.3/~~))*U*-factor from Table C402.1.4.
5. This exception may be used for prescriptive *U*-factor compliance.
6. When demonstrating compliance based on Section C402.1.5, component performance alternative, the Proposed UA for this wall assembly type shall equal the Target UA.
7. This exception cannot be applied when demonstrating compliance based on Section C407, total building performance.

[e] "Mass floors" shall include floors weighing not less than:
1. 35 pounds per square foot of floor surface area; or
2. 25 pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.

[f] Opaque assembly *U*-factors based on designs tested in accordance with ASTM C1363 shall be permitted. The *R*-value of continuous insulation shall be permitted to be added or ((~~substracted~~)) subtracted from the original test design.

[g] Peripheral edges of intermediate concrete floors are included in the above-grade mass wall category and therefore must be insulated as above-grade mass walls unless they meet the definition of *Mass Transfer Deck Slab* ((~~Edge~~)). The area of the peripheral edges of concrete floors shall be defined as the thickness of the slab multiplied by the perimeter length of the edge condition. See Table A103.3.7.2 for typical default *U*-factors for above-grade slab edges and footnote [c] for typical conditions of above-grade slab edges.

[h] Swinging door *U*-factors shall be determined in accordance with NFRC-100.

[i] Garage doors having a single row of *fenestration* shall have an assembly *U*-factor less than or equal to 0.44, provided that the *fenestration* area is not less than 14 percent and not more than 25 percent of the total door area.

[j] Component performance in accordance with Section C402.1.5 shall be required for buildings with a mass transfer deck slab. A mass transfer deck, due to its configuration, is not insulated. The table value (U-0.20) shall be used as the baseline value for component performance or total building performance path calculations. For the proposed value, the appropriate value from Table A104.3.7.2 shall be used.

[k] Through-wall mechanical equipment subject to Section C402.1.4.3 shall be calculated at the *U*-factor defined in Section C402.1.4.3. The area-weighted *U*-factor of the wall, including through-wall mechanical equipment, shall not exceed the value in the table.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-402141, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-402141, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-402141, filed 1/19/16, effective 7/1/16.]

OPTION 2

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-402141 Table C402.1.4—Opaque thermal envelope requirements, *U*-factor method.

Table C402.1.4
Opaque Thermal Envelope Requirements[a,f]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	U-0.027	U-0.027
Metal buildings	U-0.031	U-0.031
Attic and other	U-0.021	U-0.021
Joist or single rafter	U-0.027	U-0.027
Walls, Above Grade[k]		
Mass[g]	U-0.104((~~[d]~~))	U-0.078
Mass transfer deck slab[i] ((~~edge~~))	U-0.20	U-0.20
Metal building	((~~U-0.052~~)) U-0.050	((~~U-0.052~~)) U-0.050
Steel framed	U-0.055	U-0.055
Wood framed and other	((~~U-0.054~~)) U-0.051	U-0.051
Walls, Below Grade		
Below-grade wall[b, g]	Same as above grade	Same as above grade
Floors		
Mass[e]	U-0.031	U-0.031
Joist/framing	U-0.029	U-0.029
Slab-on-Grade Floors		
Unheated slabs	F-0.54	F-0.54
Heated slabs[c]	F-0.55	F-0.55
Opaque Doors		
Nonswinging door	U-0.31	U-0.31
Swinging door[h]	U-0.37	U-0.37
((~~Nonswinging door~~	~~U-0.34~~	~~U-0.34~~))
Garage door <14% glazing	U-0.31	U-0.31
Garage door ≥14% and <50% glazing[i]	U-0.34	U-0.34

[a] Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from Appendix A is required unless otherwise allowed by Section C402.1.4.

[b] Where heated slabs are below grade, they shall comply with the *F*-factor requirements for heated slabs.

[c] Heated slab *F*-factors shall be determined specifically for heated slabs. Unheated slab factors shall not be used.

[d] ((~~Exception: Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:~~)) Reserved.
((~~1. At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and~~
~~2. The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall *R*-value from Table C402.1.3/*U*-factor from Table C402.1.4.~~))

[e] "Mass floors" shall include floors weighing not less than:
1. 35 pounds per square foot of floor surface area; or
2. 25 pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.

[f] Opaque assembly *U*-factors based on designs tested in accordance with ASTM C1363 shall be permitted. The *R*-value of continuous insulation shall be permitted to be added or ((~~substracted~~)) subtracted from the original test design.

[g] Peripheral edges of intermediate concrete floors are included in the above-grade mass wall category and therefore must be insulated as above-grade mass walls unless they meet the definition of *Mass Transfer Deck Slab* ((~~Edge~~)). The area of the peripheral edges of concrete floors shall be defined as the thickness of the slab multiplied by the perimeter length of the edge condition. See Table A103.3.7.2 for typical default *U*-factors for above-grade slab edges and footnote [c] for typical conditions of above-grade slab edges.

[h] Swinging door *U*-factors shall be determined in accordance with NFRC-100.

[i] Garage doors having a single row of *fenestration* shall have an assembly *U*-factor less than or equal to 0.44, provided that the *fenestration* area is not less than 14 percent and not more than 25 percent of the total door area.

[j] Component performance in accordance with Section C402.1.5 shall be required for buildings with a mass transfer deck slab. A mass transfer deck, due to its configuration, is not insulated. The table value (U-0.20) shall be used as the baseline value for component performance or total building performance path calculations. For the proposed value, the appropriate value from Table A104.3.7.2 shall be used.

[k] Through-wall mechanical equipment subject to Section C402.1.4.3 shall be calculated at the *U*-factor defined in Section C402.1.4.3. The area-weighted *U*-factor of the wall, including through-wall mechanical equipment, shall not exceed the value in the table.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-402141, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-402141, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-402141, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-402142 Table ((~~C402.1.4.1~~)) C402.1.4.2—Effective *R-values* for steel stud wall assemblies.

Table ((~~C402.1.4.1~~)) C402.1.4.2
Effective *R*-values For Steel Stud Wall Assemblies

NOMINAL STUD DEPTH (inches)	SPACING OF FRAMING (inches)	CAVITY *R*-VALUE (insulation)	CORRECTION FACTOR (*Fc*)	EFFECTIVE *R*-VALUE (ER) (Cavity *R*-Value × *Fc*)
3 1/2	16	13	0.46	5.98
		15	0.43	6.45
3 1/2	24	13	0.55	7.15
		15	0.52	7.80
6	16	19	0.37	7.03
		21	0.35	7.35
6	24	19	0.45	8.55
		21	0.43	9.03
8	16	25	0.31	7.75
	24	25	0.38	9.50

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-402142, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40215 Section C402.1.5—Component performance alternative.

C402.1.5 Component performance alternative. Building envelope values and fenestration areas determined in accordance with Equation 4-2 shall be permitted in lieu of compliance with the *U*-factors and *F*-factors in Table C402.1.4 and C402.4 and the maximum allowable fenestration areas in Section C402.4.1.

For buildings with more than one *space conditioning category*, component performance compliance shall be demonstrated separately for each space conditioning category. Interior partition ceilings, walls, fenestration and floors that separate space conditioning areas shall be applied to the component performance calculations for the space conditioning category with the highest level of space conditioning.

Equation 4-2

Proposed Total UA ≤ Allowable Total UA

Where:

Proposed Total UA	=	UA-glaz-prop + UA sky-prop + UA-opaque-prop + FL-slab-prop
Allowable Total UA	=	UA-glaz-allow + UA-glaz-excess + UA sky-allow + UA-sky-excess + UA-opaque-allow + FL-slab-allow
UA-glaz-prop	=	Sum of (proposed *U*-value x proposed area) for each distinct vertical fenestration type, up to code maximum area
UA-sky-prop	=	Sum of (proposed *U*-value x proposed area) for each distinct skylight type, up to the code maximum area

UA-opaque-prop	=	Sum of (proposed *U*-value x proposed area) for each distinct opaque thermal envelope type
FL-slab-prop	=	Sum of (proposed *F*-value x proposed length) for each distinct slab on grade perimeter assembly
UA-glaz-allow	=	Sum of (code maximum vertical fenestration *U*-value from Table C402.4, or Section C402.4.1.1.2 if applicable, x proposed area) for each distinct vertical fenestration type, not to exceed the code maximum area[1]
UA-glaz-excess	=	*U*-value for the proposed wall type from Table C402.4[2] x vertical fenestration area in excess of the code maximum area
UA-sky-allow	=	Sum of (code maximum skylight *U*-value from Table C402.4 x proposed area) for each distinct skylight type proposed, not to exceed the code maximum area
UA-sky-excess	=	*U*-value for the proposed roof type from Table C402.4[3] x skylight area in excess of the code maximum area
UA-opaque-allow	=	Code maximum opaque envelope *U*-value from Table C402.1.4 for each opaque door, wall, roof, and floor assembly x proposed area
FL-slab-allow	=	Code maximum *F*-value for each slab-on-grade perimeter assembly x proposed length

Notes:
[1] Where multiple vertical fenestration types are proposed and the code maximum area is exceeded, the *U*-value shall be the average Table C402.1.4 *U*-value weighted by the proposed vertical fenestration area of each type.
[2] Where multiple wall types are proposed the *U*-value shall be the average Table C402.1.4 *U*-value weighted by the proposed above grade wall area of each type.
[3] Where multiple roof types are proposed the *U*-value shall be the average Table C402.1.4 *U*-value weighted by the proposed roof area of each type.

C402.1.5.1 Component *U*-factors and *F*-factors. The *U*-factors and *F*-factors for typical construction assemblies are included in Chapter 3 and Appendix A. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Chapter 3 or Appendix A, values shall be calculated in accordance with the ASHRAE *Handbook—Fundamentals*, using the framing factors listed in Appendix A.

For envelope assemblies containing metal framing, the *U*-factor shall be determined by one of the following methods:

1. Results of laboratory measurements according to acceptable methods of test.

2. ASHRAE *Handbook—Fundamentals* where the metal framing is bonded on one or both sides to a metal skin or covering.

3. The zone method as provided in ASHRAE *Handbook—Fundamentals*.

4. Effective framing/cavity *R*-values as provided in Appendix A.

When return air ceiling plenums are employed, the roof/ceiling assembly shall:

a. For thermal transmittance purposes, not include the ceiling proper nor the plenum space as part of the assembly; and

b. For gross area purposes, be based upon the interior face of the upper plenum surface.

5. Tables in ASHRAE 90.1 Normative Appendix A.

6. Calculation method for steel-framed walls in accordance with Section C402.1.4.1 and Table C402.1.4.1.

C402.1.5.2 SHGC rate calculations. Fenestration SHGC values for individual components and/or fenestration are permitted to exceed the SHGC values in Table C402.4 and/or the maximum allowable fenestration areas in Section C402.4.1 where the proposed total SHGCxA less than the allowable total SHGCxA as determined by Equation 4-3.

Equation 4-3—SHGC Rate Calculations

Proposed Total SHGCxA ≤ Allowable Total SHGCxA

Where:

Proposed Total SHGCxA	=	SHGCxA-glaz-prop + SHGCxA-sky-prop
Allowable Total SHGCxA	=	SHGCxA-glaz-allow + SHGCxA-sky-allow
SHGCxA-glaz-prop	=	Sum of (proposed SHGCx proposed area) for each distinct vertical fenestration type
SHGCxA-sky-prop	=	Sum of (proposed SHGCx proposed area) for each distinct skylight type
SHGCxA-glaz-allow	=	Sum of (code maximum vertical fenestration SHGC from Table C402.4, or Section C402.4.1.3 if applicable, x proposed area) for each distinct vertical fenestration type, not to exceed the code maximum area
SHGCxA-sky-allow	=	Sum of (code maximum skylight SHGC from Table C402.4x proposed area) for each distinct skylight type, not to exceed the code maximum area

If the proposed vertical fenestration area does not exceed the Vertical Fenestration Area allowed, the target area for each vertical fenestration type shall equal the proposed area. If the proposed vertical fenestration area exceeds the Vertical Fenestration Area allowed, the target area of each vertical fenestration element shall be reduced in the base envelope design by the same percentage and the net area of each above-grade wall type increased proportionately by the same percentage so that the total vertical fenestration area is exactly equal to the Vertical Fenestration Area allowed.

If the proposed skylight area does not exceed the Allowable Skylight Area from Section C402.4.1, the target area shall equal the proposed area. If the proposed skylight area exceeds the Allowable Skylight Area from Section C402.4.1, the area of each skylight element shall be reduced in the base envelope design by the same percentage and the net area of each roof type increased proportionately by the same percentage so that the total skylight area is exactly equal to the allowed percentage per Section C402.3.1 of the gross roof area.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40215, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40215, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27A and 19.27 RCW. WSR 19-02-089, § 51-11C-40215, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-062, § 51-11C-40215, filed 5/2/17, effective 6/2/17; WSR 16-24-070, § 51-11C-40215, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-40215, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40215, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40220 Section C402.2—Specific insulation requirements.

C402.2 Specific building thermal envelope insulation requirements. Insulation in building thermal envelope opaque assemblies shall comply with Sections C402.2.1 through ((~~C402.2.6~~)) C402.2.8 and Table C402.1.3.

Where this section refers to installing insulation levels as specified in Section C402.1.3, assemblies complying prescriptively with Section C402.1.4 and buildings complying with Section C402.1.5 are allowed to install alternate levels of insulation so long as the *U*-factor of the insulated assembly is less than or equal to the *U*-factor required by the respective path.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40220, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40220, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40220, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40220, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40221 Section C402.2.1—Roof assembly.

C402.2.1 Roof assembly. The minimum thermal resistance (*R*-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as specified in Table C402.1.3, based on construction materials used in the roof assembly. ((~~Continuous insulation board shall be installed in not less than 2 layers and the edge joints between each layer of insulation shall be staggered. Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.~~))

EXCEPTIONS:
((~~1. Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25 mm) or less and where the area-weighted *U*-factor is equivalent to the same assembly with the *R*-value specified in Table C402.1.3.~~))
((~~2.~~)) 1. Where tapered insulation is used with insulation entirely above deck, those roof assemblies shall show compliance on a *U*-factor basis per Section C402.1.4. The effective *U*-factor shall be determined through the use of Tables A102.2.6(1), A102.2.6(2) and A102.2.6(3).
((~~3.~~)) 2. Two layers of insulation are not required where insulation tapers to the roof deck, such as at roof drains. At roof drains, the immediate 24 inch by 24 inch plan area around each roof drain has a minimum insulation requirement of R-13, but otherwise is permitted to be excluded from the roof insulation area-weighted calculations.

C402.2.1.1 Minimum thickness, lowest point. The minimum thickness of above-deck roof insulation at its lowest point, gutter edge, roof drain or scupper, shall be not less than 1 inch (25 mm).

C402.2.1.2 Suspended ceilings. Insulation installed on suspended ceilings having removable ceiling tiles shall not be considered part of the minimum thermal resistance (*R*-value) of roof insulation in roof/ceiling construction.

C402.2.1.3 Skylight curbs. Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.

EXCEPTION: Unit skylight curbs included as a component of a skylight listed and labeled in accordance with NFRC 100 shall not be required to be insulated.

C402.2.1.4 Rooftop HVAC equipment curbs. Structural curbs installed to support rooftop HVAC equipment are allowed to interrupt the above roof insulation. The area under the HVAC equipment inside of the equipment curb shall be insulated to a minimum of R-13 in all locations where there are not roof openings for ductwork. The annular space between the roof opening and the ductwork shall be sealed to maintain the building air barrier. The plan-view area of the HVAC equipment curb shall be excluded from the prescriptive roof insulation requirements or the area-weighted component performance calculations.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40221, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40221, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40221, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-402211 ((~~Skylight curbs.~~)) Reserved.

((~~**C402.2.1.1 Skylight curbs.** Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.~~

~~EXCEPTION: Unit skylight curbs included as a component of a skylight listed and labeled in accordance with NFRC 100 shall not be required to be insulated.~~

~~**C402.2.1.2 Rooftop HVAC equipment curbs.** Structural curbs installed to support rooftop HVAC equipment are allowed to interrupt the above roof insulation. The area under the HVAC equipment inside of the equipment curb shall be insulated to a minimum of R-13 in all locations where there are not roof openings for ductwork. The annular space between the roof opening and the ductwork shall be sealed to maintain the building air barrier. The plan-view area of the HVAC equipment curb shall be excluded from the prescriptive roof insulation requirements or the area-weighted component performance calculations.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-402211, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-402211, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-402211, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40222 ((~~Reserved.~~)) Section C402.2.2—Above-grade walls.

C402.2.2 Above-grade walls. The minimum thermal resistance (*R*-value) of materials installed in the wall cavity between the framing members and continuously on the walls shall be as specified in Table C402.1.3, based on framing type and construction materials used in the wall assembly. The *R*-value of integral insulation installed in concrete masonry units (CMU) shall not be used in determining compliance with Table C402.1.3 except as otherwise noted in the table. In determining compliance with Table C402.1.4, the use of the *U*-factor of concrete masonry units with integral insulation shall be permitted.

"Mass walls" where used as a component in the thermal envelope of a building shall comply with one of the following:

1. Weigh not less than 35 psf (170 kg/m^2) of wall surface area.

2. Weigh not less than 25 psf (120 kg/m^2) of wall surface area where the material weight is not more than 120 pounds per cubic foot (pcf) (1,900 kg/m^3).

3. Have a heat capacity exceeding 7 Btu/ft^2 × °F (144 kJ/m^2 × K).

4. Have a heat capacity exceeding 5 Btu/ft^2 × °F (103 kJ/m^2 × K) where the material weight is not more than 120 pcf (1900 kg/m^3).

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40222, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40222, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40222, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40223 Section C402.2.3—((~~Above-grade walls~~)) Floors.

((~~**C402.2.3 Above-grade walls.** The minimum thermal resistance (*R*-value) of materials installed in the wall cavity between the framing members and continuously on the walls shall be as specified in Table C402.1.3, based on framing type and construction materials used in the wall assembly. The *R*-value of integral insulation installed in concrete masonry units (CMU) shall not be used in determining compliance with Table C402.1.3 except as otherwise noted in the table. In determining compliance with Table C402.1.4, the use of the *U*-factor of concrete masonry units with integral insulation shall be permitted.~~

~~"Mass walls" where used as a component in the thermal envelope of a building shall comply with one of the following:~~

~~1. Weigh not less than 35 psf (170 kg/m^2) of wall surface area.~~

~~2. Weigh not less than 25 psf (120 kg/m^2) of wall surface area where the material weight is not more than 120 pounds per cubic foot (pcf) (1,900 kg/m^3).~~

~~3. Have a heat capacity exceeding 7 Btu/ft^2 x °F (144 kJ/m^2 x K).~~

~~4. Have a heat capacity exceeding 5 Btu/ft^2 x °F (103 kJ/m^2 x K) where the material weight is not more than 120 pcf (1900 kg/m^3).~~))

C402.2.3 Floors. The thermal properties (component *R*-values or assembly *U*- or *F*-factors) of floor assemblies over outdoor air or unconditioned space shall be as specified in Table C402.1.3 or C402.1.4 based on the construction materials used in the floor assembly. Floor framing cavity insulation or structural slab insulation shall be installed to maintain permanent contact with the underside of the subfloor decking or structural slabs.

"Mass floors" where used as a component of the thermal envelope of a building shall provide one of the following weights:

1. Thirty-five pounds per square foot of floor surface area;

2. Twenty-five pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.

EXCEPTIONS:

1. The floor framing cavity insulation or structural slab insulation shall be permitted to be in contact with the top side of sheathing or continuous insulation installed on the bottom side of floor assemblies where combined with insulation that meets or exceeds the minimum *R*-value in Table C402.1.3 for "Metal framed" or "Wood framed and other" values for "Walls, Above Grade" and extends from the bottom to the top of all perimeter floor framing or floor assembly members.

2. Insulation applied to the underside of concrete floor slabs shall be permitted an air space of not more than 1 inch where it turns up and is in contact with the underside of the floor under walls associated with the *building thermal envelope*.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40223, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40223, filed 1/19/16, effective

7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40223, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40224 Section C402.2.4—((~~Below-grade walls~~)) Slab-on-grade.

((**C402.2.4 Below-grade walls.** ~~The *R*-value of the insulating material installed in, or continuously on, the below-grade walls shall be in accordance with Table C402.1.3. The *U*-factor or *R*-value required shall extend to the level of the lowest floor of the conditioned space enclosed by the below-grade wall.~~)) **C402.2.6 Slabs-on-grade.** The minimum thermal resistance (R-value) of the insulation for unheated or heated slab-on-grade floors designed in accordance with the R-value method of Section C402.1.3 shall be as specified in Table C402.1.3.

C402.2.4.1 Insulation installation. Where installed, the perimeter insulation shall be placed on the outside of the foundation or on the inside of the foundation wall. The perimeter insulation shall extend downward from the top of the slab for a minimum distance as shown in the table or to the top of the footing, whichever is less, or downward to not less than the bottom of the slab and then horizontally to the interior or exterior for the total distance shown in the table. Insulation extending away from the building shall be protected by pavement or by a minimum of 10 inches (254 mm) of soil. Where installed, full slab insulation shall be continuous under the entire area of the slab-on-grade floor, except at structural column locations and service penetrations. Insulation required at the heated slab perimeter shall not be required to extend below the bottom of the heated slab and shall be continuous with the full slab insulation.

EXCEPTION: Where the slab-on-grade floor is greater than 24 inches (61 mm) below the finished exterior grade, perimeter insulation is not required.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40224, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40224, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40224, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40225 Section C402.2.5—((~~Floors~~)) Below-grade walls.

((**C402.2.5 Floors.** ~~The thermal properties (component *R*-values or assembly *U*- or *F*-factors) of floor assemblies over outdoor air or unconditioned space shall be as specified in Table C402.1.3 or C402.1.4 based on the construction materials used in the floor assembly. Floor framing cavity insulation or structural slab insulation shall be in-~~

~~stalled to maintain permanent contact with the underside of the subfloor decking or structural slabs.~~

~~"Mass floors" where used as a component of the thermal envelope of a building shall provide one of the following weights:~~

~~1. 35 pounds per square foot of floor surface area;~~

~~2. 25 pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.~~

~~EXCEPTIONS: 1. The floor framing cavity insulation or structural slab insulation shall be permitted to be in contact with the top side of sheathing or continuous insulation installed on the bottom side of floor assemblies where combined with insulation that meets or exceeds the minimum *R*-value in Table C402.1.3 for "Metal framed" or "Wood framed and other" values for "Walls, Above Grade" and extends from the bottom to the top of all perimeter floor framing or floor assembly members.~~

~~2. Insulation applied to the underside of concrete floor slabs shall be permitted an air space of not more than 1 inch where it turns up and is in contact with the underside of the floor under walls associated with the *building thermal envelope*.~~))

C402.2.5 Below-grade walls. The *R*-value of the insulating material installed in, or continuously on, the below-grade walls shall be in accordance with Table C402.1.3. The *U*-factor or *R*-value required shall extend to the level of the lowest floor of the conditioned space enclosed by the below-grade wall.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40225, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-13-089, § 51-11C-40225, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40225, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40225, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40226 Section C402.2.6—((~~Slab-on-grade perimeter insulation~~)) Insulation of radiant heating systems.

((~~**C402.2.6 Slabs-on-grade perimeter insulation.** Where the slab-on-grade is in contact with the ground, the minimum thermal resistance (*R*-value) of the insulation around the perimeter of unheated or heated slab-on-grade floors designed in accordance with the *R*-value method of Section C402.1.3 shall be as specified in Table C402.1.3. The insulation shall be placed on the outside of the foundation or on the inside of the foundation wall. The insulation shall extend downward from the top of the slab for a minimum distance as shown in the table or to the top of the footing, whichever is less, or downward to at least the bottom of the slab and then horizontally to the interior or exterior for the total distance shown in the table. Insulation extending away from the building shall be protected by pavement or by a minimum of 10 inches (254 mm) of soil. Insulation complying with Table C402.1.3 shall be provided under the entire area of heated slabs on grade.~~

~~EXCEPTION: Where the slab-on-grade floor is greater than 24 inches (61 mm) below the finished exterior grade, perimeter insulation is not required.~~))

C402.2.86 Insulation of radiant heating systems. *Radiant heating system* panels, and their associated components that are installed in interior or exterior assemblies shall be insulated to an *R*-value of not less than R-3.5 on all surfaces not facing the space being heated. *Radiant heating system* panels that are installed in the *building thermal*

envelope shall be separated from the exterior of the building or unconditioned or exempt spaces by not less than the *R*-value of insulation installed in the opaque assembly in which they are installed or the assembly shall comply with Section C402.1.4.

EXCEPTION: Heated slabs on grade insulated in accordance with Section C402.2.4.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40226, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40226, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40227 Airspaces. Where the ((~~thermal properties~~)) R-value of an airspace((~~s are~~)) is used ((~~to comply with this code~~)) for compliance in accordance with Section C401.2, ((~~such~~)) the airspace((~~s~~)) shall be enclosed in an unventilated cavity constructed to minimize airflow into and out of the enclosed airspace. Airflow shall be deemed minimized where the enclosed airspace is located on the interior side of the continuous air barrier and is bounded on all sides by building components.

EXCEPTION: The thermal resistance of airspaces located on the exterior side of the continuous air barrier and adjacent to and behind the exterior wall covering material shall be determined in accordance with ASTM C1363 modified with an airflow entering the bottom and exiting the top of the airspace at a minimum air movement rate of not less than 70 mm/sec.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40227, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40227, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40227, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40228 Section C402.2.8—((~~Insulation of radiant heating systems~~)) Above-grade exterior concrete slabs.

((~~**C402.2.8 Insulation of radiant heating systems.** *Radiant heating system* panels, and their associated components that are installed in interior or exterior assemblies shall be insulated to an *R*-value of not less than R-3.5 on all surfaces not facing the space being heated. *Radiant heating system* panels that are installed in the *building thermal envelope* shall be separated from the exterior of the building or unconditioned or exempt spaces by not less than the *R*-value of insulation installed in the opaque assembly in which they are installed or the assembly shall comply with Section C402.1.4.~~

~~EXCEPTION: Heated slabs on grade insulated in accordance with Section C402.2.6.~~))

C402.2.8 Above-grade exterior concrete slabs. Above-grade concrete slabs that penetrate the *building thermal envelope* including, but not

limited to, decks and balconies, shall each include a minimum R-10 thermal break, aligned with the primary insulating layer in the adjoining wall assemblies. Stainless steel (but not carbon steel) reinforcing bars are permitted to penetrate the thermal break. If the total building performance path or the component performance alternative in Section C402.1.5 is utilized and the thermal break required by this section is not provided where concrete slabs penetrate the *building thermal envelope*, the sectional area of the penetration shall be assigned the default *U*-factors from the "exposed concrete" row of Table A103.3.7.2.

EXCEPTION: *Mass transfer deck slabs.*

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40228, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40228, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40228, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-11C-40229 Section C402.2.9—Vertical fenestration intersection with opaque walls.

C402.2.9 Vertical fenestration intersection with opaque walls. *Vertical fenestration* shall comply with Items 1, 2, and 3, as applicable.

1. Where wall assemblies include *continuous insulation*, the exterior glazing layer of *vertical fenestration* and any required thermal break in the frame shall each be aligned within 2 inches laterally of either face of the *continuous insulation* layer.

2. Where wall assemblies do not include *continuous insulation*, the exterior glazing layer of *vertical fenestration* and any required thermal break in the frame shall each be aligned within the thickness of the *wall* insulation layer and not more than 2 inches laterally from the exterior face of the outermost insulation layer.

3. Where the exterior face of the *vertical fenestration* frame does not extend to the exterior face of the opaque wall rough opening, the exposed exterior portion of the rough opening shall be covered with either a material having an *R*-value not less than R-3, or with minimum 1.5-inch thickness wood.

[]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40230 Section C402.4—Fenestration.

((~~**C402.3 Reserved.**~~))

C402.4 Fenestration. Fenestration shall comply with Sections C402.4 through C402.4.4 and Table C402.4. Daylight responsive controls shall comply with this section and Section ((~~C405.2.4.1~~)) C405.2.5.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40230, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40230, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40230, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-402300 Table C402.4—Building envelope requirements—Fenestration.

Table C402.4
Building Envelope Fenestration Maximum *U*-factor and SHGC Requirements

CLIMATE ZONE	5 AND MARINE 4	
***U*-factor for Class AW windows rated in accordance with AAMA/CSA101/I.S.2/A440, vertical curtain walls and site-built fenestration products[a]**		
Fixed[b] *U*-factor	((~~U-0.38~~)) U-0.34	
Operable[c] *U*-factor	((~~U-0.40~~)) U-0.36	
***Entrance doors*[d]**		
U-factor	U-0.60	
***U*-factor for all other vertical fenestration**		
Fixed *U*-factor	((~~U-0.30~~)) U-0.26	
Operable or mulled windows with fixed and operable sections *U*-factor	U-0.28	
SHGC for all vertical fenestration		
Orientation[e,f]	((~~SEW~~)) Fixed	((~~N~~)) Operable
PF < 0.2	0.38	((~~0.51~~)) 0.33
0.2 ≤ PF < 0.5	0.46	((~~0.56~~)) 0.40
PF ≥ 0.5	0.61	((~~0.61~~)) 0.53
Skylights		
***U*-factor**	U-0.50	
SHGC	0.35	

[a] *U*-factor and SHGC shall be rated in accordance with NFRC 100.
[b] "Fixed" includes curtain wall, storefront, picture windows, and other fixed windows.
[c] "Operable" includes openable fenestration products other than "entrance doors."
[d] "Entrance door" includes glazed swinging entrance doors. Other doors which are not entrance doors, including sliding glass doors, are considered "operable."

[e] ((~~"N" indicates vertical fenestration oriented within 30 degrees of true north. "SEW" indicates orientations other than "N."~~)) Reserved.

[f] Fenestration that is entirely within the conditioned space or is between conditioned and other enclosed space is exempt from solar heat gain coefficient requirements and not included in the SHGC calculation.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-402300, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-402300, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-402300, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40231 Section C402.4.1—Maximum area.

C402.4.1 Maximum area. The total building vertical fenestration area (not including opaque doors and opaque spandrel panels) shall not exceed 30 percent of the total building gross above-grade wall area. The skylight area shall not exceed 5 percent of the total building gross roof area (skylight-to-roof ratio).

For buildings with more than one *space conditioning category*, compliance with the maximum allowed window-to-wall ratio and skylight-to-roof ratio shall be demonstrated separately for each *space conditioning category*. Interior partition ceiling, wall, fenestration and floor areas that separate space conditioning areas shall not be applied to the window-to-wall ratio and skylight-to-roof ratio calculations.

C402.4.1.1 Vertical fenestration maximum area with high performance alternates. For buildings that comply with Section C402.4.1.1.1 or C402.4.1.1.2, the total building vertical fenestration area is permitted to exceed 30 percent but shall not exceed 40 percent of the gross above grade wall area for the purpose of prescriptive compliance with Section C402.1.4.

When determining compliance using the component performance alternative in accordance with Section C402.1.5, the total building vertical fenestration area allowed in Equation 4-2 is 40 percent of the above grade wall area for buildings that comply with the vertical fenestration alternates described in this section.

C402.4.1.1.1 Optimized daylighting. All of the following requirements shall be met:

1. Not less than 50 percent of the total conditioned floor area in the building is within a *daylight zone* that includes *daylight responsive controls* complying with Section ((~~C405.2.4.1~~)) C405.2.5.1.

2. Visible transmittance (VT) of all *vertical fenestration* in the building is greater than or equal to 1.1 times the required solar heat gain coefficient (SHGC) in accordance with Section C402.4, or 0.50, whichever is greater. It shall be permitted to demonstrate compliance based on the area weighted average *VT* being greater than or equal to the area weighted average of the minimum *VT* requirements.

EXCEPTION: Fenestration that is outside the scope of NFRC 200 is not required to comply with Item 2.

C402.4.1.1.2 High-performance fenestration. All of the following requirements shall be met:

1. All *vertical fenestration* in the building shall comply with the following *U*-factors:

a. *U*-factor for Class AW windows rated in accordance with AAMA/CSA101/I.S.2/A440, vertical curtain walls and site-built fenestration products (fixed) = ((~~0.34~~)) 0.31

b. *U*-factor for Class AW windows rated in accordance with AAMA/CSA101/I.S.2/A440, vertical curtain walls and site-built fenestration products (operable) = 0.36

c. Entrance doors = 0.60

d. *U*-factor for all other vertical fenestration, fixed = ((~~0.28~~)) 0.23

e. *U*-factor for all other vertical fenestration, operable, or mulled windows with fixed and operable sections = 0.24

2. The SHGC of the vertical fenestration shall be ((~~less than or equal to 0.35, adjusted for projection factor in compliance with C402.4.3~~)) no more than 0.90 times the maximum SHGC values listed in Table C402.4.

An area-weighted average shall be permitted to satisfy the *U*-factor requirement for each fenestration product category listed in Item 1 of this section. Individual fenestration products from different fenestration product categories shall not be combined in calculating the area-weighted average *U*-factor, except that fenestration from lines a. and b. are permitted to be combined.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40231, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40231, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-23-096, § 51-11C-40231, filed 11/20/13, effective 4/1/14. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40231, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40232 Section C402.4.2—Minimum skylight fenestration area.

C402.4.2 Minimum skylight fenestration area. ((~~For buildings with single story~~)) Skylights shall be provided in enclosed spaces that meet all the following criteria:

1. Floor area of enclosed spaces is greater than 2,500 square feet (232 m^2) ((~~in floor area that are~~)).

2. Space is located directly under a roof and have a ceiling height greater than 15 feet (4572 mm) for no less than 75 percent of the ceiling area((~~, these single-story spaces shall be provided with skylights and daylight responsive controls in accordance with Section C405.2.4~~)).

3. Space type((~~s required to comply with this provision include~~)) is one of the following: Office, lobby, atrium, concourse, corridor,

gymnasium/exercise center, convention center, automotive service, manufacturing, nonrefrigerated warehouse, retail store, distribution/sorting area, transportation, and workshop. Skylights in these spaces are required to provide a total toplit daylight zone area not less than 50 percent of the floor area and shall provide one of the following:

1. A minimum ratio of skylight area to toplit daylight zone area under skylights of not less than 3 percent where all skylights have a VT of at least 0.40, or VT_{annual} of not less than 0.26, as determined in accordance with Section C303.1.3.

2. A minimum skylight effective aperture ((~~of at least 1 percent~~)), determined in accordance with Equation 4-5, of:

2.1. Not less than 1 percent using a skylight's VT rating; or

2.2. Not less than 0.66 percent using a *tubular daylight device's* VT_{annual} rating.

Skylight Effective Aperture = (0.85 x Skylight Area x Skylight VT x WF)/ Toplit daylight zone

(Equation 4-5)

Where:

Skylight area	=	Total fenestration area of skylights.
Skylight VT	=	Area weighted average visible transmittance of skylights.
WF	=	Area weighted average well factor, where well factor is 0.9 if light well depth is less than 2 feet (610 mm), or 0.7 if light well depth is 2 feet (610 mm) or greater, or 1.0 for *tubular daylighting devices (TDD)* with ((~~*VT annual*~~)) VT_{annual} ratings measured in accordance with NFRC 203.
Light well depth	=	Measure vertically from the underside of the lowest point of the skylight glazing to the ceiling plane under the skylight.

EXCEPTIONS:
1. Skylights above daylight zones of enclosed spaces are not required in:
1.1. ((~~Reserved.~~)) Spaces designed as storm shelters complying with ICC 500.
1.2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft^2 (5.4 W/m^2) and at least 10 percent lower than the lighting power allowance in Section C405.4.2.
1.3. Areas where it is documented that existing structures or natural objects block direct beam sunlight on at least half of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.
1.4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.
1.5. Spaces where the total floor area minus the sidelit daylight zone area is less than 2,500 square feet (232 m^2), and where the lighting in the daylight zone is controlled in accordance with Section C405.2.3.1.
2. The skylight effective aperture, calculated in accordance with Equation 4-5, is permitted to be 0.66 percent in lieu of 1 percent if the ((~~*VT annual*~~)) VT_{annual} of the skylight or *TDD*, as measured by NFRC 203, is greater than 38 percent.

C402.4.2.1 Lighting controls in daylight zones under skylights. Daylight responsive controls ((~~complying with Section C405.2.4.1~~)) shall be provided to control all electric lights within toplit daylight zones.

C402.4.2.2 Haze factor. Skylights in office, storage, automotive service, manufacturing, nonrefrigerated warehouse, retail store, and distribution/sorting area spaces shall have a glazing material or diffuser with a haze factor greater than 90 percent when tested in accordance with ASTM D 1003.

EXCEPTION: Skylights and *tubular daylighting devices* designed and installed to exclude direct sunlight entering the occupied space by the use of fixed or automated baffles, or the geometry of skylight and light well.

C402.4.2.3 Daylight zones. Daylight zones referenced in Sections C402.4.1.1 through C402.4.2.2 shall comply with Sections ((~~C405.2.4.2 and C405.2.4.3~~)) C405.2.5.2 and C405.2.5.3, as applicable. Daylight zones shall include toplit daylight zones and sidelit daylight zones.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40232, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40232, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40232, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40232, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40234 Section C402.4.4—Doors.

C402.4.4 Doors. Opaque ((~~swinging~~)) doors shall ((~~comply with Table C402.1.4. Opaque nonswinging doors shall comply with Table C402.1.3. Opaque doors shall~~)) be considered part of the gross area of above-grade walls that are part of the building thermal envelope, including the frame. Opaque doors shall comply with Table C402.1.4. Other doors shall comply with the provisions of Section C402.4.3 for vertical ((~~fenestration and the entire door area, including the frame, shall be considered part of the fenestration area of the building thermal envelope~~)).

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40234, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40234, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40234, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40234, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40241 Section C402.5.1—Air barriers.

C402.5.1 Air barriers. A continuous air barrier shall be provided throughout the building thermal envelope. The continuous air barriers shall be ((~~permitted to be~~)) located on the inside or outside of the *building thermal envelope*, located within the assemblies composing the *building thermal envelope*, or any combination thereof. The air barrier shall comply with Sections C402.5.1.1 and C402.5.1.2.

C402.5.1.1 Air barrier construction. The *continuous air barrier* shall be constructed to comply with the following:

1. The air barrier shall be continuous for all assemblies that are the thermal envelope of the building and across the joints and assemblies.

2. Air barrier joints and seams shall be sealed, including sealing transitions in places and changes in materials. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.

3. Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Sealing shall allow for expansion, contraction and mechanical vibration. Joints and seams associated with penetrations shall be sealed in the same manner or taped. Sealing materials shall be securely installed around the penetration so as not to dislodge, loosen or otherwise impair the penetrations' ability to resist positive and negative pressure from wind, stack effect, and mechanical ventilation. Sealing of concealed fire sprinklers, where required, shall be in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.

4. Recessed lighting fixtures shall comply with Section C402.5.8. Where similar objects are installed which penetrate the air barrier, provisions shall be made to maintain the integrity of the air barrier.

5. Construction documents shall contain a diagram showing the building's pressure boundary in plan(s) and section(s) and a calculation of the area of the pressure boundary to be considered in the test.

C402.5.1.2 ((~~Building test.~~ ~~The completed building shall be tested and the air leakage rate of the *building envelope* shall not exceed 0.25 cfm/ft^2 at a pressure differential of 0.3 inches water gauge (2.0 L/s • m^2 at 75 Pa) at the upper 95 percent confidence interval in accordance with ASTM E 779 or an equivalent method approved by the code official. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the building owner and the Code Official. If the tested rate exceeds that defined here by up to 0.15 cfm/ft^2, a visual inspection of the air barrier shall be conducted and any leaks noted shall be sealed to the extent practicable. An additional report identifying the corrective actions taken to seal air leaks shall be submitted to the building owner and the Code Official and any further requirement to meet the leakage air rate will be waived. If the tested rate exceeds 0.40 cfm/ft^2, corrective actions must be made and the test completed again. A test above 0.40 cfm/ft^2 will not be accepted.~~

~~1. Test shall be accomplished using either (1) both pressurization and depressurization or (2) pressurization alone, but not depressurization alone. The test results shall be plotted against the corrected P in accordance with Section 9.4 of ASTM E 779.~~

~~2. The test pressure range shall be from 25 Pa to 80 Pa per Section 8.10 of ASTM E 779, but the upper limit shall not be less than 50 Pa, and the difference between the upper and lower limit shall not be less than 25 Pa.~~

~~3. If the pressure exponent *n* is less than 0.45 or greater than 0.85 per Section 9.6.4 of ASTM E 779, the test shall be rerun with additional readings over a longer time interval.~~

~~**C402.5.1.2.1**~~**)) Air barrier compliance.** A continuous air barrier for the opaque building envelope shall comply with the following:

1. Group R dwelling units that are accessed directly from the outdoors shall meet the provisions of Section C402.5.2.

2. All other buildings or portions of buildings shall meet the provisions of Section C402.5.3.

C402.5.2 Enclosure testing for dwelling and sleeping unit accessed directly from the outdoors. For dwelling units accessed directly from outdoors, the *building thermal envelope* shall be tested in accordance with ASTM E779, ANSI/RESNET/ICC 380, ASTM E1827 or an equivalent method approved by the *code official*. The measured air leakage shall not exceed 0.25 cfm/ft^2 (1.27 L/s m^2) of the *testing unit enclosure area* at a pressure differential of 0.2 inch water gauge (50 Pa). Where multiple dwelling units or sleeping units or other occupiable conditioned spaces are contained within one *building thermal envelope* and are accessed directly from the outdoors, each unit shall be considered an individual testing unit, and the building air leakage shall be the weighted average of all testing unit results, weighted by each testing unit's enclosure area. Units shall be tested separately with an unguarded blower door test as follows:

1. Where buildings have fewer than eight testing units, each testing unit shall be tested.

2. For buildings with eight or more testing units, the greater of seven units or 20 percent of the testing units in the building shall be tested, including a top floor unit, a ground floor unit and a unit with the largest *testing unit enclosure area*. For each tested unit that exceeds the maximum air leakage rate, an additional two units shall be tested, including a mixture of testing unit types and locations.

3. Test shall be accomplished using either a) both pressurization and depressurization or b) pressurization alone, but not depressurization alone. The test results shall be plotted against the correct P for pressurization in accordance with Section 9.4 of ASTM E779.

Where the measured air leakage rate exceeds 0.25 cfm/ft^2 (2.0 L/s x m^2) corrective action shall be taken to seal leaks in the air barrier. Post-corrective action testing and repeated corrective action measures will be taken until the required air leakage rating is achieved. Final passing air leakage test results shall be submitted to the *code official*.

C402.5.3 Building thermal envelope testing. The *building thermal envelope* shall be tested in accordance with ASTM E779, ANSI/RESNET/ICC 380, ASTM E3158 or ASTM E1827 or an equivalent method approved by the code official. The measured air leakage shall not exceed 0.25 cfm/ft^2 (1.27 L/s × m^2) of the *building thermal envelope* area at a pressure differential of 0.3 inch water gauge (75 Pa). Alternatively, portions of the building shall be tested and the measured air leakages shall be area weighted by the surface areas of the building envelope in each portion. The weighted average test results shall not exceed the whole building leakage limit. In the alternative approach, the following portions of the building shall be tested:

1. The entire envelope area of all stories that have any spaces directly under a roof.

2. The entire envelope area of all stories that have a building entrance, exposed floor, or loading dock, or are below grade.

3. Representative above-grade sections of the building totaling at least 25 percent of the wall area enclosing the remaining conditioned space.

4. Test shall be accomplished using either a) both pressurization and depressurization or b) pressurization alone, but not depressurization alone. The test results shall be plotted against the correct P for pressurization in accordance with Section 9.4 of ASTM E779.

Where the measured air leakage rate exceeds 0.25 cfm/ft^2 (2.0 L/s x m^2) corrective action shall be taken to seal leaks in the air barrier. Post-corrective action testing and repeated corrective action measures will be taken until the required air leakage rating is achieved. Final passing of the air leakage test results shall be submitted to the *code official.*

C402.5.4 Building test for mixed-use buildings. Where a building is three or fewer stories above grade plane and contains both commercial and residential uses, the air barrier of the R-2 and R-3 occupancy areas of the building is permitted to be separately tested according to Section R402.4.1.2. Alternatively, it is permissible to test the air barrier of the entire building according to Section ((~~C402.5.1.2~~)) C402.5.3, provided that the tested air leakage rate does not exceed the rate specified in Section ((~~C402.5.1.2~~)) C402.5.3.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40241, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40241, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40241, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40243 Section ((~~C402.5.3~~)) C402.5.5—Rooms containing fuel-burning appliances.

((~~C402.5.3~~)) C402.5.5 Rooms containing fuel-burning appliances. Where combustion air is supplied through openings in an exterior wall to a room or space containing a space conditioning fuel-burning appliance, one of the following shall apply:

1. The room or space containing the appliance shall be located outside of the *building thermal envelope*.

2. The room or space containing the appliance shall be enclosed and isolated from conditioned spaces inside the building thermal envelope. Such rooms shall comply with all of the following:

2.1. The walls, floor and ceiling that separate the enclosed room or space from the conditioned spaces shall be insulated to be at least equivalent to the insulation requirement of below grade walls as specified in Table C402.1.3 or C402.1.4.

2.2. The walls, floors and ceilings that separate the enclosed room or space from conditioned spaces be sealed in accordance with Section C402.5.1.1.

2.3. The doors into the enclosed room or space shall be fully gasketed.

2.4. Water lines and ducts in the enclosed room or space shall be insulated in accordance with Section C403.

2.5. Where the air duct supplying combustion air to the enclosed room or space passes through conditioned space, the duct shall be insulated to an *R*-value of not less than ((~~R-8~~)) R-16.

EXCEPTION: Fireplaces and stoves complying with Sections 901 through 905 of the *International Mechanical Code*, and Section 2111.13 of the *International Building Code*.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40243, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40243, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40243, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40244 Section ((~~C402.5.4~~)) C402.5.6—Doors and access openings.

((~~C402.5.4~~)) C402.5.6 Doors and access openings to shafts, chutes, stairways, and elevator lobbies. Doors and access openings from conditioned space to shafts, chutes, stairways and elevator lobbies shall be gasketed, weatherstripped or sealed.

EXCEPTIONS: 1. Door openings required to comply with Section 716 of the *International Building Code*.
2. Doors and door openings required to comply with UL 1784 by the *International Building Code*.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40244, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40244, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40244, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40245 Section ((~~C402.5.5~~)) C402.5.7—Air intakes, exhaust openings, stairways and shafts.

((~~C402.5.5~~)) C402.5.7 Air intakes, exhaust openings, stairways and shafts. Stairway enclosures, elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be provided with dampers in accordance with Section ((~~C403.7.9~~)) C403.7.8.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40245, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40245, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-054, § 51-11C-40245, filed 11/25/14, effective 5/1/15. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40245, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40246 Section ((~~C402.5.6~~)) C402.5.8—Loading dock weatherseals.

((~~C402.5.6~~)) C402.5.8 Loading dock weatherseals. Cargo door openings and loading dock door openings shall be equipped with weatherseals that restrict infiltration and provide direct contact along the top and sides of vehicles that are parked in the doorway.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40246, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40246, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40246, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40247 Section ((~~C402.5.7~~)) C402.5.9—Vestibules.

((~~C402.5.7~~)) C402.5.9 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors. For the purposes of this section, "building entrances" shall include exit-only doors in buildings where separate doors for entering and exiting are provided.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

EXCEPTION: Vestibules are not required for the following:
1. Doors not intended to be used as building entrances.

2. Unfinished ground-level space greater than 3,000 square feet (298 m^2) if a note is included on the permit documents at each exterior entrance to the space stating "Vestibule required at time of tenant build-out if entrance serves a space greater than 3,000 square feet in area."
3. Doors opening directly from a *sleeping unit* or dwelling unit.
4. Doors between an enclosed space smaller than 3,000 square feet (298 m^2) in area and the exterior of the building or the building entrance lobby, where those doors do not comprise one of the primary building entrance paths to the remainder of the building. The space must be enclosed and separated without transfer air paths from the primary building entrance paths. If there are doors between the space and the primary entrance path, then the doors shall be equipped with self-closing devices so the space acts as a vestibule for the primary building entrance.
5. Revolving doors.
6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.
7. In buildings less than 3 stories above grade or in spaces that do not directly connect with the building elevator lobby, doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.
8. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in area.
9. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.
10. Entrances to semi-heated spaces.
11. Doors that are used only to access outdoor seating areas that are separated from adjacent walking areas by a fence or other barrier.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40247, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40247, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40247, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40248 Section ((~~C402.5.8~~)) C402.5.10—Recessed lighting.

((~~C402.5.8~~)) C402.5.10 Recessed lighting. Recessed luminaires installed in the *building thermal envelope* shall be all of the following:

1. IC rated.
2. *Labeled* as having an air leakage rate of not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential.
3. Sealed with a gasket or caulk between the housing and interior wall or ceiling covering.

C402.5.11 Operable openings interlocking. Where any operable openings to the outdoors are larger than 48 square feet (4.47 m^2) in area, such openings shall be interlocked with the heating and cooling system as required by Section C403.4.1.6.

EXCEPTIONS:
1. Separately zoned areas associated with the preparation of food that contain appliances that contribute to the HVAC loads of a restaurant or similar type of occupancy.
2. Warehouses that utilize overhead doors for the function of the occupancy, where *approved* by the *code official*.
3. The first entrance doors where located in the exterior wall and are part of a vestibule system.
4. Alterations to existing buildings.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40248, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40248, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40310 Section C403.1—General.

C403.1 General. Mechanical systems and equipment serving heating, cooling, ventilating, and other needs shall comply with this section.

EXCEPTIONS: 1. Energy using equipment used by a manufacturing, industrial or commercial process other than for conditioning spaces or maintaining comfort and amenities for the occupants ((~~and not otherwise regulated by~~)) are exempt from all Section C403 subsections except for Section C403.3.2, Tables C403.3.2 (1) through (((~~12~~))) (16) inclusive, Sections C403.7.7, C403.9.2.1, C403.10.3, C403.11.2, and C403.11.3, ((~~C404.2, Table C404.2, C405.8 and C410~~)) as applicable. Data center and *computer room* HVAC equipment is not covered by this exception.
2. *Data center systems* are exempt from Sections C403.4 and C403.5.

C403.1.1 HVAC total system performance ratio (HVAC TSPR). For systems serving office (including medical office), retail, library, and education occupancies and buildings, which are subject to the requirements of Section C403.3.5 without exceptions, and the dwelling units and residential common areas within Group R-2 multi-family buildings, the *HVAC total system performance ratio* (*HVAC TSPR*) of the *proposed design* HVAC system shall be ((~~more~~)) greater than or equal to the *HVAC TSPR* of the *standard reference design* as calculated according to Appendix D, Calculation of HVAC Total System Performance Ratio.

EXCEPTIONS: 1. Buildings ((~~with conditioned floor area less than 5,000 square feet~~)) where the sum of the *conditioned floor area* of office, retail, education, library and multifamily spaces is less than 5,000 square feet. Areas that are eligible for any of the exceptions below do not count towards the 5,000 square feet.
2. HVAC systems using district heating water, chilled water or steam.
3. HVAC systems connected to a *low-carbon district energy exchange system*.
4. HVAC systems not included in Table ((~~D601.11.1~~)) D601.10.1.
((~~4.~~)) 5. HVAC systems with chilled water supplied by absorption chillers, heat recovery chillers, water to water heat pumps, air to water heat pumps, or a combination of air and water cooled chillers on the same chilled water loop.
6. HVAC systems included in Table D601.10.1 with parameters in Table D601.10.2 not identified as applicable to that HVAC system type.
((~~5.~~)) 7. HVAC systems served by heating water plants that include air to water or water to water heat pumps.
((~~6.~~)) 8. Underfloor air distribution and displacement ventilation HVAC systems.
((~~7.~~)) 9. Space conditioning systems that do not include *mechanical cooling*.
((~~8.~~)) 10. Alterations to existing buildings that do not substantially replace the entire HVAC system and are not serving initial build-out construction.
((~~9.~~)) 11. HVAC systems meeting all the requirements of the *standard reference design* HVAC system in Table D602.11, Standard Reference Design HVAC Systems.
12. Buildings or areas of medical office buildings that comply fully with ASHRAE Standard 170 including, but not limited to, surgical centers, or that are required by other applicable codes or standards to provide 24/7 air handling unit operation.
13. HVAC systems serving the following areas and spaces:
13.1. Laundry rooms.
13.2. Elevator machine rooms.
13.3. Mechanical and electrical rooms.
13.4. Data centers and computer rooms.
13.5. Laboratories with fume hoods.
13.6. Locker rooms with more than two showers.
13.7. Natatoriums and rooms with saunas.
13.8. Restaurants and commercial kitchens with total cooking capacity greater than 100,000 Btu/h.
13.9. Areas of buildings with commercial refrigeration equipment exceeding 100 kW of power input.
13.10. Cafeterias and dining rooms.

C403.1.2 Calculation of heating and cooling loads. Design loads associated with heating, ventilating and air conditioning of the building shall be determined in accordance with the procedures described in ANSI/ASHRAE/ACCA Standard 183 or by an *approved* equivalent computational procedure, using the design parameters specified in Chapter 3. Heating and cooling loads shall be adjusted to account for load reductions that are achieved where energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE *HVAC Systems and Equipment Handbook* by an *approved* equivalent computational procedure.

C403.1.3 Data centers. *Data center systems* shall comply with Sections 6 and 8 of ASHRAE Standard 90.4 ((~~with the following changes:~~

~~1. Replace design MLC in ASHRAE Standard 90.4 Table 6.2.1.1 "Maximum Design Mechanical Load Component (Design MLC)" with the following per the applicable climate zone:~~

~~Zone 4C Design MLC = 0.22 Zone 5B Design MLC = 0.24~~

~~2. Replace annualized MLC values of Table 6.2.1.2 "Maximum Annualized Mechanical Load Component (Annualized MLC)" in ASHRAE Standard 90.4 with the following per applicable climate zone:~~

~~Zone 4C Annual MLC = 0.18 Zone 5B Annual MLC = 0.17~~)).

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40310, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40310, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40310, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40310, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-11C-40314 Section C403.1.4—HVAC heating equipment.

C403.1.4 Use of electric resistance and fossil fuel-fired HVAC heating equipment. HVAC heating energy shall not be provided by electric resistance or fossil fuel combustion appliances. For the purposes of this section, electric resistance HVAC heating appliances include, but are not limited to, electric baseboard, electric resistance fan coil and VAV electric resistance terminal reheat units and electric resistance boilers. For the purposes of this section, fossil fuel combustion HVAC heating appliances include, but are not limited to, appliances burning natural gas, heating oil, propane, or other fossil fuels.

EXCEPTIONS:

1. **Low heating capacity.** Buildings or areas of buildings, other than *dwelling units* or sleeping units, that meet the interior temperature requirements of Chapter 12 of the *International Building Code* with a total installed HVAC heating capacity no greater than 8.5 Btu/h (2.5 watts) per square foot of *conditioned space* are permitted to be heated using electric resistance appliances. For the purposes of this exception, overhead or wall-mounted radiant heating panels installed in an unheated or semi-heated space, insulated in compliance with Section C402.2.8 and controlled by occupant sensing devices in compliance with Section C403.11.1 need not be included as part of the HVAC heating energy calculation.

2. **Dwelling and sleeping units.** Dwelling or sleeping units having an installed HVAC heating capacity no greater than 750 watts in Climate Zone 4, and 1000 watts in Climate Zone 5, in any separate habitable room with exterior fenestration are permitted to be heated using electric resistance appliances. For buildings in locations with exterior design conditions below 4°F (-16°C), an additional 250 watts above that allowed for Climate Zone 5 is permitted.

2.1. **Corner rooms.** A room within a dwelling or sleeping unit that has two primary walls facing different cardinal directions, each with exterior fenestration, is permitted to have an installed HVAC heating capacity no greater than 1000 watts in Climate Zone 4, and 1300 watts in Climate Zone 5. Bay windows and other minor offsets are not considered primary walls. For buildings in locations with exterior design conditions below 4°F (-16°C), an additional 250 watts above that allowed for Climate Zone 5 is permitted.

3. **Small buildings.** Buildings with less than 2,500 square feet (232 m^2) of *conditioned floor area* are permitted to be heated using electric resistance appliances.

4. **Defrost.** Heat pumps are permitted to utilize electric resistance as the first stage of heating when a heat pump defrost cycle is required and is in operation.

5. **Air-to-air heat pumps.** Buildings are permitted to utilize internal electric resistance heaters to supplement heat pump heating for air-to-air heat pumps that meet all of the following conditions:

5.1. Internal electric resistance heaters have controls that prevent supplemental heater operation when the heating load can be met by the heat pump alone during both steady-state operation and setback recovery.

5.2. The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor air temperature of 17°F (-8°C) or lower.

5.3. The heat pump complies with one of the following:

5.3.1. Controlled by a digital or electronic thermostat designed for heat pump use that energizes the supplemental heat only when the heat pump has insufficient capacity to maintain set point or to warm up the space at a sufficient rate.

5.3.2. Controlled by a multistage space thermostat and an outdoor air thermostat wired to energize supplemental heat only on the last stage of the space thermostat and when outdoor air temperature is less than 32°F (0°C).

5.3.3. The minimum efficiency of the heat pump is regulated by NAECA, its rating meets the requirements shown in Table C403.3.2(2), and its rating includes all usage of internal electric resistance heating.

5.4. The heat pump rated heating capacity is sized to meet the heating load at an outdoor air temperature of 32°F (0°C) or lower and has a rated heating capacity at 47°F (8°C) no less than 2 times greater than supplemental internal electric resistance heating capacity in Climate Zone 4 and no less than the supplemental internal electric resistance heating capacity in Climate Zone 5, or utilizes the smallest available factory-available internal electric resistance heater.

6. **Air-to-water heat pumps.** Buildings are permitted to utilize electric resistance (for Climate Zone 4 or 5) or fossil fuel-fired (for Climate Zone 5) auxiliary heating to supplement heat pump heating for hydronic heating systems that meet all of the following conditions:

6.1. Controls for the auxiliary electric resistance or fossil fuel-fired heating are configured to lock out the supplemental heat when the outside air temperature is above 36°F (2°C), unless the hot water supply temperature setpoint to the building heat coils cannot be maintained for 20 minutes.
6.2. The heat pump controls are configured to use the compressor as the first stage of heating down to the lowest exterior design temperature for which the equipment is rated except during startup or defrost operation.
6.3. The heat pump rated heating capacity at 47°F (8°C) is no less than 75 percent of the design heating load at 29°F (-2°C).
7. **Ground source heat pumps.** Buildings are permitted to utilize electric resistance auxiliary heating to supplement heat pump heating for hydronic heating systems with ground source heat pump equipment that meets all of the following conditions:
7.1. Controls for the auxiliary resistance heating are configured to lock out the supplemental heat when the equipment source-side entering water temperature is above 42°F (6°C), unless the hot water supply temperature setpoint to the building heat coils cannot be maintained for 20 minutes.
7.2. The heat pump controls are configured to use the compressor as the first stage of heating.
7.3. The ground source heat exchanger shall be sized so that the heat pump annual heating output is no less than 70 percent of the total annual heating output in the final year of a 30-year simulation using IGSHPA listed simulation software.
8. **Small systems.** Buildings in which electric resistance or fossil fuel appliances, including decorative appliances, either provide less than 5 percent of the total building HVAC system heating capacity or serve less than 5 percent of the *conditioned floor area*.
9. **Specific conditions.** Portions of buildings that require fossil fuel or electric resistance space heating for specific conditions *approved* by the *code official* for research, health care, process or other specific needs that cannot practicably be served by heat pump or other space heating systems. This does not constitute a blanket exception for any occupancy type.
10. **Kitchen make-up air.** Make-up air for commercial kitchen exhaust systems required to be tempered by Section 508.1.1 of the *International Mechanical Code* is permitted to be heated by using fossil fuel in Climate Zone 5 or electric resistance in Climate Zone 4 or 5.
11. **District energy.** Steam or hot water district energy systems that utilize fossil fuels as their primary source of heat energy, that serve multiple buildings, and that were already in existence prior to the effective date of this code, including more energy-efficient upgrades to such existing systems, are permitted to serve as the primary heating energy source.
12. **Heat tape.** Heat tape is permitted where it protects water-filled equipment and piping located outside of the *building thermal envelope*, provided that it is configured and controlled to be automatically turned off when the outside air temperature is above 40°F (4°C).
13. **Temporary systems.** Temporary electric resistance heating systems are permitted where serving future tenant spaces that are unfinished and unoccupied, provided that the heating equipment is sized and controlled to achieve interior space temperatures no higher than 40°F (4°C).
14. **Pasteurization.** Electric resistance heat controls are permitted to reset the supply water temperature of hydronic heating systems that serve service water heating heat exchangers during pasteurization cycles of the service hot water storage volume. The hydronic heating system supply water temperature shall be configured to be 145°F (63°C) or lower during the pasteurization cycle.
15. **Freeze protection.** Heating systems sized for spaces with indoor design conditions of 45°F (7°C) and intended for freeze protection are permitted to use electric resistance. The building envelope of any such space shall be insulated in compliance with Section C402.1.
16. **DOAS ERV auxiliary heat.** Dedicated outdoor air systems with energy recovery ventilation are permitted to utilize fossil fuel for Climate Zone 5 or electric resistance in Climate Zone 4 or 5 for auxiliary heating to preheat outdoor air for defrost or as auxiliary supplemental heat to temper supply air to 55°F (13°C) or lower for buildings or portions of buildings that do not have hydronic heating systems.
17. **Low-carbon district energy systems** that meet the definitions of *low-carbon district energy exchange system* or *low-carbon district heating and cooling or heating only systems*.

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AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40320 Section C403.2—System design.

C403.2 System design. Mechanical systems shall be designed to comply with Sections C403.2.1 and ((~~C403.2.2~~)) C403.2.4. Where elements of a building's mechanical systems are addressed in Sections C403.3 through C403.13, such elements shall comply with the applicable provisions of those sections.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40320, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40320, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40320, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40321 Section C403.2.1—Zone isolation.

C403.2.1 Zone isolation required. HVAC systems, DOAS and exhaust systems serving ((~~zones~~)) areas that are intended to operate or be occupied nonsimultaneously shall be divided into separate isolation areas. Zones intended to be occupied simultaneously may be grouped into a single isolation area provided ((~~it~~)) the combined total area does not exceed 25,000 square feet (2323 m^2) of conditioned floor area ((~~nor~~)) and does not include more than one floor. Each isolation area shall be equipped with isolation devices and controls configured to automatically shut off the supply of conditioned air and outdoor air to and exhaust air from the isolation area. Each isolation area shall be controlled independently by a device meeting the requirements of Section C403.4.2.2. Central systems and plants shall be provided with controls and devices that will allow system and equipment operation for any length of time while serving only the smallest isolation area served by the system or plant.

EXCEPTIONS:
1. Exhaust air and outdoor air connections to isolation areas where the fan system to which they connect is not greater than 5,000 cfm (2360 L/s).
2. Exhaust airflow from a single isolation area of less than 10 percent of the design airflow of the exhaust system to which it connects.
3. Isolation areas intended to operate continuously or intended to be inoperative only when all other isolation areas in a *zone* are inoperative.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40321, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40321, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40321, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40322 Section C403.2.2—Ventilation and exhaust.

C403.2.2 Ventilation and exhaust.

C403.2.2.1 Ventilation. Ventilation, either natural or mechanical, shall be provided in accordance with Chapter 4 of the *International Mechanical Code*. Where mechanical ventilation is provided, the system shall be configured to provide no greater than 150 percent of the minimum outdoor air required by Chapter 4 of the *International Mechanical Code* or other applicable code or standard, whichever is greater.

EXCEPTIONS:
1. The mechanical system may supply outdoor air at rates higher than the limit above when it is used for particulate or VOC dilution, ((~~economizer,~~)) economizing or night flushing, dehumidification, pressurization, exhaust make-up, or other process air delivery. Outdoor air shall be reduced to the minimum ventilation rates when not required for the preceding uses.
2. Air systems supplying dwelling or sleeping units within Group R-1, R-2 or I-2 occupancies.
3. Alterations that replace less than half of the total heating and cooling capacity of the system.
4. Systems with energy recovery complying with the requirements of Section C403.7.6.1 that utilize sensible only active chilled beams for space cooling without any additional zonal fan power. Active chilled beams shall be permitted to utilize the increased outdoor airflow to increase space sensible capacity and to maintain space latent cooling loads without additional controls to reduce the outdoor airflow to each zone.
5. Systems that include energy recovery ventilation with an 80 percent minimum sensible recovery effectiveness in accordance with Section C403.3.5.1 and with controls capable and configured to lock-out the use of supplemental heat may provide ventilation up to a maximum of 200 percent of the minimum outdoor air required.

C403.2.2.2 Exhaust. Exhaust shall be provided in accordance with Chapters 4 and 5 of the *International Mechanical Code*. Where exhaust is provided, the system shall be configured to provide no greater than 150 percent of the minimum exhaust air required by Chapters 4 and 5 of the *International Mechanical Code* or other applicable code or standard, whichever is greater.

EXCEPTIONS: 1. The mechanical system may exhaust air at rates higher than the limit above when it is used for particulate or VOC dilution, economizer, night flushing, dehumidification, pressure equalization, relief, or other process exhaust air requirements. Outdoor air and exhaust air shall be reduced to the minimum ventilation rates when not required for the preceding uses.
2. Domestic range hood exhaust in Group R occupancies.
3. Exhaust from Group I occupancies.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40322, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40322, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40322, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40323 Section C403.2.3—((~~Variable flow capacity~~)) Fault detection and diagnostics.

((**~~C403.2.3 Variable flow capacity.~~** ~~For fan and pump motors 7.5 hp and greater including motors in or serving custom and packaged air handlers serving variable air volume fan systems, constant volume fans, heating and cooling hydronic pumping systems, pool and service water pumping systems, domestic water pressure-booster systems, cooling tower fan, and other pump or fan motors where variable flows are required, there shall be:~~

~~1. Variable speed drives; or~~

~~2. Other controls and devices that will result in fan and pump motor demand of no more than 30 percent of design wattage at 50 percent of design air volume for fans when static pressure set point equals 1/3 the total design static pressure, and 50 percent of design water flow for pumps, based on manufacturer's certified test data. Variable inlet vanes, throttling valves (dampers), scroll dampers or bypass circuits shall not be allowed.~~

~~EXCEPTION:~~ ~~Variable speed devices are not required for motors that serve:~~
~~1. Fans or pumps in packaged equipment where variable speed drives are not available as a factory option from the equipment manufacturer.~~
~~2. Fans or pumps that are required to operate only for emergency fire-life-safety events (e.g., stairwell pressurization fans, elevator pressurization fans, fire pumps, etc.).~~))

C403.2.3 Fault detection and diagnostics. New buildings with an HVAC system serving a gross conditioned floor area of 100,000 square feet (9290 m^2) or larger shall include a fault detection and diagnostics (FDD) system to monitor the HVAC system's performance and automatically identify faults. The FDD system shall:

1. Include permanently installed sensors and devices to monitor the HVAC system's performance.

2. Sample the HVAC system's performance at least once every 15 minutes.

3. Automatically identify and report HVAC system faults.

4. Automatically notify authorized personnel of identified HVAC system faults.

5. Automatically provide prioritized recommendations for repair of identified faults based on analysis of data collected from the sampling of HVAC system performance.

6. Be capable of transmitting the prioritized fault repair recommendations to remotely located authorized personnel.

EXCEPTION: Group R-1 and R-2 occupancies.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40323, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40323, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40323, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40324 ((~~Reserved.~~)) Section C403.2.4—Variable flow capacity.

C403.2.4 Variable flow capacity. For fan and pump motors 5.0 hp and greater including motors in or serving custom and packaged air handlers serving variable air volume fan systems, constant volume fans, heating and cooling hydronic pumping systems, pool and service water pumping systems, domestic water pressure-booster systems, cooling tower fan, and other pump or fan motors where variable flows are required, there shall be:

1. Variable speed drives; or

2. Other controls and devices that will result in fan and pump motor demand of no more than 30 percent of design wattage at 50 percent of design air volume for fans when static pressure set point equals 1/3 the total design static pressure, and 50 percent of design water flow for pumps, based on manufacturer's certified test data. Variable inlet vanes, throttling valves (dampers), scroll dampers or bypass circuits shall not be allowed.

EXCEPTION: Variable speed devices are not required for motors that serve:
1. Fans or pumps in packaged equipment where variable speed drives are not available as a factory option from the equipment manufacturer.
2. Fans or pumps that are required to operate only for emergency fire-life-safety events (e.g., stairwell pressurization fans, elevator pressurization fans, fire pumps, etc.).

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40324, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40324, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40324, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40332 Section C403.3.2—HVAC equipment performance requirements.

C403.3.2 HVAC equipment performance requirements. Equipment shall meet the minimum efficiency requirements of Tables C403.3.2(1) through C403.3.2((~~(12)~~)) (16) when tested and rated in accordance with the applicable test procedure. Plate-type liquid-to-liquid heat exchangers shall meet the minimum requirements of ((~~Table C403.3.2(10)~~)) AHRI 400. The efficiency shall be verified through certification and listed under an *approved* certification program or, if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein.

C403.3.2.1 Gas-fired and oil-fired forced air furnaces. Forced air furnaces with input ratings ≥ 225,000 Btu/h (65 kW) and all unit heaters shall also have an intermittent ignition or interrupted device (IID), and have either mechanical draft (including power venting) or a flue damper. A vent damper is an acceptable alternative to a flue damper for furnaces where combustion air is drawn from the conditioned space. All furnaces with input ratings ≥ 225,000 Btu/h (65 kW), including electric furnaces, that are not located within the conditioned space shall have jacket losses not exceeding 0.75 percent of the input rating.

((~~C403.3.2.1~~)) C403.3.2.2 Hydronic and multiple-zone HVAC system controls and equipment. Hydronic and multiple-zone HVAC system controls and equipment shall comply with this section.

For buildings with a total equipment cooling capacity of 300 tons and above, the equipment shall comply with one of the following:

1. No one unit shall have a cooling capacity of more than 2/3 of the total installed cooling equipment capacity;
2. The equipment shall have a variable speed drive; or
3. The equipment shall have multiple compressors.

C403.3.2.3 Chillers. Chilled water plants and buildings with more than 500 tons total capacity shall not have more than 100 tons provided by air-cooled chillers.

EXCEPTIONS:
1. Where the designer demonstrates that the water quality at the building site fails to meet manufacturer's specifications for the use of water-cooled equipment.
2. Air-cooled chillers with minimum efficiencies at least 10 percent higher than those listed in Table ((~~C403.3.2(7)~~)) C403.3.2(3).
3. Replacement of existing air-cooled chiller equipment.
4. Air-to-water heat pump units that are configured to provide both heating and cooling and that are rated in accordance with AHRI 550/590. Where the air-to-water heat pumps are designed for a maximum supply leaving water temperature of less than 140°F, the efficiency rating will be calculated and reported at the maximum unit leaving water temperature for this test condition.

((~~C403.3.2.2~~)) C403.3.2.4 Water-cooled centrifugal chilling packages. Equipment not designed for operation at AHRI Standard 550/590 test conditions of ((~~44°F (7°C)~~)) 44.00°F (6.67°C) leaving and 54.00°F (12.22°C) entering chilled-water temperatures and ((~~2.4 gpm/ton evaporator fluid flow and 85°F (29°C) entering condenser water temperature with 3 gpm/ton (0.054 L/s • kW) condenser water flow~~)) with 85.00°F (29.44°C) entering and 94.30°F (34.61°C) leaving condenser-fluid tem-

peratures, shall have maximum full-load kW/ton (FL) and *part-load* ratings adjusted using ((~~Equations 4-7 and 4-8~~)) the following equations.

$$FL_{adj} = FL/K_{adj}$$

(Equation 4-7)

$$PLV_{adj} = IPLV.IP/K_{adj}$$

(Equation 4-8)

Where:

K_{adj}	=	A × B
FL	=	Full-load kW/ton values as specified in Table C403.3.2(7)
FL_{adj}	=	Maximum full-load kW/ton rating, adjusted for nonstandard conditions
IPLV.IP	=	Value as specified in Table C403.3.2(7)
PLV_{adj}	=	Maximum NPLV rating, adjusted for nonstandard conditions
A	=	$0.00000014592 \times (LIFT)^4 - 0.0000346496 \times (LIFT)^3 + 0.00314196 \times (LIFT)^2 - 0.147199 \times LIFT +$ ((~~3.9302~~)) 3.93073
B	=	$0.0015 \times L_{vg}{}^{Evap}$ (° F) + 0.934
LIFT	=	$L_{vg}{}^{Cond} - L_{vg}{}^{Evap}$
$L_{vg}{}^{Cond}$	=	Full-load condenser leaving fluid temperature (°F)
$L_{vg}{}^{Evap}$	=	Full-load evaporator leaving temperature (°F)

The FL_{adj} and PLV_{adj} values are ((~~only~~)) applicable only for centrifugal chillers meeting all of the following full-load design ranges:

((~~1. Minimum evaporator leaving temperature: 36°F.~~

~~2. Maximum condenser leaving temperature: 115°F.~~

~~3. LIFT is not less than 20°F (11.1°C) and not greater than 80°F (44.4°C)~~)) • 36.00°F ≤ $L_{vg}E_{vap}$ ≤ 60.00°F

• $L_{vg}Cond$ ≤ 115.00°F

• 20.00°F ≤ *LIFT* ≤ 80.00°F

Manufacturers shall calculate the FL_{adj} and PLV_{adj}before determining whether to label the chiller. Centrifugal chillers designed to operate outside of these ranges are not covered by this code.

((~~C403.3.2.3~~)) C403.3.2.5 Positive displacement (air- and water-cooled) chilling packages. Equipment with a leaving fluid temperature higher than 32°F (0°C) and water-cooled positive displacement chilling packages with a condenser leaving fluid temperature below 115°F (46°C) shall meet the requirements ((~~of Table C403.3.2(7)~~)) the tables in Section C403.3.2 when tested or certified with water at standard rating conditions, in accordance with the referenced test procedure.

((~~C403.3.2.4~~)) C403.3.2.6 Packaged and split system electric heating and cooling equipment. Packaged ((~~electric~~)) and split system equipment providing both electric heating and cooling, and cooling-only equipment with electric heat in the main supply duct before VAV boxes, in each case with a total cooling capacity greater than 6,000 Btu/h

shall be a heat pump configured to operate in heat pump mode whenever the outdoor air temperature is above 25°F (-3.9°C) and the unit is not in defrost. The unit shall have reverse-cycle demand defrost.

EXCEPTION: Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

((~~C403.3.2.5~~)) C403.3.2.7 Humidification. If an air economizer is required on a cooling system for which humidification equipment is to be provided to maintain minimum indoor humidity levels, then the humidifier shall be of the adiabatic type (direct evaporative media or fog atomization type).

EXCEPTIONS: 1. Health care facilities licensed by the state where chapter 246-320 or 246-330 WAC requires steam injection humidifiers in duct work downstream of final filters.
2. Systems with water economizer.
3. 100 percent outside air systems with no provisions for air recirculation to the central supply fan.
4. Nonadiabatic humidifiers cumulatively serving no more than 10 percent of a building's air economizer capacity as measured in cfm. This refers to the system cfm serving rooms with stand alone or duct mounted humidifiers.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40332, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40332, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-20-120, § 51-11C-40332, filed 10/1/13, effective 11/1/13. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40332, filed 2/1/13, effective 7/1/13.]

OTS-3534.1

NEW SECTION

WAC 51-11C-403321 Table C403.3.2(1)—Electrically operated unitary air conditioners and condensing units.

Table C403.3.2(1)
Minimum Efficiency Requirements—Electrically Operated Unitary Air Conditioners and Condensing Units[c,d]

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air conditioners, air cooled	< 65,000 Btu/h[b]	All	Split System, three phase and applications outside U.S. single phase[b]	13.0 SEER before 1/1/2023 13.4 SEER2 after 1/1/2023	AHRI 210/240-2017 before 1/1/2023 AHRI 201/240-2023 after 1/1/2023
			Single package, three phase and applications outside U.S. single phase[b]	14.0 SEER before 1/1/2023 13.4 SEER2 after 1/1/2023	
Space constrained, air cooled	≤ 30,000 Btu/h[b]	All	Split System, three phase and applications outside U.S. single phase[b]	12.0 SEER before 1/1/2023 11.7 SEER2 after 1/1/2023	
			Single package, three phase and applications outside U.S. single phase[b]	12.0 SEER before 1/1/2023 11.7 SEER2 after 1/1/2023	
Small duct high velocity, air cooled	≤ 65,000 Btu/h[b]	All	Split System, three phase and applications outside U.S. single phase[b]	12.0 SEER before 1/1/2023 12.1 SEER2 after 1/1/2023	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air conditioners, air cooled	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.2 EER 12.9 IEER before 1/1/2023 14.8 IEER after 1/1/2023	AHRI 340/360
		All other	Split System and Single Package	11.0 EER 12.7 IEER before 1/1/2023 14.6 IEER after 1/1/2023	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 12.4 IEER before 1/1/2023 14.2 IEER after 1/1/2023	
		All other	Split System and Single Package	10.8 EER 12.2 IEER before 1/1/2023 14.0 IEER after 1/1/2023	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.0 EER 11.6 IEER before 1/1/2023 13.2 IEER after 1/1/2023	
		All other	Split System and Single Package	9.8 EER 11.4 IEER before 1/1/2023 13.0 IEER after 1/1/2023	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.7 EER 11.2 IEER before 1/1/2023 12.5 IEER after 1/1/2023	
		All other	Split System and Single Package	9.5 EER 11.0 IEER before 1/1/2023 12.3 IEER after 1/1/2023	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air conditioners, water cooled	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	AHRI 210/240
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.1 EER 13.9 IEER	AHRI 340/360
		All other	Split System and Single Package	11.9 EER 13.7 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.5 EER 13.9 IEER	
		All other	Split System and Single Package	12.3 EER 13.7 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.4 EER 13.6 IEER	
		All other	Split System and Single Package	12.2 EER 13.4 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.2 EER 13.5 IEER	
		All other	Split System and Single Package	12.0 EER 13.3 IEER	
Air conditioners, evaporatively cooled	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	AHRI 210/240
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.1 EER 12.3 IEER	AHRI 340/360
		All other	Split System and Single Package	11.9 EER 12.1 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.0 EER 12.2 IEER	
		All other	Split System and Single Package	11.8 EER 12.0 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.9 EER 12.1 IEER	
		All other	Split System and Single Package	11.7 EER 11.9 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.7 EER 11.9 EER	
		All other	Split System and Single Package	11.5 EER 11.7 EER	
Condensing units, air cooled	≥ 135,000 Btu/h			10.5 EER 11.8 IEER	AHRI 365
Condensing units, water cooled	≥ 135,000 Btu/h			13.5 EER 14.0 IEER	
Condensing units, evaporatively cooled	≥ 135,000 Btu/h			13.5 EER 14.0 IEER	

For SI: 1 British thermal unit per hour = 0.2931 W.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

[b] Single-phase, U.S. air-cooled air conditioners less than 65,000 Btu/h are regulated as consumer products by the U.S. Department of Energy Code of Federal Regulations DOE 10 C.F.R. 430. SEER and SEER2 values for single-phase products are set by the U.S. Department of Energy.

[c] DOE 10 C.F.R. 430 Subpart B Appendix MI includes the test procedure updates effective 1/1/2023 that will be incorporated in AHRI 210/240-2023.
[d] This table is a replica of ASHRAE 90.1 Table 6.8.1-1 Electrically Operated Unitary Air Conditioners and Condensing Units—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403322 Table C403.3.2(2)—Electrically operated air-cooled unitary heat pumps—Minimum efficiency requirements.

Table C403.3.2(2)
Electrically Operated Air-Cooled Unitary Heat Pumps—Minimum Efficiency Requirements

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air cooled (cooling mode)	< 65,000 Btu/h	All	Split System, three phase and applications outside U.S. single phase[b]	14.0 SEER before 1/1/2023 14.3 SEER2 after 1/1/2023	AHRI 210/240-2017 before 1/1/2023 AHRI 201/240-2023 after 1/1/2023
			Single Package, three phase and applications outside U.S. single phase[b]	14.0 SEER before 1/1/2023 13.4 SEER2 after 1/1/2023	
Space constrained, air cooled	≤ 30,000 Btu/h	All	Split System, three phase and applications outside U.S. single phase[b]	12.0 SEER before 1/1/2023 11.7 SEER2 after 1/1/2023	
			Single Package, three phase and applications outside U.S. single phase[b]	12.0 SEER before 1/1/2023 11.7 SEER2 after 1/1/2023	
Single duct high velocity, air cooled (cooling mode)	≤ 65,000 Btu/h	All	Split System, three phase and applications outside U.S. single phase[b]	12.0 SEER before 1/1/2023 12.0 SEER2 after 1/1/2023	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air cooled (cooling mode)	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 12.2 IEER before 1/1/2023 14.1 IEER after 1/1/2023	AHRI 340/360
		All other	Split System and Single Package	10.8 EER 12.0 IEER before 1/1/2023 13.9 IEER after 1/1/2023	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.6 EER 11.6 IEER before 1/1/2023 13.5 IEER after 1/1/2023	
		All other	Split System and Single Package	10.4 EER 11.4 IEER before 1/1/2023 13.3 IEER after 1/1/2023	
	≥ 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.5 EER 10.6 IEER before 1/1/2023 12.5 IEER after 1/1/2023	
		All other	Split System and Single Package	9.3 EER 10.4 IEER before 1/1/2023 12.3 IEER after 1/1/2023	
Air cooled (heating mode)	< 65,000 Btu/h[b]	-	Split System, three phase and applications outside U.S. single phase[b]	8.2 HSPF before 1/1/2023 7.5 HSPF after 1/1/2023	AHRI 210/240-2017 before 1/1/2023 AHRI 201/240-2023 after 1/1/2023
		-	Single Package, three phase and applications outside U.S. single phase[b]	8.0 HSPF before 1/1/2023 6.7 HSPF after 1/1/2023	
Space constrained, air cooled (heating mode)	≤ 30,000 Btu/h	-	Split System, three phase and applications outside U.S. single phase[b]	7.4 HSPF before 1/1/2023 6.3 HSPF after 1/1/2023	
		-	Single Package, three phase and applications outside U.S. single phase[b]	7.4 HSPF before 1/1/2023 6.3 HSPF after 1/1/2023	
Small-duct high velocity air cooled (heating mode)	< 65,000 Btu/h	-	Split System, three phase and applications outside U.S. single phase[b]	7.2 HSPF before 1/1/2023 6.1 HSPF after 1/1/2023	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air cooled (heating mode)	≥ 65,000 Btu/h and < 135,000 Btu/h (cooling capacity)	-	47ºF db/43ºF wb Outdoor Air	3.30 COP_H before 1/1/2023 3.40 COP_H after 1/1/2023	AHRI 340/360
			17ºF db/15ºF wb Outdoor Air	2.25 COP_H	
	≥ 135,000 Btu/h and < 240,000 Btu/h (cooling capacity)	-	47ºF db/43ºF wb Outdoor Air	3.20 COP_H before 1/1/2023 3.30 COP_H after 1/1/2023	
			17ºF db/15ºF wb Outdoor Air	2.05 COP_H	
	≥ 240,000 Btu/h (cooling capacity)		47ºF db/43ºF wb Outdoor Air	3.20 COP_H	
			17ºF db/15ºF wb Outdoor Air	2.05 COP_H	

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

[b] Single-phase, U.S. air-cooled heat pumps less than 65,000 Btu/h are regulated as consumer products by the U.S. Department of Energy Code of Federal Regulations DOE 10 C.F.R. 430. SEER, SEER2, and HSPF values for single-phase products are set by the U.S. Department of Energy.

[c] DOE 10 C.F.R. 430 Subpart B Appendix MI includes the test procedure updates effective 1/1/2023 that will be incorporated into AHRI 210/240-2023.

[d] This table is a replica of ASHRAE 90.1 Table 6.8.1-2 Electrically Operated Air-Cooled Unitary Heat Pumps—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403323 Table C403.3.2(3)—Water chilling packages—Minimum efficiency requirements.

Table C403.3.2(3)

Water Chilling Packages—Minimum Efficiency Requirements[a,b,e,f]

Equipment Type	Size Category	Units	Path A		Path B		Test Procedure[c]
			FL	IPLV,IP	FL	IPLV,IP	
Air-cooled chillers	< 150 tons	EER(Btu/Wh)	≥ 10.100	≥ 13.700	≥ 9.700	≥ 15.800	AHRI 550/590
	≥ 150 tons	EER(Btu/Wh)	≥ 10.100	≥ 14.000	≥ 9.700	≥ 16.100	
Air cooled without condenser, electrically operated	All capacities	EER(Btu/Wh)	Air-cooled chillers without condensers shall be rated with matching condensers and comply with the air-cooled chiller efficiency requirements				
Water cooled, electrically operated, positive displacement	< 75 tons	kW/ton	≤ 0.750	≤ 0.600	≤ 0.780	≤ 0.500	
	≥ 75 tons and < 150 tons	kW/ton	≤ 0.720	≤ 0.560	≤ 0.750	≤ 0.490	
	≥ 150 tons and < 300 tons	kW/ton	≤ 0.660	≤ 0.540	≤ 0.680	≤ 0.440	
	≥ 300 tons and < 600 tons	kW/ton	≤ 0.610	≤ 0.520	≤ 0.625	≤ 0.410	
	≥ 600 tons	kW/ton	≤ 0.560	≤ 0.500	≤ 0.585	≤ 0.380	

Equipment Type	Size Category	Units	Path A		Path B		Test Procedure[c]
			FL	IPLV,IP	FL	IPLV,IP	
Water cooled, electrically operated, centrifugal	< 150 tons	kW/ton	≤ 0.610	≤ 0.550	≤ 0.695	≤ 0.440	
	≥ 150 tons and < 300 tons	kW/ton	≤ 0.610	≤ 0.550	≤ 0.695	≤ 0.400	
	≥ 300 tons and < 400 tons	kW/ton	≤ 0.560	≤ 0.520	≤ 0.595	≤ 0.390	
	≥ 400 tons and < 600 tons	kW/ton	≤ 0.560	≤ 0.500	≤ 0.585	≤ 0.380	
	≥ 600 tons	kW/ton	≤ 0.560	≤ 0.500	≤ 0.585	≤ 0.380	
Air cooled absorption, single effect	All capacities	COP(W/W)	≥ 0.600	NR	NA[d]	NA[d]	AHRI 560
Water cooled absorption, single effect	All capacities	COP(W/W)	≥ 0.700	NR	NA[d]	NA[d]	
Absorption double effect, indirect fired	All capacities	COP(W/W)	≥ 1.000	≥ 1.050	NA[d]	NA[d]	
Absorption double effect, direct fired	All capacities	COP(W/W)	≥ 1.000	≥ 1.000	NA[d]	NA[d]	

For SI: 1 ton = 3517 W, 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.
NR = No requirement.

[a] Chapter 6 contains a complete specification of the referenced standards, which includes test procedures, including the referenced year version of the test procedure.

[b] The requirements for centrifugal chiller shall be adjusted for nonstandard rating conditions per Section C403.3.2.4 and are applicable only for the range of conditions listed there. The requirements for air-cooled, water-cooled positive displacement and absorption chillers are at standard rating conditions defined in the referenced test procedure.

[c] Both the full load and IPLV.IP requirements must be met or exceeded to comply with this standard. When there is a Path B, compliance can be with either Path A or Path B for any application.

[d] NA means the requirements are not applicable for Path B and only Path A can be used for compliance.

[e] FL is the full-load performance requirements, and IPLV.IP is for the part-load performance requirements.

[f] This table is a replica of ASHRAE 90.1 Table 6.8.1-3 Water-Chilling Packages—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403324 Table C403.3.2(4)—Minimum efficiency requirements—Electrically operated PTAC, PTHP, SPVAC, SPVHP, room air conditioners.

Table C403.3.2(4)
Electrically Operated Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Single-Package Vertical Air Conditioners, Single-Package Vertical Heat Pumps, Room Air Conditioners and Room Air-Conditioner Heat Pumps—Minimum Efficiency Requirements[e]

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
PTAC (cooling mode) Standard size	< 7,000 Btu/h	95°F db/75°F wb outdoor air[c]	11.9 EER	AHRI 310/380
	≥ 7,000 Btu/h and ≤ 15,000 Btu/h		14.0 - (0.300 × Cap/1000) EER[d]	
	> 15,000 Btu/h		9.5 EER	

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
PTAC (cooling mode) Nonstandard size[a]	< 7,000 Btu/h	95°F db/75°F wb outdoor air[c]	9.4 EER	AHRI 310/380
	≥ 7,000 Btu/h and ≤ 15,000 Btu/h		10.9 - (0.213 × Cap/1000) EER[d]	
	> 15,000 Btu/h		7.7 EER	
PTHP (cooling mode) Standard size	< 7,000 Btu/h	95°F db/75°F wb outdoor air[c]	11.9 EER	AHRI 310/380
	≥ 7,000 Btu/h and ≤ 15,000 Btu/h		14.0 - (0.300 × Cap/1000) EER[d]	
	> 15,000 Btu/h		9.5 EER	
PTHP (cooling mode) Nonstandard size[b]	< 7,000 Btu/h	95°F db/75°F wb outdoor air[c]	9.3 EER	AHRI 310/380
	≥ 7,000 Btu/h and ≤ 15,000 Btu/h		10.8 - (0.213 × Cap/1000) EER[d]	
	> 15,000 Btu/h		7.6 EER	
PTHP (heating mode) Standard size	< 7,000 Btu/h	47°F db/43°F wb outdoor air	3.3 COP_H	AHRI 310/380
	≥ 7,000 Btu/h and ≤ 15,000 Btu/h		3.7 - (0.052 × Cap/1000) COP_H[d]	
	> 15,000 Btu/h		2.90 COP_H	
PTHP (heating mode) Nonstandard size[b]	< 7,000 Btu/h	47°F db/43°F wb outdoor air	2.7 COP_H	AHRI 310/380
	≥ 7,000 Btu/h and ≤ 15,000 Btu/h		2.9 - (0.026 × Cap/1000) COP_H[d]	
	> 15,000 Btu/h		2.5 COP_H	
SPVAC (cooling mode)	< 65,000 Btu/h	95°F db/75°F wb outdoor air[c]	11.0 EER	AHRI 390
	≥ 65,000 Btu/h and < 135,000 Btu/h		10.0 EER	
	≥ 135,000 Btu/h and < 240,000 Btu/h		10.0 EER	
SPVHP (cooling mode)	< 65,000 Btu/h	95°F db/75°F wb outdoor air[c]	11.0 EER	AHRI 390
	≥ 65,000 Btu/h and < 135,000 Btu/h		10.0 EER	
	≥ 135,000 Btu/h and < 240,000 Btu/h		10.0 EER	
SPVHP (heating mode)	<65,000 Btu/h	47°F db/43°F wb outdoor air	3.3 COP	AHRI 390
	≥ 65,000 Btu/h and < 135,000 Btu/h		3.0 COP	
	≥ 135,000 Btu/h and < 240,000 Btu/h		3.0 COP	
Room air conditioners without reverse cycle with louvered sides for applications outside U.S.	< 6,000 Btu/h	-	11.0 CEER	ANSI/ AHAMRAC-1
	≥ 6,000 Btu/h and < 8,000 Btu/h	-	11.0 CEER	
	≥ 8,000 Btu/h and < 14,000 Btu/h	-	10.9 CEER	
	≥ 14,000 Btu/h and < 20,000 Btu/h	-	10.7 CEER	
	≥ 20,000 Btu/h and < 28,000 Btu/h	-	9.4 CEER	
	≥ 28,000 Btu/h	-	9.0 CEER	

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Room air conditioners without louvered sides	< 6,000 Btu/h	-	10.0 CEER	ANSI/ AHAMRAC-1
	≥ 6,000 Btu/h and < 8,000 Btu/h	-	10.0 CEER	
	≥ 8,000 Btu/h and < 11,000 Btu/h	-	9.6 CEER	
	≥ 11,000 Btu/h and < 14,000 Btu/h	-	9.5 CEER	
	≥ 14,000 Btu/h and < 20,000 Btu/h	-	9.3 CEER	
	≥ 20,000 Btu/h	-	9.4 CEER	
Room air conditioners with reverse cycle, with louvered sides for applications outside U.S.	< 20,000 Btu/h	-	9.8 CEER	ANSI/ AHAMRAC-1
	≥ 20,000 Btu/h	-	9.3 CEER	
Room air conditioners with reverse cycle without louvered sides for applications outside U.S.	< 14,000 Btu/h	-	9.3 CEER	ANSI/ AHAMRAC-1
	≥ 14,000 Btu/h	-	8.7 CEER	
Room air conditioners, casement only for applications outside U.S.	All capacities	-	9.5 CEER	ANSI/ AHAMRAC-1
Room air conditioners, casement-slider for application outside U.S.	All capacities	-	10.4 CEER	ANSI/ AHAMRAC-1

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.
"Cap" = The rated cooling capacity of the product in Btu/h. If the unit's capacity is less than 7,000 Btu/h, use 7,000 Btu/h in the calculation. If the unit's capacity is greater than 15,000 Btu/h, use 15,000 Btu/h in the calculations.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the referenced year version of the test procedure.

[b] Nonstandard size units must be factory labeled as follows: "MANUFACTURED FOR NONSTANDARD SIZE APPLICATIONS ONLY: NOT TO BE INSTALLED IN NEW STANDARD PROJECTS." Nonstandard size efficiencies apply only to units being installed in existing sleeves having an external wall opening of less than 16 inches (406 mm) high or less than 42 inches (1067 mm) wide and having a cross-sectional area less than 670 square inches (0.43 m^2).

[c] The cooling-mode wet bulb temperature requirement only applies for units that reject condensate to the condenser coil.

[d] "Cap" in EER and COPH equations for PTACs and PTHPs means cooling capacity in Btu/h at 95°F outdoor dry-bulb temperature.

[e] This table is a replica of ASHRAE 90.1 Table 6.8.1-4 Electrically Operated Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Single-Package Vertical Air Conditioners, Single-Package Vertical Heat Pumps, Room Air Conditioners, and Room Air-Conditioner Heat Pumps—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403325 Table C403.3.2(5)—Minimum efficiency requirements—Warm air furnaces and unit heaters.

Table C403.3.2(5)

Warm Air Furnaces and Combination Warm Air Furnaces/Air-Conditioning Units, Warm Air Duct Furnaces and Unit Heaters—Minimum Efficiency Requirements

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency[d,c]	Test Procedure[a]
Warm-air furnace, gas fired for application outside the U.S.	< 225,000 Btu/h	Maximum capacity[c]	80% AFUE (nonweatherized) or 1% AFUE (weatherized) or 80% E_t[b,d]	DOE 10 C.F.R. 430 Appendix N or Section 2.39, Thermal Efficiency, ANSI Z21.47
Warm-air furnace, gas fired	< 225,000 Btu/h	Maximum capacity[c]	80% E_t[b,d] before 1/1/2023 81% E_t[d] after 1/1/2023	Section 2.39, Thermal Efficiency, ANSI Z21.47
Warm-air furnace, oil fired	< 225,000 Btu/h	Maximum capacity[c]	83% AFUE (nonweatherized) or 78% AFUE (weatherized) or 80% E_t[b,d]	DOE 10 C.F.R. 430 Appendix N or Section 42, Combustion UL 727
Warm-air furnace, oil fired	< 225,000 Btu/h	Maximum capacity[c]	80% E_t before 1/1/2023 82% E_t[d] after 1/1/2023	Section 42, Combustion UL 727
Electric furnaces for applications outside the U.S.	< 225,000 Btu/h	All	96% AFUE	DOE 10 C.F.R. 430 Appendix N
Warm air duct furnaces, gas fired	All capacities	Maximum capacity[c]	80% E_c[e]	Section 2.10, Efficiency, ANSI Z83.8
Warm air unit heaters, gas fired	All capacities	Maximum capacity[c]	80% E_c[e,f]	Section 2.10, Efficiency, ANSI Z83.8
Warm air unit heaters, oil fired	All capacities	Maximum capacity[c]	80% E_c[e,f]	Section 40, Combustion, UL 731

For SI: 1 British thermal unit per hour = 0.2931 W.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the referenced year version of the test procedure.

[b] Combination units (i.e., furnaces contained within the same cabinet as an air conditioner) not covered by DOE 10 C.F.R. 430 (i.e., 3-phase power or with cooling capacity greater than or equal to 65,000 Btu/h) may comply with either rating. All other units greater than 225,000 Btu/h sold in the U.S. must meet the AFUE standards for consumer products and testing using U.S. DOE's AFUE test procedure at DOE 10 C.F.R. 430 Subpart B, Appendix N.

[c] Compliance of multiple firing rate units shall be at the maximum firing rate.

[d] E_t = Thermal efficiency. Units must also include an interrupted or intermittent ignition device (IID), have jacket losses not exceeding 0.75 percent of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.

[e] E_c = Combustion efficiency (100% less flue losses). See test procedure for detailed discussion.

[f] Units must also include an interrupted or intermittent ignition device (IID) and have either power venting or an automatic flue damper.

[g] This table is a replica of ASHRAE 90.1 Table 6.8.1-5 Warm-Air Furnaces and Combination Warm-Air Furnaces/Air-Conditioning Units, Warm-Air Duct Furnaces, and Unit Heaters—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403326 Table C403.3.2(6)—Minimum efficiency requirements—Gas-fired and oil-fired boilers.

Table C403.3.2(6)
Gas- and Oil-Fired Boilers—Minimum Efficiency Requirements

Equipment Type[a]	Subcategory or Rating Condition	Size Category (Input)	Minimum Efficiency	Test Procedure[a]
Boilers, hot water	Gas-fired	< 300,000 Btu/h[g,h] for applications outside the U.S.	82% AFUE	DOE 10 C.F.R. 430 Appendix N
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[e]	84% E_t[d]	DOE 10 C.F.R. 431.86
		> 2,500,000 Btu/h and ≤ 10,000,000 Btu/h[b]	85% E_t[d]	
		> 10,000,000 Btu/h[b]	82% E_c[c]	
	Oil-fired[f]	< 300,000 Btu/h[g,h]	84% AFUE	DOE 10 C.F.R. 430 Appendix N
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[e]	87% E_t[d]	DOE 10 C.F.R. 431.86
		> 2,500,000 Btu/h[b]	88% E_c[c]	
		> 10,000,000 Btu/h[b]	84% E_c[d]	
Boilers, steam	Gas-fired	< 300,000 Btu/h[g]	81% AFUE	DOE 10 C.F.R. 430 Appendix N
	Gas-fired - all, except natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	82% E_t[d]	DOE 10 C.F.R. 431.86
		> 2,500,000 Btu/h[a]	79% E_t[d]	
		> 10,000,000 Btu/h[b]	79% E_t[d]	
	Gas-fired - natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	81% E_t[d]	
		> 2,500,000 Btu/h[b]	82% E_t[d]	
		> 10,000,000 Btu/h[b]	79% E_t[d]	
	Oil-fired[f]	< 300,000 Btu/h	82% AFUE	DOE 10 C.F.R. 430 Appendix N
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	84% E_t[d]	DOE 10 C.F.R. 431.86
		> 2,500,000 Btu/h[b]	85% E_t[d]	
		> 10,000,000 Btu/h[b]	81% E_t[d]	

For SI: 1 British thermal unit per hour = 0.2931 W.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

[b] These requirements apply to boilers with rated input of 8,000,000 Btu/h or less that are not packaged boilers and to all packaged boilers. Minimum efficiency requirements for boilers cover all capacities of packaged boilers.

[c] E_c = Combustion efficiency (100 percent less flue losses).

[d] E_t = Thermal efficiency.

[e] Maximum capacity – Minimum and maximum ratings as provided for and allowed by the unit's controls.

[f] Includes oil-fired (residual).

[g] Boilers shall not be equipped with a constant burning pilot light.

[h] A boiler not equipped with a tankless domestic water heating coil shall be equipped with an automatic means for adjusting the temperature of the water such that an incremental change in inferred heat load produces a corresponding incremental change in the temperature of the water supplied.

[i] This table is a replica of ASHRAE 90.1 Table 6.8.1-6 Gas- and Oil-Fired Boilers—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403327 Table C403.3.2(7)—Heat rejection equipment—Minimum efficiency requirements.

Table C403.3.2(7)
Heat Rejection Equipment—Minimum Efficiency Requirements[i]

Equipment Type[a]	Total System Heat Rejection Capacity at Rated Conditions	Subcategory or Rating Condition[h]	Performance Required[b,c,d,f,g]	Test Procedure[a,e]
Propeller or axial fan open-circuit cooling towers	All	95°F Entering Water 85°F Leaving Water 75°F Entering wb	≥ 40.2 gpm/hp	CTI ATC-105 and CTI STD-201 RS
Centrifugal fan open circuit cooling towers	All	95°F Entering Water 85°F Leaving Water 75°F Entering wb	≥ 20.0 gpm/hp	CTI ATC-105 and CTI STD-201 RS
Propeller or axial fan closed-circuit cooling towers	All	102°F Entering Water 90°F Leaving Water 75°F Entering wb	≥ 16.1 gpm/hp	CTI ATC-105S and CTI STD-201 RS
Centrifugal closed-circuit cooling towers	All	102°F Entering Water 90°F Leaving Water 75°F Entering wb	≥ 7.0 gpm/hp	CTI ATC-105S and CTI STD-201 RS
Propeller or axial fan dry coolers (air-cooled fluid coolers)	All	115°F Entering Water 105°F Leaving Water 95°F Entering wb	≥ 4.5 gpm/hp	CTI ATC-106
Propeller or axial fan evaporative condensers	All	R-448A Test Fluid 165°F Entering Gas Temperature 105°F Condensing Temperature 75°F Entering wb	≥ 160,000 Btu/h • hp	CTI ATC-106
Propeller or axial fan evaporative condensers	All	Ammonia Test Fluid 140°F Entering Gas Temperature 96.3°F Condensing Temperature 75°F Entering wb	≥ 134,000 Btu/h • hp	CTI ATC-106
Centrifugal fan evaporative condensers	All	R-448A Test Fluid 165°F Entering Gas Temperature 105°F Condensing Temperature 75°F Entering wb	≥ 137,000 Btu/h • hp	CTI ATC-106
Centrifugal fan evaporative condensers	All	Ammonia Test Fluid 140°F Entering Gas Temperature 96.3°F Condensing Temperature 75°F Entering wb	≥ 110,000 Btu/h • hp	CTI ATC-106
Air cooled condensers	All	125°F Condensing Temperature R-22 Test Fluid 190°F Entering Gas Temperature 15°F Subcooling 95°F Entering db	≥ 176,000 Btu/h • hp	AHRI 460

For SI: °C = [(°F) - 32]/1.8, L/s • kW = (gpm/hp)/(11.83), COP = (Btu/h • hp)/(2550.7).
db = dry-bulb temperature, °F.
wb = wet-bulb temperature, °F.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

[b] For purposes of this table, open-circuit cooling tower performance is defined as the water-flow rating of the tower at the thermal rating condition listed in the table divided by the fan motor nameplate power.

[c] For purposes of this table, closed-circuit cooling tower performance is defined as the water-flow rating of the tower at the thermal rating condition divided by the sum of the fan motor nameplate power and the integral spray pump motor nameplate power.

[d] For purposes of this table, dry-cooler performance is defined as the process water-flow rating of the unit at the thermal rating condition listed in the table divided by the total fan motor nameplate power of the unit, and air-cooled condenser performance is defined as the heat rejected from the refrigerant divided by the total fan motor nameplate power of the unit.

[e] The efficiencies and test procedures for both open- and closed-circuit cooling towers are not applicable to hybrid cooling towers that contain a combination of separate wet and dry heat exchange sections. The certification requirements do not apply to field-erected cooling towers.
[f] All cooling towers shall comply with the minimum efficiency listed in the table for that specific type of tower with the capacity effect of any project-specific accessories and/or options included in the capacity of the cooling tower.
[g] For purposes of this table, evaporative condenser performance is defined as the heat rejected at the specified rating condition in the table, divided by the sum of the fan motor nameplate power and the integral spray pump nameplate power.
[h] Requirements for evaporative condensers are listed with ammonia (R-717) and R-448A as test fluids in the table. Evaporative condensers intended for use with halocarbon refrigerants other than R-448A must meet the minimum efficiency requirements listed above with R-448A as the test fluid. For ammonia, the condensing temperature is defined as the saturation temperature corresponding to the refrigerant pressure at the condenser entrance. For R-448A, which is a zeotropic refrigerant, the condensing temperature is defined as the arithmetic average of the dew point and the bubble point temperatures corresponding to the refrigerant pressure at the condenser entrance.
[i] This table is a replica of ASHRAE 90.1 Table 6.8.1-7 Performance Requirements for Heat Rejection Equipment—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403328 Table C403.3.2(8)—Electrically operated variable refrigerant flow air conditioners—Minimum efficiency requirements.

Table C403.3.2(8)
Electrically Operated Variable Refrigerant Flow Air Conditioners—Minimum Efficiency Requirements[b]

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
VRF Air Conditioners, Air Cooled	< 65,000 Btu/h	All	VRF Multi-Split System	13.0 SEER	AHRI 1230
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	11.2 EER 15.5 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	11.0 EER 14.9 IEER	
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	10.0 EER 13.9 IEER	

For SI: 1 British thermal unit per hour = 0.2931 W.
[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.
[b] This table is a replica of ASHRAE 90.1 Table 6.8.1-8 Electrically Operated Variable-Refrigerant-Flow Air Conditioners—Minimum Efficiency Requirements.

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NEW SECTION

WAC 51-11C-403329 Tables C403.3.2(9) through C403.3.2(16)—HVAC equipment minimum efficiency requirements.

Table C403.3.2(9)
Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps—Minimum Efficiency Requirements[b]

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
	< 65,000 Btu/h	All	VRF Multi-Split System	13.0 SEER	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
VRF Air Cooled (cooling mode)	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	11.0 EER 14.6 IEER	AHRI 1230
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	10.8 EER 14.4 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	10.6 EER 13.9 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	10.4 EER 13.7 IEER	
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	9.5 EER 12.7 IEER	
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	9.3 EER 12.5 IEER	
VRF Water Source (cooling mode)	< 65,000 Btu/h	All	VRF Multi-Split System 86ºF entering water	12.0 EER 16.0 IEER	AHRI 1230
	< 65,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 86ºF entering water	11.8 EER 15.8 IEER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	VRF Multi-Split System 86ºF entering water	12.0 EER 16.0 IEER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 86ºF entering water	11.8 EER 15.8 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	All	VRF Multi-Split System 86ºF entering water	10.0 EER 14.0 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 86ºF entering water	9.8 EER 13.8 IEER	
	≥ 240,000 Btu/h	All	VRF Multi-Split System 86ºF entering water	10.0 EER 12.0 IEER	
	≥ 240,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 86ºF entering water	9.8 EER 11.8 IEER	
VRF Groundwater Source (cooling mode)	< 135,000 Btu/h	All	VRF Multi-Split System 59ºF entering water	16.2 EER	AHRI 1230
	< 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 59ºF entering water	16.0 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System 59ºF entering water	13.8 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 59ºF entering water	13.6 EER	
VRF Ground Source (cooling mode)	< 135,000 Btu/h	All	VRF Multi-Split System 77ºF entering water	13.4 EER	AHRI 1230
	< 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 77ºF entering water	13.2 EER	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
	≥ 135,000 Btu/h	All	VRF Multi-Split System 77ºF entering water	11.0 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery 77ºF entering water	10.8 EER	
VRF Air Cooled (heating mode)	< 65,000 Btu/h (cooling capacity)		VRF Multi-Split System	7.7 HSPF	AHRI 1230
	≥ 65,000 Btu/h and < 135,000 Btu/h (cooling capacity)		VRF Multi-Split System 47ºF db/43ºF wb outdoor air 17ºF db/15ºF wb outdoor air	3.3 COP 2.25 COP	
	≥ 135,000 Btu/h (cooling capacity)		VRF Multi-Split System 47ºF db/43ºF wb outdoor air 17ºF db/15ºF wb outdoor air	3.2 COP 2.05 COP	
VRF Water Source (heating mode)	< 65,000 Btu/h (cooling capacity)		VRF Multi-Split System 68ºF entering water	4.3 COP	AHRI 1230
	≥ 65,000 Btu/h and < 135,000 Btu/h (cooling capacity)		VRF Multi-Split System 68ºF entering water	4.3 COP	
	≥ 135,000 Btu/h and < 240,000 Btu/h (cooling capacity)		VRF Multi-Split System 68ºF entering water	4.0 COP	
	≥ 240,000 Btu/h (cooling capacity)		VRF Multi-Split System 68ºF entering water	3.9 COP	
VRF Groundwater Source (heating mode)	< 135,000 Btu/h (cooling capacity)		VRF Multi-Split System 50ºF entering water	3.6 COP	AHRI 1230
	≥ 135,000 Btu/h (cooling capacity)		VRF Multi-Split System 50ºF entering water	3.3 COP	
VRF Ground Source (heating mode)	< 135,000 Btu/h (cooling capacity)		VRF Multi-Split System 32ºF entering water	3.1 COP	AHRI 1230
	≥ 135,000 Btu/h (cooling capacity)		VRF Multi-Split System 32ºF entering water	2.8 COP	

For SI: °C = [(°F) - 32]/1.8, 1 British thermal unit per hour = 0.2931 W, db = dry bulb temperature, wb = wet bulb temperature.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

[b] This table is a replica of ASHRAE 90.1 Table 6.8.1-9 Electrically Operated Variable-Refrigerant-Flow and Applied Heat Pumps—Minimum Efficiency Requirements.

Table C403.3.2(10)
Floor-Mounted Air Conditioners and Condensing Units Serving Computer Rooms—Minimum Efficiency Requirements[b]

Equipment Type	Standard Model	Net Sensible Cooling Capacity	Minimum Net Sensible COP	Rating Conditions Return Air (dry bulb/dew point)	Test Procedure[a]
Air cooled	Downflow	< 80,000 Btu/h	2.70	85°F/52°F (Class 2)	AHRI 1360
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.58		
		≥ 295,000 Btu/h	2.36		
	Upflow - Ducted	< 80,000 Btu/h	2.67		
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.55		
		≥ 295,000 Btu/h	2.33		
	Upflow - Nonducted	> 65,000 Btu/h	2.16	75°F/52°F (Class 1)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.04		
		≥ 240,000 Btu/h	1.89		
	Horizontal	> 65,000 Btu/h	2.65	95°F/52°F (Class 3)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.55		
		≥ 240,000 Btu/h	2.47		
Air cooled with fluid economizer	Downflow	< 80,000 Btu/h	2.70	85°F/52°F (Class 1)	AHRI 1360
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.58		
		≥ 295,000 Btu/h	2.36		
	Upflow - Ducted	< 80,000 Btu/h	2.67		
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.55		
		≥ 295,000 Btu/h	2.33		
	Upflow - Nonducted	> 65,000 Btu/h	2.09	75°F/52°F (Class 1)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	1.99		
		≥ 240,000 Btu/h	1.81		
	Horizontal	> 65,000 Btu/h	2.65	95°F/52°F (Class 3)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.55		
		≥ 240,000 Btu/h	2.47		
Water cooled	Downflow	< 80,000 Btu/h	2.82	85°F/52°F (Class 1)	AHRI 1360
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.73		
		≥ 295,000 Btu/h	2.67		
	Upflow - Ducted	< 80,000 Btu/h	2.79		
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.70		
		≥ 295,000 Btu/h	2.64		
	Upflow - Nonducted	> 65,000 Btu/h	2.43	75°F/52°F (Class 1)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.32		
		≥ 240,000 Btu/h	2.20		
	Horizontal	> 65,000 Btu/h	2.79	95°F/52°F (Class 3)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.68		
		≥ 240,000 Btu/h	2.60		

Equipment Type	Standard Model	Net Sensible Cooling Capacity	Minimum Net Sensible COP	Rating Conditions Return Air (dry bulb/dew point)	Test Procedure[a]
Water cooled with fluid economizer	Downflow	< 80,000 Btu/h	2.77	85°F/52°F (Class 1)	AHRI 1360
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.68		
		≥ 295,000 Btu/h	2.61		
	Upflow - Ducted	< 80,000 Btu/h	2.74		
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.65		
		≥ 295,000 Btu/h	2.58		
	Upflow - Nonducted	> 65,000 Btu/h	2.35	75°F/52°F (Class 1)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.24		
		≥ 240,000 Btu/h	2.12		
	Horizontal	> 65,000 Btu/h	2.71	95°F/52°F (Class 3)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.60		
		≥ 240,000 Btu/h	2.54		
Glycol cooled	Downflow	< 80,000 Btu/h	2.56	85°F/52°F (Class 1)	AHRI 1360
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.24		
		≥ 295,000 Btu/h	2.21		
	Upflow - Ducted	< 80,000 Btu/h	2.53		
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.21		
		≥ 295,000 Btu/h	2.18		
	Upflow - Nonducted	> 65,000 Btu/h	2.08	75°F/52°F (Class 1)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	1.90		
		≥ 240,000 Btu/h	1.81		
	Horizontal	> 65,000 Btu/h	2.48	95°F/52°F (Class 3)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.18		
		≥ 240,000 Btu/h	2.18		
Glycol cooled with fluid economizer	Downflow	< 80,000 Btu/h	2.51	85°F/52°F (Class 1)	AHRI 1360
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.19		
		≥ 295,000 Btu/h	2.15		
	Upflow - Ducted	< 80,000 Btu/h	2.48		
		≥ 80,000 Btu/h and < 295,000 Btu/h	2.16		
		≥ 295,000 Btu/h	2.12		
	Upflow - Nonducted	> 65,000 Btu/h	2.00	75°F/52°F (Class 1)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	1.82		
		≥ 240,000 Btu/h	1.73		
	Horizontal	> 65,000 Btu/h	2.44	95°F/52°F (Class 3)	
		≥ 65,000 Btu/h and < 240,000 Btu/h	2.10		
		≥ 240,000 Btu/h	2.10		

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.
[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.
[b] This table is a replica of ASHRAE 90.1 Table 6.8.1-10 Floor-Mounted Air Conditioners and Condensing Units Serving Computer Rooms—Minimum Efficiency Requirements.

Table C403.3.2(11)
Vapor-Compression-Based Indoor Pool Dehumidifiers—Minimum Efficiency Requirements[b]

Equipment Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Single package indoor (with or without economizer)	Rating Conditions: A or C	3.5 MRE	AHRI 910
Single package indoor water cooled (with or without economizer)	Rating Conditions: A, B or C	3.5 MRE	
Single package indoor air cooled (with or without economizer)	Rating Conditions: A, B or C	3.5 MRE	
Split system indoor air cooled (with or without economizer)	Rating Conditions: A, B or C	3.5 MRE	

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.
[b] This table is a replica of ASHRAE 90.1 Table 6.8.1-11 Vapor-Compressor-Based Indoor Pool Dehumidifiers—Minimum Efficiency Requirements.

Table C403.3.2(12)
Electrically Operated DX-DOAS Units, Single-Package and Remote Condenser, Without Energy Recovery—Minimum Efficiency Requirements[b]

Equipment Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air cooled (dehumidification mode)		4.0 ISMRE	AHRI 920
Air source heat pumps (dehumidification mode)		4.0 ISMRE	AHRI 920
Water cooled (dehumidification mode)	Cooling tower condenser water	4.9 ISMRE	AHRI 920
	Chilled water	6.0 ISMRE	
Air source heat pump (heating mode)		2.7 ISCOP	AHRI 920
Water source heat pump (dehumidification mode)	Ground source, closed loop	4.8 ISMRE	AHRI 920
	Ground-water source	5.0 ISMRE	
	Water source	4.0 ISMRE	
Water source heat pump (heating mode)	Ground source, closed loop	2.0 ISCOP	AHRI 920
	Ground-water source	3.2 ISCOP	
	Water source	3.5 ISCOP	

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.
[b] This table is a replica of ASHRAE 90.1 Table 6.8.1-13 Electrically Operated DX-DOAS Units, Single-Package and Remote Condenser, without Energy Recovery—Minimum Efficiency Requirements.

Table C403.3.2(13)
Electrically Operated DX-DOAS Units, Single-Package and Remote Condenser, with Energy Recovery—Minimum Efficiency Requirements[b]

Equipment Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air cooled (dehumidification mode)		5.2 ISMRE	AHRI 920

Equipment Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air source heat pumps (dehumidification mode)		5.2 ISMRE	AHRI 920
Water cooled (dehumidification mode)	Cooling tower condenser water	5.3 ISMRE	AHRI 920
	Chilled water	6.6 ISMRE	
Air source heat pump (heating mode)		3.3 ISCOP	AHRI 920
Water source heat pump (dehumidification mode)	Ground source, closed loop	5.2 ISMRE	AHRI 920
	Ground-water source	5.8 ISMRE	
	Water source	4.8 ISMRE	
Water source heat pump (heating mode)	Ground source, closed loop	3.8 ISCOP	AHRI 920
	Ground-water source	4.0 ISCOP	
	Water source	4.8 ISCOP	

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.
[b] This table is a replica of ASHRAE 90.1 Table 6.8.1-14 Electrically Operated DX-DOAS Units, Single-Package and Remote Condenser, with Energy Recovery—Minimum Efficiency Requirements.

Table C403.3.2(14)
Electrically Water Source Heat Pumps—Minimum Efficiency Requirements[c]

Equipment Type	Size Category[b]	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Water to air, water loop (cooling mode)	< 17,000 Btu/h	All	86°F entering water	12.2 EER	ISO 13256-1
	≥ 17,000 Btu/h and < 65,000 Btu/h	All	86°F entering water	13.0 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	86°F entering water	13.0 EER	
Water to air, ground water (cooling mode)	< 135,000 Btu/h	All	59°F entering water	18.0 EER	
Brine to air, ground loop (cooling mode)	< 135,000 Btu/h	All	77°F entering water	14.1 EER	
Water to water, water loop (cooling mode)	< 135,000 Btu/h	All	86°F entering water	10.6 EER	ISO 13256-2
Water to water, ground water (cooling mode)	< 135,000 Btu/h	All	59°F entering water	16.3 EER	
Brine to water, ground loop (cooling mode)	< 135,000 Btu/h	All	77°F entering fluid	12.1 EER	
Water to air, water loop (heating mode)	< 135,000 Btu/h (cooling capacity)		68°F entering water	4.3 COP_H	ISO 13256-1
Water to air, ground water (heating mode)	< 135,000 Btu/h (cooling capacity)		50°F entering water	3.7 COP_H	
Brine to air, ground loop (heating mode)	< 135,000 Btu/h (cooling capacity)		32°F entering fluid	3.2 COP_H	
Water to water, water loop (heating mode)	< 135,000 Btu/h (cooling capacity)		68°F entering water	3.7 COP_H	ISO 13256-1

Equipment Type	Size Category[b]	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Water to water, ground water (heating mode)	< 135,000 Btu/h (cooling capacity)		50°F entering water	3.1 COP_H	ISO 13256-2
Brine to water, ground loop (heating mode)	< 135,000 Btu/h (cooling capacity)		32°F entering fluid	2.5 COP_H	ISO 13256-2

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

[b] Single-phase, U.S. air-cooled heat pumps less than 19 kW are regulated as consumer produces by DOE 10 C.F.R. 430. SCOPC, SCOP2C, SCOPH and SCOP2H values for single-phase products are set by the U.S. DOE.

[c] This table is a replica of ASHRAE 90.1 Table 6.8.1-15 Electrically Operated Water-Source Heat Pumps—Minimum Efficiency Requirements.

Table C403.3.2(15)
Heat-Pump and Heat Recovery Chiller Packages—Minimum Efficiency Requirements[g]

HEATING OPERATION																
Equipment Type	Size Category, ton_R	Cooling-Only Operation Cooling Efficiency[e] Air-Source EER (FL/IPLV), Btu/W×h Water-Source Power Input per Capacity (FL/IPLV), kW/ton_R		Heating Source Conditions (entering/leaving water) or OAT (db/wb), °F	Heat-Pump Heating Full-Load Efficiency (COP_H)[b], W/W				Heat Recovery Chiller Full-Load Efficiency (COP_{HR})[c,d], W/W Simultaneous Cooling and Heating Full-Load Efficiency (COP_{SHC})[c], W/W						Test Procedure[a]
					Leaving Heating Water Temperature				Leaving Heating Water Temperature						
					Low	Medium	High	Boost	Low	Medium	High	Boost			
		Path A	Path B		105°F	120°F	140°F	140°F	105°F	120°F	140°F	140°F			
Air source	All sizes	≥9.595 FL ≥13.02 IPLV.IP	≥9.215 FL ≥15.01 IPLV.IP	47 db 43 wb[e]	≥3.290	≥2.770	≥2.310	NA	NA	NA	NA	NA	AHRI 550/590		
		≥9.595 FL ≥13.30 IPLV.IP	≥9.215 FL ≥15.30 IPLV.IP	17 db 15 wb[e]	≥2.230	≥1.950	≥1.630	NA	NA	NA	NA	NA			
Water-source electrically operated positive displacement	< 75	≥0.7885 FL ≥0.6316 IPLV.IP	≥0.7875 FL ≥0.5145 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.330	≥6.410	≥4.420	NA			
				75/65[f]	NA	NA	NA	≥3.550	NA	NA	NA	≥6.150			
	≥ 75 and < 150	≥0.7579 FL ≥0.5895 IPLV.IP	≥0.7140 FL ≥0.4620 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.330	≥6.410	≥4.420	NA			
				75/65[f]	NA	NA	NA	≥3.550	NA	NA	NA	≥6.150			
	≥ 150 and < 300	≥0.6947 FL ≥0.5684 IPLV.IP	≥0.7140 FL ≥0.4620 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.330	≥6.410	≥4.420	NA			
				75/65[f]	NA	NA	NA	≥3.550	NA	NA	NA	≥6.150			
	≥ 300 and < 600	≥0.6421 FL ≥0.5474 IPLV.IP	≥0.6563 FL ≥0.4305 IPLV.IP	54/44[f]	≥4.930	≥3.960	≥2.970	NA	≥8.900	≥6.980	≥5.000	NA			
				75/65[f]	NA	NA	NA	≥3.990	NA	NA	NA	≥6.850			
	≥ 600	≥0.5895 FL ≥0.5263 IPLV.IP	≥0.6143 FL ≥0.3990 IPLV.IP	54/44[f]	≥4.930	≥3.960	≥2.970	NA	≥8.900	≥6.980	≥5.000	NA			
				75/65[f]	NA	NA	NA	≥3.990	NA	NA	NA	≥6.850			
Water-source electrically operated centrifugal	< 75	≥0.6421 FL ≥0.5789 IPLV.IP	≥0.7316 FL ≥0.4632 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.330	≥6.410	≥4.420	NA			
				75/65[f]	NA	NA	NA	≥3.550	NA	NA	NA	≥6.150			
	≥ 75 and < 150	≥0.5895 FL ≥0.5474 IPLV.IP	≥0.6684 FL ≥0.4211 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.330	≥6.410	≥4.420	NA			
				75/65[f]	NA	NA	NA	≥3.550	NA	NA	NA	≥6.150			
	≥ 150 and < 300	≥0.5895 FL ≥0.5263 IPLV.IP	≥0.6263 FL ≥0.4105 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.330	≥6.410	≥4.420	NA			
				75/65[f]	NA	NA	NA	≥3.550	NA	NA	NA	≥6.150			
	≥ 300 and < 600	≥0.5895 FL ≥0.5263 IPLV.IP	≥0.6158 FL ≥0.4000 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.900	≥6.980	≥5.000	NA			
				75/65[f]	NA	NA	NA	≥3.990	NA	NA	NA	≥6.850			
	≥ 600	≥0.5895 FL ≥0.5263 IPLV.IP	≥0.6158 FL ≥0.4000 IPLV.IP	54/44[f]	≥4.640	≥3.680	≥2.680	NA	≥8.900	≥6.980	≥5.000	NA			
				75/65[f]	NA	NA	NA	≥3.990	NA	NA	NA	≥6.850			

For SI: °C = [(°F) - 32]/1.8.

a Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

b Cooling-only rating conditions are standard rating conditions defined in AHRI 550/590, Table 1.

c Heating full-load rating conditions are at rating conditions defined in AHRI 550/590, Table 1.

d For water-cooled heat recovery chillers that have capabilities for heat rejection to a heat recovery condenser and a tower condenser, the COPHR applies to operation at full load with 100 percent heat recovery (no tower rejection). Units that only have capabilities for partial heat recovery shall meet the requirements of Table C403.3.2(3).

e Outdoor air entering dry-bulb (db) temperature and wet-bulb (wb) temperature.

f Source-water entering and leaving water temperature.

g This table is a replica of ASHRAE 90.1 Table 6.8.1-16 Heat-Pump and Heat Recovery Chiller Packages—Minimum Efficiency Requirements.

Table C403.3.2(16)

Ceiling-Mounted Computer-Room Air Conditioners—Minimum Efficiency Requirements[b]

Equipment Type	Standard Model	Net Sensible Cooling Capacity	Minimum Net Sensible COP	Rating Conditions Return Air (dry-bulb/dew point)	Test Procedure[a]
Air cooled with free air discharge condenser	Ducted	< 29,000 Btu/h	2.05	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	2.02		
		≥ 65,000 Btu/h	1.92		
	Nonducted	< 29,000 Btu/h	2.08		
		≥ 29,000 Btu/h and < 65,000 Btu/h	2.05		
		≥ 65,000 Btu/h	1.94		
Air cooled with free air discharge condenser with fluid economizer	Ducted	< 29,000 Btu/h	2.01	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.97		
		≥ 65,000 Btu/h	1.87		
	Nonducted	< 29,000 Btu/h	2.04		
		≥ 29,000 Btu/h and < 65,000 Btu/h	2.00		
		≥ 65,000 Btu/h	1.89		
Air cooled with ducted condenser	Ducted	< 29,000 Btu/h	1.86	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.83		
		≥ 65,000 Btu/h	1.73		
	Nonducted	< 29,000 Btu/h	1.89		
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.86		
		≥ 65,000 Btu/h	1.75		
Air cooled with fluid economizer and ducted condenser	Ducted	< 29,000 Btu/h	1.82	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.78		
		≥ 65,000 Btu/h	1.68		
	Nonducted	< 29,000 Btu/h	1.85		
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.81		
		≥ 65,000 Btu/h	1.70		
Water cooled	Ducted	< 29,000 Btu/h	2.38	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	2.28		
		≥ 65,000 Btu/h	2.18		
	Nonducted	< 29,000 Btu/h	2.41		
		≥ 29,000 Btu/h and < 65,000 Btu/h	2.31		
		≥ 65,000 Btu/h	2.20		

Equipment Type	Standard Model	Net Sensible Cooling Capacity	Minimum Net Sensible COP	Rating Conditions Return Air (dry-bulb/dew point)	Test Procedure[a]
Water cooled with fluid economizer	Ducted	< 29,000 Btu/h	2.33	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	2.23		
		≥ 65,000 Btu/h	2.13		
	Nonducted	< 29,000 Btu/h	2.36		
		≥ 29,000 Btu/h and < 65,000 Btu/h	2.26		
		≥ 65,000 Btu/h	2.16		
Glycol cooled	Ducted	< 29,000 Btu/h	1.97	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.93		
		≥ 65,000 Btu/h	1.78		
	Nonducted	< 29,000 Btu/h	2.00		
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.98		
		≥ 65,000 Btu/h	1.81		
Glycol cooled with fluid economizer	Ducted	< 29,000 Btu/h	1.92	75°F/52°F (Class 1)	AHRI 1360
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.88		
		≥ 65,000 Btu/h	1.73		
	Nonducted	< 29,000 Btu/h	1.95		
		≥ 29,000 Btu/h and < 65,000 Btu/h	1.93		
		≥ 65,000 Btu/h	1.76		

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) – 32]/1.8, COP = (Btu/h × hp)(2,550.7).

[a] Chapter 6 contains a complete specification of the referenced standards, which include test procedures, including the reference year version of the test procedure.

[b] This table is a replica of ASHRAE 90.1 Table 6.8.1-17 Ceiling-Mounted Computer-Room Air Conditioners—Minimum Efficiency Requirements.

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AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40334 Section C403.3.4—Boilers ((~~turndown~~)).

C403.3.4 Boiler requirements. Boiler equipment and systems shall comply with this section.

C403.3.4.1 Combustion air positive shut-off. Combustion air positive shut-off shall be provided on all newly installed *boiler systems* as follows:

1. All *boiler systems* with an input capacity of 2,500,000 Btu/h and above, in which the boiler is designed to operate with a nonpositive vent static pressure.

2. All *boiler systems* where one stack serves two or more boilers with a total combined input capacity per stack of 2,500,000 Btu/h.

C403.3.4.2 Boiler system oxygen concentration controls. Boiler system combustion air fans with motors 10 horsepower or larger shall meet one of the following for newly installed boilers:

1. The fan motor shall be driven by a variable speed drive; or

2. The fan motor shall include controls that limit the fan motor demand to no more than 30 percent of the total design wattage at 50 percent of design air volume.

C403.3.4.3 Boiler systems oxygen concentration controls. Newly installed *boiler systems* with a steady state full-load combustion efficiency less than 90 percent and an input capacity of 5,000,000 Btu/h and greater shall maintain stack-gas oxygen concentrations at less than or equal to the values specified in Table C403.3.4.3. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

Table C403.3.4.3
Boiler Stack-Gas Oxygen Concentrations

Boiler System Type	Minimum Stack-Gas Oxygen Concentration[a]
Commercial Boilers	5%
Process Boilers	3%

[a] Concentration levels measured by volume on a dry basis over firing rates of 20 to 100 percent.

C403.3.4.4 Boiler turndown. *Boiler systems* with design input of greater than 1,000,000 Btu/h (293 kW) shall comply with the turndown ratio specified in Table ((~~C403.3.4~~)) C403.3.4.4.

The system turndown requirement shall be met through the use of multiple single input boilers, one or more *modulating boilers* or a combination of single input and modulating boilers.

Table ((~~C403.3.4~~)) C403.3.4.4
Boiler Turndown

Boiler System Design Input (Btu/h)	Minimum Turndown Ratio
≥ 1,000,000 and less than or equal to 5,000,000	3 to 1
≥ 5,000,000 and less than or equal to 10,000,000	4 to 1
≥ 10,000,000	5 to 1

C403.3.4.5 Buildings with high-capacity space-heating gas boiler systems. New buildings with gas hot water boiler systems for space heating with a total system input of at least 1,000,000 Btu/h but not more than 10,000,000 Btu/h shall comply with this section.

EXCEPTIONS:
1. Where 25 percent of the annual space heating requirement is provided by site-recovered energy, or heat recovery chillers.
2. Space heating boilers installed in individual dwelling units.
3. Where 50 percent or more of the design heat load is served using perimeter convective heating, radiant ceiling panels, or both.
4. Individual gas boilers with input capacity less than 300,000 Btu/h shall not be included in the calculations of the total system input or total system efficiency.

C403.3.4.5.1 Boiler efficiency. Gas hot water boilers shall have a minimum thermal efficiency (Et) of 90 percent when rated in accordance with the test procedures in Table C403.3.2(6). Systems with multiple

boilers are allowed to meet this requirement if the space-heating input provided by equipment with thermal efficiency (Et) above and below 90 percent provides an input capacity-weighted average thermal efficiency of at least 90 percent. For boilers rated only for combustion efficiency, the calculation for the input capacity-weighted average thermal efficiency shall use the combustion efficiency value.

C403.3.4.5.2 Hot water distribution system design. The hot water distribution system shall be designed to meet all of the following:

1. Coils and other heat exchangers shall be selected so that at design conditions the hot water return temperature entering the boilers is 120°F (48.9°C) or less.

2. Under all operating conditions, the water temperature entering the boiler is 120°F (48.9°C) or less, or the flow rate of supply hot water that recirculates directly into the return system, such as three-way valves or minimum flow bypass controls, shall be no greater than 20 percent of the design flow of the operating boilers.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40334, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40334, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40335 Section C403.3.5—Dedicated outdoor air systems.

C403.3.5 Dedicated outdoor air systems (DOAS). For buildings with occupancies as shown in Table C403.3.5, outdoor air shall be provided to each occupied space by a dedicated outdoor air system (DOAS) which delivers 100 percent outdoor air without requiring operation of the heating and cooling system fans for ventilation air delivery.

EXCEPTIONS: 1. Occupied spaces that are not ventilated by a mechanical ventilation system and are only ventilated by a natural ventilation system in accordance with Section 402 of the *International Mechanical Code*.

2. High efficiency variable air volume (VAV) systems complying with Section C403.6.10 for occupancy classifications other than Groups A-1, A-2 and A-3 as specified in Table C403.3.5, and high efficiency VAV systems complying with Section C403.12 for occupancy classification Groups A-1, A-2 and A-3 as specified in Table C403.3.5. This exception shall not be used as a substitution for a DOAS per Section C406.6.

Table C403.3.5
Occupancy Classifications Requiring DOAS

Occupancy Classification[a]	Inclusions	Exempted
A-1	All occupancies not specifically exempted	Television and radio studios
A-2	Casinos (gaming area)	All other A-2 occupancies
A-3	Lecture halls, community halls, exhibition halls, gymnasiums, courtrooms, libraries, places of religious worship	All other A-3 occupancies
A-4, A-5		All occupancies excluded

Occupancy Classification[a]	Inclusions	Exempted
B	All occupancies not specifically exempted	Food processing establishments including commercial kitchens, restaurants, cafeterias; laboratories for testing and research; data processing facilities and telephone exchanges; air traffic control towers; animal hospitals, kennels, pounds; ambulatory care facilities
F, H, I, R, S, U		All occupancies excluded
E, M	All occupancies included	

a. Occupancy classification from the *International Building Code* Chapter 3.

C403.3.5.1 DOAS with energy recovery ventilation ((~~with DOAS~~)). The DOAS shall include energy recovery ((~~*ventilation*~~)). The *energy recovery ventilation* system shall have a ((~~60~~)) 68 percent minimum sensible recovery effectiveness of the energy recovery device as calculated in accordance with Equation 4-9 or have ((~~50~~)) 60 percent enthalpy recovery effectiveness in accordance with Section C403.7.6. ((~~For DOAS having a total fan system motor nameplate hp less than 5 hp, total combined fan power shall not exceed 1 W/cfm of outdoor air. For DOAS having a total fan system motor hp greater than or equal to 5 hp, refer to fan power limitations of Section C403.8.1. This fan power restriction applies to each dedicated outdoor air unit in the permitted project, but does not include the fan power associated with the zonal heating/cooling equipment. The airflow rate thresholds for energy recovery requirements in Tables C403.7.6(1) and C403.7.6(2) do not apply.~~)) The airflow rate thresholds in Section C403.7.6 that define when the energy recovery requirements in that section do not apply, are not applicable to this section. The return/exhaust air stream temperature for heat recovery device selection shall be 70°F (21°C) at 30 percent relative humidity, or as calculated by the registered design professional.

(Equation 4-9)

$$\text{Sensible Recovery Effectiveness} = \frac{T_{OA} - T_{SA}}{T_{OA} - T_{RA}}$$

Where:

T_{OA} = Design outdoor air dry bulb temperature entering the energy recovery device.

T_{SA} = Supply air dry bulb temperature leaving the energy recovery device at design temperatures and airflow conditions, as selected for the proposed DOAS unit(s).

T_{RA} = Design return air dry bulb temperature.

EXCEPTIONS: 1. ((~~Occupied spaces with all of the following characteristics: Complying with Section C403.7.6, served by equipment less than 5000 cfm, with an average occupant load greater than 25 people per 1000 square feet (93 m^2) of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) that include demand control ventilation configured to reduce outdoor air by at least 50 percent below design minimum ventilation rates when the actual occupancy of the space served by the system is less than the design occupancy.~~ 2.)) Systems installed for the sole purpose of providing makeup air for systems exhausting toxic, flammable, paint, or corrosive fumes or dust, dryer exhaust, or commercial kitchen hoods used for collecting and removing grease vapors and smoke.

2. Heat recovery and energy recovery ventilators (H/ERV) that are rated and *listed* in accordance with HVI 920 can demonstrate compliance with the sensible recovery effectiveness requirement using the adjusted sensible recovery effectiveness (ASRE) rating of the equipment at 32°F test conditions. Applied flow rate for ASRE rating shall be no less than the design flow rate or the closest value interpolated between two listed flow rates.

3. The energy recovery systems for Group R-2 occupancies are permitted to provide 60 percent minimum sensible heat recovery effectiveness in lieu of 68 percent sensible recovery effectiveness. The return/exhaust air stream temperature for heat recovery device selection shall be 70°F (21°C) or as determined by an *approved* calculation procedure.

C403.3.5.2 DOAS fan power. For a DOAS that does not have at least one fan or fan array with fan electrical input power ≥ 1 kW, the total combined fan power shall not exceed 1 watt per cfm of outdoor air as calculated in accordance with Equation 4-10 using design maximum airflows and external static pressures. For a DOAS with at least one fan or fan array with fan electrical input power ≥ 1 kW, the DOAS shall comply with the fan power limitations of Section C403.8.1. DOAS total combined fan power shall include all supply, exhaust and other fans utilized for the purpose of ventilation. This fan power restriction applies to each DOAS in the permitted project, but does not include the fan power associated with the zonal heating and cooling equipment.

(Equation 4-10)

DOAS Total Combined Fan Power $$\left(\frac{Watts}{CFM}\right) = \sum\left(\frac{Fan\ bhp}{\eta_m}\right) \times \frac{746}{CFM_{supply}}$$

Where:

Fan bhp	=	Brake horsepower for each supply, exhaust and other fan in the system at design maximum airflow rate.
η_m	=	Fan motor efficiency including all motor, drive and other losses for each fan in the system.
CFM_{supply}	=	Design maximum airflow rate of outdoor (supply) air.

C403.3.5.3 Heating((/)) and cooling system fan controls. Heating and cooling equipment fans, heating and cooling circulation pumps, and terminal unit fans shall cycle off and terminal unit primary cooling air shall be shut off when there is no call for heating or cooling in the *zone*.

EXCEPTION: Fans used for heating and cooling using less than 0.12 watts per cfm may operate when space temperatures are within the setpoint deadband (Section C403.4.1.2) to provide destratification and air mixing in the space.

((C403.3.5.3)) C403.3.5.4 Decoupled DOAS supply air. The DOAS supply air shall be delivered directly to the occupied space or downstream of the terminal heating and/or cooling coils.

EXCEPTIONS:
1. Active chilled beam systems.
2. Sensible only cooling terminal units with pressure independent variable airflow regulating devices limiting the DOAS supply air to the greater of latent load or minimum ventilation requirements.
3. Terminal heating and/or cooling units that comply with the low fan power allowance requirements in the exception of Section ((C403.3.5.2)) C403.3.5.3.

C403.3.5.5 Supplemental heating and cooling. Supply air stream heating in the DOAS system shall comply with Section C403.7.3. Cooling is permitted for dehumidification only. Cooling coil shall be sized to meet peak dehumidification requirement at design outdoor temperatures, and no larger. Cooling coil shall be controlled to maintain supply air RH or *zone* RH.

EXCEPTION: Heating permitted for defrost control shall be locked out when outside air temperatures are above 35°F (2°C). Supplemental heating for defrost shall modulate to 10 percent of the peak capacity, and shall be sized to prevent frost/damage dame to the unit at design temperatures and provide supply air less than or equal to 55°F (13°C).

((C403.3.5.4)) C403.3.5.6 Impracticality. Where the *code official* determines that full compliance with ((all)) one or more of the requirements ((of)) in Sections C403.3.5.1 ((and C403.3.5.2 would be)) through C403.3.5.5 is impractical, it is permissible to provide an approved alternate means of compliance that achieves a comparable level of energy efficiency as the requirement(s) deemed impractical. For the purposes of this section, impractical means that an HVAC system com-

plying with all requirements in Section C403.3.5 cannot effectively be utilized due to an unusual use or configuration of the building.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40335, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40335, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40336 Section C403.3.6—Ventilation for Group R-2 occupancy.

C403.3.6 Ventilation for Group R-2 occupancy. For all Group R-2 dwelling and sleeping units, a balanced ventilation system with a heat recovery system ((~~with minimum 60 percent sensible recovery effectiveness~~)) shall provide outdoor air directly to all habitable spaces. The heat recovery system shall have a 60 percent minimum *sensible recovery effectiveness* as calculated in accordance with Section C403.3.5.1. The ventilation system shall allow for the design flow rates to be tested and verified at each habitable space as part of the commissioning process in accordance with Section C408.2.2.

EXCEPTION: Heat recovery and energy recovery ventilators (H/ERV) that are rated and *listed* in accordance with HVI 920 can demonstrate compliance with the sensible recovery effectiveness requirement using the adjusted sensible recovery effectiveness (ASRE) rating of the equipment at 32°F test conditions. Applied flow rate for ASRE rating shall be no less than the design flow rate or the closest value interpolated between two listed flow rates.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40336, filed 11/26/19, effective 7/1/20.]

NEW SECTION

WAC 51-11C-40337 Section C403.3.7—Hydronic system flow rate.

C403.3.7 Hydronic system flow rate. Chilled water and condenser water piping shall be designed such that the design flow rate in each pipe segment shall not exceed the values listed in Table C403.3.7 for the appropriate total annual hours of operation. Pipe sizes for systems that operate under variable flow conditions (e.g., modulating 2-way control valves at coils) and that contain variable speed pump motors are permitted to be selected from the "Variable Flow/Variable Speed" columns. All others shall be selected from the "Other" columns.

EXCEPTION: Design flow rates exceeding the values in Table C403.3.7 are permitted in specific sections of pipe if the pipe is not in the critical circuit at design conditions and is not predicted to be in the critical circuit during more than 30 percent of operating hours.

Table C403.3.7
Piping System Design Maximum Flow Rate in GPM[a]

Pipe Size	≤ 2000 hours/year		> 2000 and ≤ 4400 hours/year		> 4400 hours/year	
(in)	Other	Variable Flow/ Variable Speed	Other	Variable Flow/ Variable Speed	Other	Variable Flow/ Variable Speed
2 1/2	120	180	85	130	68	110
3	180	270	140	210	110	170
4	350	530	260	400	210	320
5	410	620	310	470	250	370
6	740	1100	570	860	440	680
8	1200	1800	900	1400	700	1100
10	1800	2700	1300	2000	1000	1600
12	2500	3800	1900	2900	1500	2300
Maximum velocity for pipes over 14 to 24 in. in size	8.5 ft/s	13.0 ft/s	6.5 ft/s	9.5 ft/s	5.0 ft/s	7.5 ft/s

[a] There are no requirements for pipe sizes smaller than the minimum size or larger than the maximum size shown in the table.

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NEW SECTION

WAC 51-11C-40338 Section C403.3.8—Hydronic coils.

C403.3.8 Hydronic coil selection. Hydronic coils shall comply with Sections C403.3.8.1 and C403.3.8.2.

EXCEPTION: Replacement coils within existing equipment.

C403.3.8.1 Chilled-water coil selection. Chilled-water cooling coils shall be selected to provide a 15°F or higher temperature difference between leaving and entering water temperatures and a minimum of 57°F leaving water temperature at design conditions.

EXCEPTIONS:
1. Chilled-water cooling coils that have an airside pressure drop exceeding 0.70 in. of water when rated at 500 fpm face velocity and dry conditions (no condensation).
2. Individual fan-cooling units with a design supply airflow rate ≤ 5000 cfm.
3. Constant-air-volume systems.
4. Coils selected at the maximum temperature difference allowed by the chiller.
5. Passive coils (no mechanically supplied airflow).
6. Coils with design entering chilled-water temperature ≥ 50°F (10°C).
7. Coils with design entering air dry-bulb temperature ≤ 65°F (18°C).

C403.3.8.2 Hot-water coil selection. Hot-water heating coils shall be selected to provide a maximum 20°F temperature difference between leaving and entering water temperatures and a maximum of 118°F (48°C) entering water temperature at design conditions.

EXCEPTIONS:
1. Hot-water heating systems which utilize heat pumps as the primary source.
2. Individual fan units with a design supply airflow rate ≤ 1000 cfm.
3. Passive coils (no mechanically supplied airflow).
4. Coils with design leaving air temperature ≥ 95°F (35°C).

[]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40340 Section C403.4—HVAC system controls.

C403.4 HVAC system controls. HVAC systems shall be provided with controls in accordance with Sections C403.4.1 through ((~~C403.4.11~~)) C403.4.12 and shall be capable of and configured to implement all required control functions in this code.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40340, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40340, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40340, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40341 Section C403.4.1—Thermostatic controls.

C403.4.1 Thermostatic controls. The supply of heating and cooling energy to each *zone* shall be controlled by individual thermostatic controls capable of responding to temperature within the *zone*. Controls in the same zone or in neighboring zones connected by openings larger than 10 percent of the floor area of either zone shall not allow for simultaneous heating and cooling. At a minimum, each floor of a building shall be considered as a separate zone. Controls on systems required to have economizers and serving single zones shall have multiple cooling stage capability and activate the economizer when appropriate as the first stage of cooling. See Section C403.5 for further economizer requirements. Where humidification or dehumidification or both is provided, at least one humidity control device shall be provided for each humidity control system.

EXCEPTIONS:

1. Independent perimeter systems that are designed to offset only building envelope heat losses or gains or both serving one or more perimeter *zones* also served by an interior system provided:
1.1. The perimeter system includes at least one thermostatic control *zone* for each building exposure having exterior walls facing only one orientation (within +/-45 degrees) (0.8 rad) for more than 50 contiguous feet (15,240 mm);
1.2. The perimeter system heating and cooling supply is controlled by a thermostat located within the *zones* served by the system; and
1.3. Controls are configured to prevent the perimeter system from operating in a different heating or cooling mode from the other equipment within the zones or from neighboring zones connected by openings larger than 10 percent of the floor area of either zone.
2. ((~~Any interior zone open to a perimeter zone shall have setpoints and deadbands coordinated so that cooling in the interior zone shall not operate while the perimeter zone is in heating until the interior zone temperature is 5°F (2.8°C) higher than the perimeter zone temperature, unless the interior and perimeter zones are separated by a partition whose permanent openings are smaller than 10 percent of the perimeter zone floor area.~~)) Where an interior zone and a perimeter zone are open to each other with permanent openings larger than 10 percent of the floor area of either zone, cooling in the interior zone is permitted to operate at times when the perimeter zone is in heating and the interior zone temperature is at least 5°F (2.8°C) higher than the perimeter zone temperature. For the purposes of this exception, a permanent opening is an opening without doors or other operable closures.
3. Dedicated outdoor air units that provide ventilation air, make-up air or replacement air for exhaust systems are permitted to be controlled based on supply air temperature. The supply air temperature shall be controlled to a maximum of 65°F (18.3°C) in heating and a minimum of 72°F (22°C) in cooling unless the supply air temperature is being reset based on the status of cooling or heating in the zones served or it being reset based on outdoor air temperature.

C403.4.1.1 Heat pump supplementary heat. Unitary air cooled heat pumps shall include microprocessor controls that minimize supplemental heat usage during start-up, set-up, and defrost conditions. These controls shall anticipate need for heat and use compression heating as the first stage of heat. Controls shall indicate when supplemental heating is being used through visual means (e.g., LED indicators). Heat pumps

equipped with supplementary heaters shall be installed with controls that prevent supplemental heater operation above 40°F (4.4°C).

EXCEPTION: Packaged terminal heat pumps (PTHPs) of less than 2 tons (24,000 Btu/hr) cooling capacity ((~~provided with controls that prevent supplementary heater operation above 40°F (4.4°C)~~)) that have reverse-cycle demand defrost and are configured to operate in heat pump mode whenever the outdoor air temperatures are above 25°F (-3.9°C) and the unit is not in defrost.

C403.4.1.2 Deadband. Where used to control both heating and cooling, zone thermostatic controls shall be configured to provide a temperature range or deadband of at least 5°F (2.8°C) within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum.

EXCEPTIONS: 1. Thermostats requiring manual changeover between heating and cooling modes.
2. Occupancies or applications requiring precision in indoor temperature control as *approved* by the *code official*.

C403.4.1.3 Setpoint overlap restriction. Where a *zone* has a separate heating and a separate cooling thermostatic control located within the zone, a limit switch, mechanical stop or direct digital control system with software programming shall be configured to prevent the heating setpoint from exceeding the cooling setpoint and to maintain a deadband in accordance with Section C403.4.1.2.

C403.4.1.4 Heated or cooled vestibules and air curtains. The heating system for heated vestibules and air curtains with integral heating shall be provided with controls configured to shut off the source of heating when the outdoor air temperature is greater than 45°F (7°C). Vestibule heating and cooling systems shall be controlled by a thermostat located in the vestibule configured to limit heating to a temperature not greater than 60°F (16°C) and cooling to a temperature not less than 85°F (29°C).

EXCEPTIONS: 1. Control of heating or cooling provided by transfer air that would otherwise be exhausted.
2((~~.~~)). Vestibule heating only systems are permitted to be controlled without an outdoor air temperature lockout when controlled by a thermostat located in the vestibule configured to limit heating to a temperature not greater than 45°F (7°C) where required for freeze protection of piping and sprinkler heads located in the vestibule.

C403.4.1.5 Hot water boiler outdoor temperature setback control. Hot water boilers that supply heat to the building through one- or two-pipe heating systems shall have an outdoor setback control that lowers the boiler water temperature based on the outdoor temperature.

C403.4.1.6 ((~~Door~~)) Operable opening switches for HVAC system thermostatic control. ((~~Doors~~)) Operable openings meeting the minimum size criteria of Section C402.5.11 and that open to the outdoors from a conditioned space must have controls configured to do the following once doors have been open for 5 minutes:

1. Disable the mechanical heating to the zone or reset the space heating temperature setpoint to 55°F or less within 5 minutes of the door open enable signal.

2. Disable the mechanical cooling to the zone or reset the space cooling temperature setpoint to 85°F or more within 5 minutes of the door open enable signal.

EXCEPTION((~~S~~)): ((~~1. Building entrances with vestibules.~~)) Hydronic radiant heating and cooling systems.
((~~2. Alterations to existing buildings.~~
~~3. Loading docks.~~))

C403.4.1.7 Demand responsive controls. All thermostatic controls shall be provided with *demand responsive controls* capable of increasing the cooling setpoint and decreasing the heating setpoint by no less than 4°F (2.2°C). The thermostatic controls shall be capable of performing all other functions provided by the control when the *demand responsive controls* are not available. Systems with *direct digital control* of individual *zones* report to a central control panel shall be capable of

remotely increasing the cooling setpoint and decreasing the heating setpoint for each *zone* by no less than 4°F (2.2°C).

EXCEPTION: Health care and assisted living facilities.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40341, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40341, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-122, § 51-11C-40341, filed 12/3/14, effective 1/3/15. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-20-120, § 51-11C-40341, filed 10/1/13, effective 11/1/13. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40341, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40342 Section C403.4.2—Off-hour controls.

C403.4.2 Off-hour controls. For all occupancies other than Group R, each *zone* shall be provided with thermostatic setback controls that are controlled by either an automatic time clock or programmable control system.

EXCEPTIONS: 1. *Zones* that will be operated continuously.
2. *Zones* with a full HVAC load demand not exceeding 6,800 Btu/h (2 kW) and having a manual shutoff switch located with *ready access*.

C403.4.2.1 Thermostatic setback. Thermostatic setback controls shall be configured to set back or temporarily operate the system to maintain *zone* temperatures down to 55°F (13°C) or up to 85°F (29°C).

C403.4.2.2 Automatic setback and shutdown. Automatic time clock or programmable controls shall be capable of starting and stopping the system for seven different daily schedules per week and retaining their programming and time setting during a loss of power for at least 10 hours. Additionally, the controls shall have a manual override that allows temporary operation of the system for up to 2 hours; a manually operated timer configured to operate the system for up to 2 hours; or an occupancy sensor.

C403.4.2.3 Automatic start and stop. Automatic start and stop controls shall be provided for each HVAC system. The automatic start controls shall be configured to automatically adjust the daily start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy. Automatic stop controls shall be provided for each HVAC system with direct digital control of individual zones. The automatic stop controls shall be configured to reduce the HVAC system's heating temperature setpoint and increase the cooling temperature setpoint by at least 2°F (1.1°C) before scheduled unoccupied periods based upon the thermal lag and acceptable drift in space temperature that is within comfort limits. ((~~At a minimum, the controls shall be a function of the space temperature, occupied and unoccupied temperatures, and the amount of time prior to scheduled occupancy.~~))

C403.4.2.4 Exhaust system off-hour controls. For all occupancies other than Group R, exhaust systems serving spaces within the conditioned envelope shall be controlled by either an automatic time clock, thermostatic controls or programmable control system to operate on the same schedule as the HVAC systems providing their make-up air.

EXCEPTIONS: 1. Exhaust systems requiring continuous operation.
2. Exhaust systems that are controlled by occupancy sensor control configured with automatic on and automatic shutoff within 15 minutes after occupants have left the space.

C403.4.2.5 Transfer and destratification fan system off-hour controls. For all occupancies other than Group R, transfer fan or mixing fan systems serving spaces within the conditioned envelope shall be controlled by either an automatic time clock, thermostatic controls or programmable control system to operate on the same schedule as the associated HVAC systems.

EXCEPTION: Transfer fan and destratification fan systems that are controlled by occupancy sensor control configured with manual on and automatic shutoff within 15 minutes after occupants have left the space.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40342, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40342, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40342, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40344 Section C403.4.4—Part load controls.

C403.4.4 Part load controls. Hydronic systems greater than or equal to 300,000 Btu/h (88 kW) in design output capacity supplying heated or chilled water to comfort conditioning systems shall include controls that are configured to:

1. Automatically reset the supply-water temperatures in response to varying building heating and cooling demand using coil valve position, zone-return water temperature or outdoor air temperature. The temperature shall be reset by not less than 25 percent of the design supply-to-return water temperature difference.

EXCEPTIONS: 1. Hydronic systems serving hydronic heat pumps.
2. Hydronic systems with thermal energy storage where resetting the supply-water temperature would reduce the capacity of the storage.

2. Automatically vary fluid flow for hydronic systems with a combined pump motor capacity of 2 hp or larger with three or more control valves or other devices by reducing the system design flow rate by not less than 50 percent or the maximum reduction allowed by the equipment manufacturer for proper operation of equipment by valves that modulate or step open and close, or pumps that modulate or turn on and off as a function of load.

3. Automatically vary pump flow on heating water systems, chilled-water systems and heat rejection loops serving water-cooled unitary air conditioners as follows:

3.1. Where pumps operate continuously or operate based on a time schedule, pumps with nominal output motor power of 2 hp or more shall have a variable speed drive.

3.2. Where pumps have automatic direct digital control configured to operate pumps only when zone heating or cooling is required, a variable speed drive shall be provided for pumps with motors having the same or greater nominal output power indicated in Table C403.4.4 based on the climate zone and system served.

4. Where variable speed drive is required by Item 3 of this section, pump motor power input shall be not more than 30 percent of design wattage at 50 percent of the design water flow. Pump flow shall be controlled to maintain one control valve nearly wide open or to satisfy the minimum differential pressure.

EXCEPTIONS:
1. Supply-water temperature reset is not required for chilled-water systems supplied by off-site district chilled water or chilled water from ice storage systems.
2. Variable pump flow is not required on dedicated coil circulation pumps where needed for freeze protection.
3. Variable pump flow is not required on dedicated equipment circulation pumps where configured in primary/secondary design to provide the minimum flow requirements of the equipment manufacturer for proper operation of equipment.
4. Variable speed drives are not required on heating water pumps where more than 50 percent of annual heat is generated by an electric boiler.

Table C403.4.4
Variable Speed Drive (VSD) Requirements for Demand-Controlled Pumps

Climate Zones 4c, 5b	VSD Required for Motors with Rated Output of at Least
Heating water pumps	≥7.5 hp
Chilled water and heat rejection loop pumps	≥7.5 hp

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40344, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-062, § 51-11C-40344, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40344, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40344, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40349 Sections C403.4.11((~~—DDC systems~~)) and C403.4.12.

C403.4.11 Direct digital control systems. Direct digital control (DDC) shall be required as specified in Sections C403.4.11.1 through ((~~C403.4.11.3~~)) C403.4.11.4.

C403.4.11.1 DDC applications. DDC shall be provided in the applications and qualifications listed in Table C403.4.11.1 and for load management measures where installed to meet the requirements of Section C406.3.

C403.4.11.2 DDC controls. Where DDC is required by Section C403.4.11.1, the DDC system shall be ((~~capable of~~)) configured to perform all of the following functions, as required to provide the system and zone control logic required in Sections C403.2, C403.5, C403.6.8 and C403.4.3:

1. ((~~Monitoring~~)) Monitor zone and system demand for fan pressure, pump pressure, heating and cooling.

2. ((~~Transferring~~)) Transfer zone and system demand information from zones to air distribution system controllers and from air distribution systems to heating and cooling plant controllers.

C403.4.11.3 DDC display. Where DDC is required by Section C403.4.11.1 for new buildings, the DDC system shall be ((~~capable of~~)) configured to gather and provide trending data and graphically displaying input and output points.

C403.4.11.4 DDC demand response setpoint adjustment. Where DDC is required by Section C403.4.11.1 for new buildings and serve mechanical systems with a cooling capacity exceeding 780,000 Btu/h (2,662 kW), the *DDC system* shall be capable of demand response setpoint adjustment. The *DDC system* shall be configured with control logic to increase the cooling zone setpoints by at least 2°F (1°C) and reduce the heating zone setpoints by at least 2°F (1°C) when activated by a *demand response signal*. The *demand response signal* shall be a binary input to the control system or other interface approved by the serving electric utility.

Table C403.4.11.1
DDC Applications and Qualifications

Building Status	Application	Qualifications
New building	((~~Air-handling system and all zones served by the system~~	~~All air-handling systems in buildings with building cooling capacity greater than 780,000 Btu/h~~))
	Air-handling system and all zones served by the system	Individual systems supplying more than three zones and with fan system bhp of 10 hp and larger
	Chilled-water plant and all coils and terminal units served by the system	Individual plants supplying more than three zones and with design cooling capacity of 300,000 Btu/h and larger
	Hot-water plant and all coils and terminal units served by the system	Individual plants supplying more than three zones and with design heating capacity of 300,000 Btu/h and larger
Alteration or addition	Zone terminal unit such as VAV box	Where existing zones served by the same air-handling, chilled-water, or hot-water system have DDC
	Air-handling system or fan coil	Where existing air-handling system(s) and fan coil(s) served by the same chilled- or hot-water plant have DDC
	New air-handling system and all new zones served by the system	Individual systems with fan system bhp of 10 hp and larger and supplying more than three zones and more than 75 percent of zones are new
	New or upgraded chilled-water plant	Where all chillers are new and plant design cooling capacity is 300,000 Btu/h and larger
	New or upgraded hot-water plant	Where all boilers are new and plant design heating capacity is 300,000 Btu/h and larger

C403.4.12 Pressure independent control valves. Where design flow rate of heating water and chiller water coils is 5 gpm or higher, modulating pressure independent control valves shall be provided.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40349, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40350 Section C403.5—Economizers.

C403.5 Economizers. Air economizers shall be provided on all new cooling systems including those serving computer server rooms, electronic equipment, radio equipment, and telephone switchgear. Economizers shall comply with Sections C403.5.1 through C403.5.5.

EXCEPTIONS:

1. For other than Group R-2 occupancies, cooling system((s)) where the supply fan is not installed ((~~outdoors~~)) outside the *building thermal envelope* nor in a *mechanical room* adjacent to outdoors, and is installed in conjunction with DOAS complying with Section C403.3.5 and serving only spaces with year-round cooling loads from lights and equipment of less than 5 watts per square foot.
2. Unitary or packaged systems serving one zone with dehumidification that affect other systems so as to increase the overall building energy consumption. New humidification equipment shall comply with Section ((~~C403.3.2.5~~)) C403.3.2.7.
3. Unitary or packaged systems serving one zone where the cooling efficiency meets or exceeds the efficiency requirements in Table C403.5.
4. Equipment serving chilled beams and chilled ceiling space cooling systems only which are provided with a water economizer meeting the requirements of Section C403.5.4.
5. For Group R occupancies, cooling unit((s)) where the supply fan is not installed ((~~outdoors~~)) outside the *building thermal envelope* or in a *mechanical room* adjacent to outdoors with a total cooling capacity less than 20,000 Btu/h and other cooling units with a total cooling capacity less than 54,000 Btu/h provided that these are high-efficiency cooling equipment with IEER, CEER, SEER, and EER values more than 15 percent higher than minimum efficiencies listed in ((~~Tables C403.3.2 (1) through (3)~~)) the tables in Section C403.3.2, in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. For split systems, compliance is based on the cooling capacity of individual fan coil units.
6. Equipment used to cool *Controlled Plant Growth Environments* provided these are high-efficiency cooling equipment with SEER, EER and IEER values a minimum of 20 percent greater than the values listed in Tables C403.3.2 (1), (3), (4), and (((~~7~~))) (15).
7. Equipment serving a space with year-round cooling loads from lights and equipment of 5 watts per square foot or greater complying with the following criteria:
   7.1. Equipment serving the space utilizes chilled water as the cooling source; and
   7.2. The chilled water plant includes a condenser heat recovery system that meets the requirements of Section C403.9.5 or the building and water-cooled system meets the following requirements:
   7.2.1. A minimum of 90 percent (capacity-weighted) of the building space heat is provided by hydronic heating water.
   7.2.2. Chilled water plant includes a heat recovery chiller or water-to-water heat pump capable of rejecting heat from the chilled water system to the hydronic heating equipment capacity.
   7.2.3. Heat recovery chillers shall have a minimum COP of 7.0 when providing heating and cooling water simultaneously.
8. Water-cooled equipment served by systems meeting the requirements of Section C403.9.2.4 Condenser heat recovery.
9. Equipment used to cool any dedicated server room, electronic equipment room or telecom switch room provided the system complies with option a, b, or c in the table below. The total cooling capacity of all fan systems without economizers shall not exceed 240,000 Btu/h per building or 10 percent of its air economizer capacity, whichever is greater. This exception shall not be used for total building performance.
10. Dedicated outdoor air systems that include energy recovery as required by Section C403.7.6 but do not include mechanical cooling.
11. Dedicated outdoor air systems not required by Section C403.7.6 to include energy recovery that modulate the supply airflow to provide only the minimum outdoor air required by Section C403.2.2.1 for ventilation, exhaust air make-up, or other process air delivery.

	Equipment Type	Higher Equipment Efficiency	Part-Load Control	Economizer
Option a	Tables C403.3.2(1), C403.3.2(2) and C403.3.2(((~~2~~))) (14)[a]	+15%[b]	Required over 85,000 Btu/h[c]	None Required
Option b	Tables C403.3.2(1), C403.3.2(2) and C403.3.2(((~~2~~))) (14)[a]	+5%[d]	Required over 85,000 Btu/h[c]	Waterside Economizer[e]
Option c	ASHRAE Standard 127[f]	+0%[g]	Required over 85,000 Btu/h[c]	Waterside Economizer[e]

Notes for Exception 9:

[a] For a system where all of the cooling equipment is subject to the AHRI standards listed in Tables C403.3.2(1), C403.3.2(2), and C403.3.2(((~~2~~))) (14), the system shall comply with all of the following (note that if the system contains any cooling equipment that exceeds the capacity limits in Table C403.3.2(1), C403.3.2(2), or C403.3.2(((~~2~~))) (14), or if the system contains any cooling equipment that is not included in Table C403.3.2(1), C403.3.2(2), or C403.3.2(((~~2~~))) (14), then the system is not allowed to use this option).

[b] The cooling equipment shall have an EER value and an IPLV value that is a minimum of 15 percent greater than the value listed in Tables C403.3.2(1), C403.3.2(2), and C403.3.2(((~~2~~))) (14).

[c] For units with a total cooling capacity over 85,000 Btu/h, the system shall utilize part-load capacity control schemes that are able to modulate to a part-load capacity of 50 percent of the load or less that results in the compressor operating at the same or higher EER at part loads than at full load (e.g., minimum of two-stages of compressor unloading such as cylinder unloading, two-stage scrolls, dual tandem scrolls, but hot gas bypass is not credited as a compressor unloading system).

[d] The cooling equipment shall have an EER value and an IPLV value that is a minimum of 5 percent greater than the value listed in Tables C403.3.2(1), C403.3.2(2), and C403.3.2(((~~2~~))) (14).

[e] The system shall include a water economizer in lieu of air economizer. Water economizers shall meet the requirements of C403.5.1 and C403.5.2 and be capable of providing the total concurrent cooling load served by the connected terminal equipment lacking airside economizer, at outside air temperatures of 50°F dry-bulb/45°F wet-bulb and below. For this calculation, all factors including solar and internal load shall be the same as those used for peak load calculations, except for the outside temperatures. The equipment shall be served by a dedicated condenser water system unless a nondedicated condenser water system exists that can provide appropriate water temperatures during hours when waterside economizer cooling is available.

[f] For a system where all cooling equipment is subject to ASHRAE Standard 127.

gThe cooling equipment subject to the ASHRAE Standard 127 shall have an EER value and an IPLV value that is equal to or greater than the value listed in Tables C403.3.2(1), C403.3.2(2), and C403.3.2((~~(2)~~)) (14) when determined in accordance with the rating conditions ASHRAE Standard 127 (i.e., not the rating conditions in AHRI Standard 210/240 or 340/360). This information shall be provided by an independent third party.

Table C403.5
Equipment Efficiency Performance
Exception for Economizers

Climate Zones	Efficiency Improvement[a]
4C	64%
5B	59%

[a] If a unit is rated with an IPLV, IEER or SEER then to eliminate the required air or water economizer, the minimum cooling efficiency of the HVAC unit must be increased by the percentage shown. If the HVAC unit is only rated with a full load metric like EER or COP cooling, then these must be increased by the percentage shown.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40350, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40350, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40350, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40355 Section C403.5.5—Economizer fault detection and diagnostics.

C403.5.5 Economizer fault detection and diagnostics (FDD). Air-cooled unitary direct-expansion units with a cooling capacity of 54,000 Btu/h or greater listed in ((~~Tables C403.3.2(1) through C403.3.2(3)~~)) the tables in Section C403.3.2 that are equipped with an economizer in accordance with Section C403.5 shall include a fault detection and diagnostics (FDD) system complying with the following:

1. The following temperature sensors shall be permanently installed to monitor system operation:
   1.1. Outside air.
   1.2. Supply air.
   1.3. Return air.
2. Temperature sensors shall have an accuracy of ±2°F (1.1°C) over the range of 40°F to 80°F (4°C to 26.7°C).
3. Refrigerant pressure sensors, where used, shall have an accuracy of ±3 percent of full scale.
4. The unit controller shall be configured to provide system status by indicating the following:
   4.1. Free cooling available.
   4.2. Economizer enabled.
   4.3. Compressor enabled.
   4.4. Heating enabled.
   4.5. Mixed air low limit cycle active.
   4.6. The current value of each sensor.
5. The unit controller shall be capable of manually initiating each operating mode so that the operation of compressors, economizers, fans and the heating system can be independently tested and verified.

6. The unit shall be configured to report faults to a fault management application available for access by day-to-day operating or service personnel or annunciated locally on zone thermostats.

7. The FDD system shall be configured to detect the following faults:

7.1. Air temperature sensor failure/fault.

7.2. Not economizing when the unit should be economizing.

7.3. Economizing when the unit should not be economizing.

7.4. Damper not modulating.

7.5. Excess outdoor air.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40355, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40360 Section C403.6—Requirements for mechanical systems serving multiple zones.

C403.6 Requirements for mechanical systems serving multiple zones. Sections C403.6.1 through C403.6.10 shall apply to mechanical systems serving multiple zones.

C403.6.1 Variable air volume (VAV) and multiple zone systems. Supply air systems serving multiple zones shall be VAV systems that have zone controls configured to reduce the volume of air that is reheated, recooled or mixed in each *zone* to one of the following:

1. Twenty percent of the zone design peak supply for systems with *direct digital control* (DDC) and 30 percent of the maximum supply air for other systems.

2. Systems with DDC where items 2.1 through 2.3 apply.

2.1. The airflow rate in the deadband between heating and cooling does not exceed 20 percent of the zone design peak supply rate or higher allowed rates under Items 3, 4, or 5 of this section.

2.2. The first stage of heating modulates the zone supply air temperature setpoint up to a maximum setpoint while the airflow is maintained at the deadband flow rate.

2.3. The second stage of heating modulates the airflow rate from the deadband flow rate up to the heating maximum flow rate that is less than 50 percent of the zone design peak supply rate.

3. The outdoor airflow rate required to meet the minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.

4. Any higher rate that can be demonstrated to reduce overall system annual energy use by offsetting reheat/recool energy losses through a reduction in outdoor air intake for the system, as *approved* by the code official.

5. The airflow rates to comply with applicable codes or accreditation standards such as pressure relationships or minimum air change rates.

EXCEPTION: The following individual *zones* or entire air distribution systems are exempted from the requirement for VAV control:
1. *Zones* or supply air systems where not less than 75 percent of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered source, including condenser heat.
2. Systems that prevent reheating, recooling, mixing or simultaneous supply of air that has been previously cooled, either mechanically or through the use of economizer systems, and air that has been previously mechanically heated.
3. Ventilation systems complying with Section C403.3.5, DOAS, with ventilation rates comply with Section C403.2.2.

C403.6.2 Single duct variable air volume (VAV) systems, terminal devices. Single duct VAV systems shall use terminal devices capable of and configured to reduce the supply of primary supply air before reheating or recooling takes place.

C403.6.3 Dual duct and mixing VAV systems, terminal devices. Systems that have one warm air duct and one cool air duct shall use terminal devices which are capable of and configured to reduce the flow from one duct to a minimum before mixing of air from the other duct takes place.

C403.6.4 Supply-air temperature reset controls. Multiple *zone* HVAC systems shall include controls that are capable of and configured to automatically reset the supply-air temperature in response to representative building loads, or to outdoor air temperature. The controls shall be configured to reset the supply air temperature at least 25 percent of the difference between the design supply-air temperature and the design room air temperature. Controls that adjust the reset based on zone humidity are allowed. HVAC zones that are expected to experience relatively constant loads shall have maximum airflow designed to accommodate the fully reset supply air temperature.

EXCEPTIONS: 1. Systems that prevent reheating, recooling or mixing of heated and cooled supply air.
2. Seventy-five percent of the energy for reheating is from a site-recovered source.
((~~3. Zones with peak supply air quantities of 300 cfm (142 L/s) or less.~~))

C403.6.5 Multiple-zone VAV system ventilation optimization control. Multiple-zone VAV systems with direct digital control of individual zone boxes reporting to a central control panel shall have automatic controls configured to reduce outdoor air intake flow below design rates in response to changes in system ventilation efficiency (E_v) as defined by the *International Mechanical Code*.

EXCEPTIONS: 1. VAV systems with zonal transfer fans that recirculate air from other zones without directly mixing it with outdoor air, dual-duct dual-fan VAV systems, and VAV systems with fan-powered terminal units.
2. Systems where total design exhaust airflow is more than 70 percent of total design outdoor air intake flow requirements.

C403.6.6 Parallel-flow fan-powered VAV air terminal control. Parallel-flow fan-powered VAV air terminals shall have automatic controls configured to:

1. Turn off the terminal fan except when space heating is required or where required for ventilation.

2. Turn on the terminal fan as the first stage of heating before the heating coil is activated.

3. During heating for warmup or setback temperature control, either:

3.1. Operate the terminal fan and heating coil without primary air.

3.2. Reverse the terminal damper logic and provide heating from the central air handler by primary air.

((~~**C403.6.7 Hydronic and multiple-zone HVAC system controls and equipment.** Hydronic and multiple-zone HVAC system controls and equipment shall comply with this section.~~

~~For buildings with a total equipment cooling capacity of 300 tons and above, the equipment shall comply with one of the following:~~

~~1. No one unit shall have a cooling capacity of more than 2/3 of the total installed cooling equipment capacity;~~

~~2. The equipment shall have a variable speed drive; or~~

~~3. The equipment shall have multiple compressors.~~))

C403.6.7 Reserved.

C403.6.8 Set points for direct digital control. For systems with direct digital control of individual *zones* reporting to the central control panel, the static pressure setpoint shall be reset based on the *zone* requiring the most pressure. In such cases, the set point is reset lower until one zone damper is nearly wide open. The direct digital controls shall be capable of monitoring zone damper positions or shall have an alternative method of indicating the need for static pressure that is configured to provide all of the following:

1. Automatically detecting any zone that excessively drives the reset logic.

2. Generating an alarm to the system operational location.

3. Allowing an operator to readily remove one or more zones from the reset algorithm.

C403.6.9 Static pressure sensor location. Static pressure sensors used to control VAV fans shall be located such that the controller setpoint is no greater than 1.2 inches w.c. (299 Pa). Where this results in one or more sensors being located downstream of major duct splits, not less than one sensor shall be located on each major branch to ensure that static pressure can be maintained in each branch.

EXCEPTION: Systems complying with Section C403.6.8.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40360, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40360, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-062, § 51-11C-40360, filed 5/2/17, effective 6/2/17; WSR 16-13-089, § 51-11C-40360, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40360, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40360, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-403610 Section C403.6.10—High efficiency VAV systems.

C403.6.10 High efficiency variable air volume (VAV) systems. For HVAC systems subject to the requirements of Section C403.3.5 but utilizing Exception 2 of that section, a high efficiency multiple-zone VAV system may be provided without a separate parallel DOAS when the system is designed, installed, and configured to comply with all of the following criteria (this exception shall not be used as a substitution for a DOAS per Section C406.6):

1. Each VAV system must serve a minimum of 3,000 square feet (278.7 m^2) and have a minimum of five VAV zones.

2. The VAV systems are provided with airside economizer per Section C403.5 without exceptions.

3. A direct-digital control (DDC) system is provided to control the VAV air handling units and associated terminal units per Section C403.4.11 regardless of sizing thresholds of Table C403.4.11.1.

4. Multiple-zone VAV systems with a minimum outdoor air requirement of 2,500 cfm (1180 L/s) or greater shall be equipped with a device capable of measuring outdoor airflow intake under all load conditions. The system shall be capable of increasing or reducing the outdoor airflow intake based on feedback from the VAV terminal units as required by Section C403.6.5, without exceptions, and Section C403.7.1 demand controlled ventilation.

5. Multiple-zone VAV systems with a minimum outdoor air requirement of 2,500 cfm (1180 L/s) or greater shall be equipped with a device capable of measuring supply airflow to the VAV terminal units under all load conditions.

6. In addition to meeting the zone isolation requirements of C403.2.1 a single VAV air handling unit shall not serve more than 50,000 square feet (4645 m^2) unless a single floor is greater than 50,000 square feet (4645 m^2) in which case the air handler is permitted to serve the entire floor.

7. The primary maximum cooling air for the VAV terminal units serving interior cooling load driven zones shall be sized for a supply air temperature that is a minimum of 5°F greater than the supply air temperature for the exterior zones in cooling.

8. Air terminal units with a minimum primary airflow setpoint of 50 percent or greater of the maximum primary airflow setpoint shall be sized with an inlet velocity of no greater than 900 feet per minute.

9. Allowable fan ((~~motor horsepower~~)) power shall not exceed 90 percent of the allowable ((~~HVAC *fan system bhp* (Option 2)~~)) fan power budget as defined by Section C403.8.1.1.

10. All fan powered VAV terminal units (series or parallel) shall be provided with electronically commutated motors. The DDC system shall be configured to vary the speed of the motor as a function of the heating and cooling load in the space. Minimum speed shall not be greater than 66 percent of design airflow required for the greater of heating or cooling operation. Minimum speed shall be used during periods of low heating and cooling operation and ventilation-only operation.

EXCEPTION: For series fan powered terminal units where the volume of primary air required to deliver the ventilation requirements at minimum speed exceeds the air that would be delivered at the speed defined above, the minimum speed setpoint shall be configured to exceed the value required to provide the required ventilation air.

11. Fan-powered VAV terminal units shall only be permitted at perimeter zones with an envelope heating load requirement. All other VAV terminal units shall be single duct terminal units.

EXCEPTION: Fan powered VAV terminal units are allowed at interior spaces with an occupant load greater than or equal to 25 people per 1000 square feet of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) with demand control ventilation in accordance with Section C403.7.1.

12. When in occupied heating or in occupied deadband between heating and cooling all fan powered VAV terminal units shall be configured to reset the primary air supply setpoint, based on the VAV air handling unit outdoor air vent fraction, to the minimum ventilation airflow required per *International Mechanical Code*.

13. Spaces that are larger than 150 square feet (14 m^2) and with an occupant load greater than or equal to 25 people per 1000 square feet (93 m^2) of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) shall be provided with all of the following features:

13.1. A dedicated VAV terminal unit capable of controlling the space temperature and minimum ventilation shall be provided.

13.2. Demand control ventilation (DCV) shall be provided that utilizes a carbon dioxide sensor to reset the ventilation setpoint of the VAV terminal unit from the design minimum to design maximum ventilation rate as required by Chapter 4 of the *International Mechanical Code*.

13.3. Occupancy sensors shall be provided that are configured to reduce the minimum ventilation rate to zero and setback room temperature setpoints by a minimum of 5°F, for both cooling and heating, when the space is unoccupied.

14. Dedicated data centers, computer rooms, electronic equipment rooms, telecom rooms, or other similar spaces with cooling loads greater than 5 watts/sf shall be provided with separate cooling systems to allow the VAV air handlers to turn off during unoccupied hours in the office space and to allow the supply air temperature reset to occur.

EXCEPTION: The VAV air handling unit and VAV terminal units may be used for secondary backup cooling when there is a failure of the primary HVAC system.

Additionally, computer rooms, electronic equipment rooms, telecom rooms, or other similar spaces shall be provided with airside economizer in accordance with Section 403.5 without using the exceptions to Section C403.5.

EXCEPTION: Heat recovery per Exception 9 of Section C403.5 may be in lieu of airside economizer for the separate, independent HVAC system.

15. HVAC system central heating or cooling plant will include a minimum of one of the following options:

15.1. VAV terminal units with hydronic heating coils connected to systems with hot water generation equipment limited to the following types of equipment: Gas-fired hydronic boilers with a thermal efficiency, E_t, of not less than 92 percent, air-to-water heat pumps or heat recovery chillers. Hydronic heating coils shall be sized for a maximum entering hot water temperature of 120°F (48.9°C) for peak anticipated heating load conditions.

15.2. Chilled water VAV air handing units connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than the minimum part load efficiencies listed in Table ((~~C403.3.2(7)~~)) C403.3.2(3), in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify. The smallest chiller or compressor in the central plant shall not exceed 20 percent of the total central plant cooling capacity or the chilled water system shall include thermal storage sized for a minimum of 20 percent of the total central cooling plant capacity.

16. The DDC system shall include a fault detection and diagnostics (FDD) system complying with the following:

16.1. The following temperature sensors shall be permanently installed to monitor system operation:

16.1.1. Outside air.

16.1.2. Supply air.

16.1.3. Return air.

16.2. Temperature sensors shall have an accuracy of ±2°F (1.1°C) over the range of 40°F to 80°F (4°C to 26.7°C).

16.3. The VAV air handling unit controller shall be configured to provide system status by indicating the following:

16.3.1. Free cooling available.

16.3.2. Economizer enabled.

16.3.3. Compressor enabled.
16.3.4. Heating enabled.
16.3.5. Mixed air low limit cycle active.
16.3.6. The current value of each sensor.

16.4. The VAV air handling unit controller shall be capable of manually initiating each operating mode so that the operation of compressors, economizers, fans and the heating system can be independently tested and verified.

16.5. The VAV air handling unit shall be configured to report faults to a fault management application able to be accessed by day-to-day operating or service personnel or annunciated locally on zone thermostats.

16.6. The VAV terminal unit shall be configured to report if the VAV inlet valve has failed by performing the following diagnostic check at a maximum interval of once a month:

16.6.1. Command VAV terminal unit primary air inlet valve closed and verify that primary airflow goes to zero.

16.6.2. Command VAV terminal unit primary air inlet valve to design airflow and verify that unit is controlling to within 10 percent of design airflow.

16.7. The VAV terminal unit shall be configured to report and trend when the zone is driving the following VAV air handling unit reset sequences. The building operator shall have the capability to exclude zones used in the reset sequences from the DDC control system graphical user interface:

16.7.1. Supply air temperature setpoint reset to lowest supply air temperature setpoint for cooling operation.

16.7.2. Supply air duct static pressure setpoint reset for the highest duct static pressure setpoint allowable.

16.8. The FDD system shall be configured to detect the following faults:

16.8.1. Air temperature sensor failure/fault.
16.8.2. Not economizing when the unit should be economizing.
16.8.3. Economizing when the unit should not be economizing.
16.8.4. Outdoor air or return air damper not modulating.
16.8.5. Excess outdoor air.
16.8.6. VAV terminal unit primary air valve failure.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-403610, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-403610, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40371 Section C403.7.1—Demand control ventilation.

C403.7.1 Demand control ventilation.

C403.7.1.1 Spaces requiring demand control ventilation. Demand control ventilation (DCV) shall be provided for ((~~spaces larger than 500 square feet (50 m^2) and~~)) either of the following:

1. Spaces with ventilation provided by single-zone systems where an air economizer is provided to comply with Section C403.5.

2. Spaces with an occupant load greater than or equal to ((~~25~~)) 15 people per 1000 square feet (93 m^2) of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) ((~~and served by systems with one or more of the following:~~

~~1. An air-side economizer;~~

~~2. Automatic modulating control of the outdoor air damper; or~~

~~3. A design outdoor airflow greater than 3,000 cfm (1416 L/s).~~

~~EXCEPTION: Demand control ventilation is not required for systems and spaces as follows:~~
~~1. Systems with energy recovery complying with Section C403.7.6.1 or C403.3.5.1. This exception is not available for space types located within the "inclusions" column of Groups A-1 and A-3 occupancy classifications of Table C403.3.5.~~
~~2. Multiple-*zone* systems without direct digital control of individual *zones* communicating with a central control panel.~~
~~3. System with a design outdoor airflow less than 750 cfm (354 L/s).~~
~~4. Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1,200 cfm (566 L/s).~~
~~5. Ventilation provided for process loads only.~~
~~6. Spaces with one of the following occupancy categories (as defined by the *International Mechanical Code*): Correctional cells, daycare sickrooms, science labs, barbers, beauty and nail salons, and bowling alley seating.~~))

or with an occupant outdoor airflow rate greater than or equal to 15 cfm/person, as established in Table 403.3.1.1 of the *International Mechanical Code*.

EXCEPTIONS:
1. Spaces including, but not limited to, dining areas, where more than 75 percent of the space design outdoor airflow is transfer air required for makeup air supplying an adjacent commercial kitchen.
2. Spaces with one of the following occupancy classifications as defined in Table 403.3.1.1 of the *International Mechanical Code*: Correctional cells, educational laboratories, barbers, beauty and nail salons, and bowling alley seating.
3. Dormitory sleeping areas with fewer than five occupants per space.
4. Spaces with ventilation not provided by a single-zone system where the design occupant component outdoor airflow is less than 50 cfm (23.6 L/s), or 100 cfm (47.2 L/s) with system having energy recovery with minimum 60 percent sensible effectiveness. Design occupant component outdoor airflow shall be calculated as the product of the design number of occupants in the space and the people outdoor airflow rate per occupant (R_p) as established in Table 403.3.1.1 of the *International Mechanical Code*.
5. Spaces with ventilation not provided by a single-zone system where the total system design outdoor airflow is less than 750 cfm (354 L/s), or 1500 cfm (708 L/s) with system having energy recovery with minimum 60 percent sensible effectiveness.

C403.7.1.2 Demand control ventilation design. Each space required to have demand control ventilation shall have equipment and controls capable of and configured to automatically change the quantity of outdoor air supplied to the space based upon the output of a CO_2 sensor. System outdoor air intake shall be adjusted from peak design levels in response to changes in outdoor air required in the spaces served by the system. This adjustment shall be accomplished by variable speed fan control.

EXCEPTION: Systems designed to recirculate return air and systems with total supply air less than 1500 cfm (708 L/s) may use other means of modulating outdoor air.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40371, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40373 Section C403.7.3—Ventilation air heating control.

C403.7.3 Ventilation air heating control. ((~~Units that provide ventilation air to multiple zones and~~)) For ventilation air units with supplemental heating capacity that operate in conjunction with zone heating and cooling systems ((~~shall not use heating or heat recovery to warm supply air to a temperature greater than 60°F (16°C) when representative building loads or outdoor air temperature indicate that the~~

~~majority of zones require cooling~~)), supplemental heating shall not warm ventilation supply air to a temperature greater than 55°F (13°C).

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40373, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40374 Section C403.7.4—HVAC serving guestrooms.

C403.7.4 Automatic control of HVAC systems serving guestrooms. In Group R-1 buildings containing more than 50 guestrooms, each guestroom shall be provided with controls complying with the provisions of Sections C403.7.4.1 and C403.7.4.2. Card key controls comply with these requirements.

C403.7.4.1 Temperature setpoint controls. Controls shall be provided on each HVAC system that are capable of and configured ((~~to~~)) with three modes of temperature control.

1. When the guestroom is rented but unoccupied, the controls shall automatically raise the cooling setpoint and lower the heating setpoint by not less than 4°F (2°C) from the occupant setpoint within 30 minutes after the occupants have left the guestroom.

2. When the guestroom is unrented and unoccupied, the controls shall ((~~be capable of and configured to~~)) automatically raise the cooling setpoint to not lower than 80°F (27°C) and lower the heating setpoint to not higher than 60°F (16°C) ((~~when the guestroom is unrented or has been continuously unoccupied for over 16 hours or~~)). Unrented and unoccupied guestroom mode shall be initiated within 16 hours of the guestroom being continuously occupied or where a *networked guestroom control system* indicates that the guestroom is unrented and the guestroom is unoccupied for more than ((~~30~~)) 20 minutes. A *networked guestroom control system* that is capable of returning the thermostat setpoints to default occupied setpoints 60 minutes prior to the time a guestroom is scheduled to be occupied is not precluded by this section. Cooling that is capable of limiting relative humidity with a setpoint not lower than 65 percent relative humidity during unoccupied periods is not precluded by this section.

3. When the guestroom is occupied, HVAC set points shall return to their occupied set point once occupancy is sensed.

C403.7.4.2 Ventilation controls. Controls shall be provided on each HVAC system that are capable of and configured to automatically turn off the ventilation and exhaust fans within ((~~30~~)) 20 minutes of the occupants leaving the guestroom or isolation devices shall be provided to each guestroom that are capable of automatically shutting off the supply of outdoor air to and exhaust air from the guestroom.

EXCEPTION: Guestroom ventilation systems are not precluded from having an automatic daily preoccupancy purge cycle that provides daily outdoor air ventilation during unrented periods at the design ventilation rate for 60 minutes, or at a rate and duration equivalent to one air change.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40374, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chap-

ter 19.27 RCW. WSR 19-24-040, § 51-11C-40374, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40375 Section C403.7.5—Loading dock and ((~~parking~~)) garage ventilation system controls.

C403.7.5 ((~~Enclosed~~)) Loading dock, motor vehicle repair garage, and parking garage ((~~exhaust~~)) ventilation system controls. Mechanical ventilation systems for ((~~enclosed~~)) loading docks, motor vehicle repair garages, and parking garages shall be designed to exhaust the airflow rates (maximum and minimum) determined in accordance with the *International Mechanical Code*.

Ventilation systems shall be equipped with a control device that operates the system automatically by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Controllers shall be configured to shut off fans or modulate fan speed to ((~~50~~)) 20 percent or less of design capacity, or intermittently operate fans less than 20 percent of the occupied time or as required to maintain acceptable contaminant levels in accordance with the *International Mechanical Code* provisions.

Ventilation systems with total ventilation system motor nameplate horsepower exceeding 5 hp (3.7 kW) at fan system design conditions and those with heating and/or cooling shall have controls and devices that modulate fan speed and result in fan motor demand of no more than 30 percent of design wattage at 50 percent of the design airflow.

Gas sensor controllers used to activate the exhaust ventilation system shall stage or modulate fan speed upon detection of specified gas levels. All equipment used in sensor controlled systems shall be designed for the specific use and installed in accordance with the manufacturer's recommendations. The system shall be arranged to operate automatically by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Parking garages, repair garages, and loading docks shall be equipped with a controller and a full array of carbon monoxide (CO) sensors set to maintain levels of carbon monoxide below 35 parts per million (ppm). Additionally, a full array of nitrogen dioxide detectors shall be connected to the controller set to maintain the nitrogen dioxide level below the OSHA standard for eight hour exposure.

Spacing and location of the sensors shall be installed in accordance with manufacturer recommendations.

C403.7.5.1 System activation devices for ((~~enclosed~~)) loading docks. Ventilation systems for enclosed loading docks shall operate continuously during unoccupied hours at 50 percent or less of design capacity and shall be activated to the full required ventilation rate by one of the following:

1. Gas sensors installed in accordance with the *International Mechanical Code;* or

2. Occupant detection sensors used to activate the system that detects entry into the loading area along both the vehicle and pedestrian pathways.

C403.7.5.2 System activation devices for ((~~enclosed~~)) parking garages. Ventilation systems for enclosed parking garages shall be activated by gas sensors.

((~~EXCEPTION: A parking garage ventilation system having a total design capacity under 8,000 cfm may use occupant sensors.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40375, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40376 Section C403.7.6—Energy recovery ventilation systems.

C403.7.6 Energy recovery ventilation systems. Energy recovery ventilation systems shall be provided as specified in either Section C403.7.6.1 or C403.7.6.2.

C403.7.6.1 Ventilation for Group R-2 occupancy. For all Group R-2 dwelling and sleeping units, a balanced ventilation system with heat recovery system with minimum 60 percent sensible recovery effectiveness shall provide outdoor air directly to all habitable space. The ventilation system shall allow for the design flow rates to be tested and verified at each habitable space as part of the commissioning process in accordance with Section C408.2.2.

C403.7.6.2 Spaces other than Group R-2 dwelling units. Any system serving a space other than a Group R-2 dwelling or sleeping unit with minimum outside air requirements at design conditions greater than 5,000 cfm or any system where the system's supply airflow rate exceeds the value listed in Tables C403.7.6(1) and C403.7.6(2), based on the climate zone and percentage of outdoor airflow rate at design conditions, shall include an energy recovery system. Table C403.7.6(1) shall be used for all ventilation systems that operate less than 8,000 hours per year, and Table C403.7.6(2) shall be used for all ventilation systems that operate 8,000 hours or more per year. The energy recovery system shall ((~~have the capability to provide a change in the enthalpy of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and return air enthalpies,~~)) provide an *enthalpy recovery ratio* of not less than 60 percent at design conditions. Where an air economizer is required, the energy recovery system shall include a bypass of the energy recovery media for both the outdoor air and exhaust air or return air dampers and controls which permit operation of the air economizer as required by Section C403.5. Where a single room or space is supplied by multiple units, the aggregate ventilation (cfm) of those units shall be used in applying this requirement. The return/exhaust air stream temperature for heat recovery device selection shall be 70°F (21°C) at 30 percent relative humidity, or as calculated by the registered design professional.

EXCEPTION: An energy recovery ventilation system shall not be required in any of the following conditions:
1. Where energy recovery systems are restricted per Section 514 of the *International Mechanical Code* to sensible energy, recovery shall comply with one of the following:
1.1. Kitchen exhaust systems where they comply with Section C403.7.7.1.
1.2. Laboratory fume hood systems where they comply with Exception 2 of Section C403.7.6.

1.3. Other sensible energy recovery systems with the capability to provide a change in dry-bulb temperature of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and the return air dry-bulb temperatures, at design conditions.
2. Laboratory fume hood systems that include at least one of the following features and also comply with Section C403.7.7.2:
2.1. Variable-air-volume hood exhaust and room supply systems configured to reduce exhaust and makeup air volume to 50 percent or less of design values.
2.2. Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) above room setpoint, cooled to no cooler than 3°F (1.7°C) below room setpoint, no humidification added, and no simultaneous heating and cooling used for dehumidification control.
3. Systems serving spaces that are heated to less than 60°F (15.5°C) and are not cooled.
4. Where more than 60 percent of the outdoor air heating energy is provided from site-recovered energy.
5. Systems exhausting toxic, flammable, paint or corrosive fumes or dust.
6. Cooling energy recovery.
7. Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
8. Multiple-zone systems where the supply airflow rate is less than the values specified in Tables C403.7.6 (1) and (2), for the corresponding percent of outdoor air. Where a value of NR is listed, energy recovery shall not be required.
9. Equipment which meets the requirements of Section C403.9.2.4.
10. Systems serving Group R-1 ((~~and R-3~~)) dwelling or sleeping units where the largest source of air exhausted at a single location at the building exterior is less than 25 percent of the design outdoor air flow rate.

Table C403.7.6(1)
Energy Recovery Requirement
(Ventilation systems operating less than 8,000 hours per year)

Percent (%) Outdoor Air at Full Design Airflow Rate								
Climate zone	≥ 10% and < 20%	≥ 20% and < 30%	≥ 30% and < 40%	≥ 40% and < 50%	≥ 50% and < 60%	≥ 60% and < 70%	≥ 70% and < 80%	≥ 80%
Design Supply Fan Airflow Rate (cfm)								
4C, 5B	NR	NR	NR	NR	NR	NR	≥ 5000	≥ 5000

NR = Not required.

Table C403.7.6(2)
Energy Recovery Requirement
(Ventilation systems operating not less than 8,000 hours per year)

Percent (%) Outdoor Air at Full Design Airflow Rate								
Climate zone	≥ 10% and < 20%	≥ 20% and < 30%	≥ 30% and < 40%	≥ 40% and < 50%	≥ 50% and < 60%	≥ 60% and < 70%	≥ 70% and < 80%	≥ 80%
Design Supply Fan Airflow Rate (cfm)								
4C	NR	≥ 19500	≥ 9000	≥ 5000	≥ 4000	≥ 3000	≥ 1500	≥ 120
5B	≥ 2500	≥ 2000	≥ 1000	≥ 500	≥ 140	≥ 120	≥ 100	≥ 80

NR = Not required.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40376, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40377 Section C403.7.7—Exhaust systems.

C403.7.7 Exhaust systems.

C403.7.7.1 Kitchen exhaust systems.

C403.7.7.1.1 Replacement air. Replacement air introduced directly into the exhaust hood cavity shall not be greater than 10 percent of the hood exhaust airflow rate.

C403.7.7.1.2 Kitchen exhaust hood certification and maximum airflow. Where a kitchen or kitchen/dining facility has a total kitchen hood exhaust airflow rate that is greater than 2,000 cfm, each hood shall be a factory built commercial exhaust hood listed by a nationally rec-

ognized testing laboratory in compliance with UL 710 and each hood shall have a maximum exhaust rate as specified in Table C403.7.7.1.2. Where a single hood, or hood section, is installed over appliances with different duty ratings, the maximum allowable flow rate for the hood or hood section shall be based on the requirements for the highest appliance duty rating under the hood or hood section.

EXCEPTION: Type II dishwasher exhaust hoods that have an exhaust airflow of 1000 cfm or less.

Table C403.7.7.1.2
Maximum Net Exhaust Flow Rate,
CFM Per Linear Foot of Hood Length

Type of Hood	Light-duty Equipment	Medium-duty Equipment	Heavy-duty Equipment	Extra-heavy-duty Equipment
Wall-mounted canopy	140	210	280	385
Single island	280	350	420	490
Double island (per side)	175	210	280	385
Eyebrow	175	175	NA	NA
Backshelf/pass-over	210	210	280	NA

For SI: 1 cfm = 0.4719 L/s; 1 foot = 305 mm
NA = Not allowed

C403.7.7.1.3 Kitchen exhaust hood system. Kitchen exhaust hood systems serving Type I exhaust hoods shall be provided with *demand control kitchen ventilation* (DCKV) controls where a kitchen or kitchen/dining facility has a total kitchen hood exhaust airflow rate greater than 2000 cfm((~~, it shall comply with one of the following:~~

~~1. Not less than 50 percent of all replacement air shall be transfer air that would otherwise be exhausted.~~

~~2. Demand ventilation systems on not less than 75 percent of the total exhaust hood airflow that are configured to provide not less than a 50 percent reduction in exhaust and replacement air system airflow rates, including controls necessary to modulate airflow in response to appliance operation and to maintain full capture and containment of smoke, effluent and combustion products during cooking and idle.~~

~~3. Listed energy recovery devices with a sensible heat recovery effectiveness of not less than 40 percent on not less than 50 percent of the total exhaust hood airflow~~)). DCKV systems shall be configured to provide a minimum of 50 percent reduction in exhaust and replacement air system airflows in response to appliance operation and to maintain full capture and containment of smoke, effluent and combustion products during cooking and idle operation.

EXCEPTIONS: 1. ((~~Where not less than 75 percent of all the replacement air is transfer air that would otherwise be exhausted.~~ ~~2.~~)) UL 710 listed exhaust hoods that have a design maximum exhaust airflow rate no greater than 250 cfm per linear foot of hood that serve kitchen or kitchen/dining facilities with a total kitchen hood exhaust airflow rate less than 5000 cfm.
((~~3. Type II dishwasher exhaust hoods that have an exhaust airflow of 1000 cfm or less.~~)) 2. An energy recovery device is installed on the kitchen exhaust with a sensible heat recovery effectiveness of not less than 40 percent or not less than 50 percent of the total exhaust hood airflow.

C403.7.7.2 Laboratory exhaust systems. Buildings with laboratory exhaust systems having a total exhaust rate greater than 5,000 cfm (2360 L/s) shall include heat recovery systems to precondition replacement air from laboratory exhaust. The heat recovery system shall be capable of increasing the outside air supply temperature at design heating conditions by 25°F (13.9°C). A provision shall be made to bypass or control the heat recovery system to permit air economizer operation as required by Section C403.5.

EXCEPTIONS: 1. Variable air volume laboratory exhaust and room supply systems configured to reduce exhaust and makeup air volume to 50 percent or less of design values; or
2. Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) below room setpoint, cooled to no cooler than 3°F (1.7°C) above room setpoint, no humidification added, and no simultaneous heating and cooling used for dehumidification control; or
3. Combined energy reduction method: VAV exhaust and room supply system configured to reduce exhaust and makeup air volumes and a heat recovery system to precondition makeup air from laboratory exhaust that when combined will produce the same energy reduction as achieved by a heat recovery system with a 50 percent sensible recovery effectiveness as required above. For calculation purposes, the heat recovery component can be assumed to include the maximum design supply airflow rate at design conditions. The combined energy reduction (Q_{ER}) shall meet the following:

$$Q_{ER} \geq Q_{MIN}$$

$$Q_{MIN} = CFM_S \cdot (T_R - T_O) \cdot 1.1 \cdot 0.6$$

$$Q_{ER} = CFM_S \cdot (T_R - T_O) \cdot 1.1(A + B)/100$$

Where:

Q_{MIN} = Energy recovery at 60 percent sensible effectiveness (Btu/h)

Q_{ER} = Combined energy reduction (Btu/h)

CFM_S = The maximum design supply airflow rate to conditioned spaces served by the system in cubic feet per minute

T_R = Space return air dry-bulb at winter design conditions

T_O = Outdoor air dry-bulb at winter design conditions

A = Percentage that the exhaust and makeup air volumes can be reduced from design conditions

B = Percentage sensible heat recovery effectiveness

C403.7.7.3 Transfer air. Conditioned supply air delivered to any space with mechanical exhaust shall not exceed the greater of:

1. The supply flow required to meet the space heating or cooling load;

2. The ventilation rate required by the authority having jurisdiction, the facility environmental health and safety department, or Section C403.2.2; or

3. The mechanical exhaust flow minus the available transfer air from conditioned spaces or return air plenums that at their closest point are within 15 feet of each other on the same floor that are not in different smoke or fire compartments. Available transfer air is that portion of outdoor ventilation air that:

3.1. Is not required to satisfy other exhaust needs;

3.2. Is not required to maintain pressurization of other spaces; and

3.3. Is transferable according to applicable codes and standards and per the *International Mechanical Code*.

EXCEPTIONS: 1. Laboratories classified as biosafety level 3 or higher.
2. Vivarium spaces.
3. Spaces that are required by applicable codes and standards to be maintained at positive pressure relative to adjacent spaces. For spaces taking this exception, any transferable air that is not directly transferred shall be made available to the associated air-handling unit and shall be used whenever economizer or other options do not save more energy.
4. Spaces where the demand for transfer air may exceed the available transfer airflow rate and where the spaces have a required negative pressure relationship. For spaces taking this exception, any transferable air that is not directly transferred shall be made available to the associated air-handling unit and shall be used whenever economizer or other options do not save more energy.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40377, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40378 Section C403.7.8—Shutoff dampers.

C403.7.8 Shutoff dampers. Mechanical openings shall be provided with shutoff dampers in accordance with Sections C403.7.8.1 through C403.7.8.4.

C403.7.8.1 Shutoff dampers for building isolation. Outdoor air supply, exhaust openings and relief outlets and stairway and elevator hoistway shaft vents shall be provided with Class I motorized dampers. See Sections C403.10.1 and C403.10.2 for ductwork insulation requirements upstream and downstream of the shutoff damper.

EXCEPTIONS:
1. Gravity (nonmotorized) dampers shall be permitted in lieu of motorized dampers as follows:
1.1. Relief dampers serving systems less than 5,000 cfm total supply shall be permitted in buildings less than three stories in height.
1.2. Gravity (nonmotorized) dampers where the design outdoor air intake or exhaust capacity does not exceed ((~~400~~)) 300 cfm (142 L/s).
1.3. Systems serving areas which require continuous operation for 24/7 occupancy schedules.
2. Shutoff dampers are not required in:
2.1. Combustion air intakes.
2.2. Systems serving areas which require continuous operation in animal hospitals, kennels and pounds, laboratories, and Group H, I and R occupancies.
2.3. Subduct exhaust systems or other systems that are required to operate continuously by the *International Mechanical Code*.
2.4. Type I grease exhaust systems or other systems where dampers are prohibited by the *International Mechanical Code* to be in the airstream.
2.5. Unconditioned stairwells or unconditioned elevator hoistway shafts that are only connected to unconditioned spaces.

C403.7.8.2 Shutoff dampers for return air. Return air openings used for airside economizer operation shall be equipped with Class I motorized dampers.

C403.7.8.3 Damper leakage rating. Class 1 dampers shall have a maximum leakage rate of 4 cfm/ft^2 (20.3 L/s x m^2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D and shall be labeled by an approved agency for such purpose. Gravity (nonmotorized) dampers shall have an air leakage rate not greater than 20 cfm/ft^2 where not less than 24 inches (610 mm) in either dimension and 40 cfm/ft^2 where less than 24 inches in either dimension. The rate of air leakage shall be determined at 1.0 inch w.g. (249 Pa) when tested in accordance with AMCA 500D for such purpose. The dampers shall be labeled by an approved agency. Gravity dampers for ventilation air intakes shall be protected from direct exposure to wind.

EXCEPTIONS:
1. Gravity (nonmotorized) dampers are not required to be tested to verify the air leakage rating when installed in exhaust systems where the exhaust capacity does not exceed 400 cfm and the gravity damper is provided with a gasketed seal.
2. Motorized dampers on return air openings in unitary packaged equipment that have the minimum leakage rate available from the manufacturer.

C403.7.8.4 Damper actuation. Outdoor air intake, relief and exhaust shutoff dampers shall be installed with automatic controls configured to close when the systems or spaces served are not in use or during unoccupied period warm-up and setback operation, unless the systems served require outdoor or exhaust air in accordance with the *International Mechanical Code* or the dampers are opened to provide intentional economizer cooling. Stairway and elevator hoistway shaft vent dampers shall be installed with automatic controls configured to open upon the activation of any fire alarm initiating device of the building's fire alarm system or the interruption of power to the damper.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40378, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-4038 Section C403.8—Fan and fan controls.

C403.8 Fan and fan controls. Fans in HVAC systems shall comply with Sections C403.8.1 through C403.8.5.1.

The airflow requirements of Section C403.8.5.1 shall apply to all fan motors. ((~~Group R occupancy exhaust~~)) Low capacity ventilation fans shall also comply with Section C403.8.4.

C403.8.1 ((~~Allowable fan motor horsepower.~~ ~~Each HVAC system having a total fan system motor nameplate horsepower exceeding 5 hp (3.7 kW) at fan system design conditions shall not exceed the allowable *fan system motor nameplate hp* (Option 1) or *fan system bhp* (Option 2) as shown in Table C403.8.1(1). This includes supply fans, exhaust fans, return/relief fans, and fan-powered VAV air terminal units associated with systems providing heating or cooling capability. Single *zone* variable-air-volume systems shall comply with the constant volume fan power limitation. Zone heating and/or cooling terminal units installed in conjunction with a dedicated outdoor air system (DOAS) shall be evaluated as separate HVAC systems for allowable fan motor horsepower.~~

~~EXCEPTIONS:~~ ~~1. Hospital, vivarium and laboratory systems that utilize flow control devices on exhaust or return to maintain space pressure relationships necessary for occupant health and safety or environmental control shall be permitted to use variable volume fan power limitation.~~
~~2. Individual exhaust fans with motor nameplate horsepower of 1 hp or less are exempt from allowable fan motor horsepower requirements.~~

~~Table C403.8.1(1)~~
~~Fan Power Limitation~~

	~~Limit~~	~~Constant Volume~~	~~Variable Volume~~
~~Option 1: Fan system motor nameplate hp~~	~~Allowable nameplate motor hp~~	~~$hp \leq CFM_S \times 0.0011$~~	~~$hp \leq CFM_S \times 0.0015$~~
~~Option 2: Fan system bhp~~	~~Allowable fan system bhp~~	~~$bhp \leq CFM_S \times 0.00094 + A$~~	~~$bhp \leq CFM_S \times 0.0013 + A$~~

~~For SI: 1 cfm = 0.471 L/s. 1 bhp = 735.5 W, 1 hp = 745.5 W.~~

~~Where:~~

~~CFM_S~~ = ~~The maximum design supply airflow rate to conditioned spaces served by the system in cubic feet per minute.~~

~~hp~~ = ~~The maximum combined motor nameplate horsepower.~~

~~bhp~~ = ~~The maximum combined fan brake horsepower.~~

~~A~~ = ~~Sum of $[PD \times CFM_D/4131]$~~

~~Where:~~

~~PD~~ = ~~Each applicable pressure drop adjustment from Table C403.8.1(2) in. w.c.~~

~~CFM_D~~ = ~~The design airflow through each applicable device from Table C403.8.1(2) in cubic feet per minute.~~

~~Table C403.8.1(2)~~
~~Fan Power Limitation Pressure Drop Adjustment~~

~~Device~~	~~Adjustment~~
~~Credits~~	

~~Device~~	~~Adjustment~~
~~Return air or exhaust system required by code or accreditation standards to be fully ducted, or systems required to maintain air pressure differentials between adjacent rooms~~	~~0.5 inch w.c. (2.15 inches w.c. for laboratory and vivarium systems)~~
~~Return and/or exhaust air flow control devices~~	~~0.5 inch w.c.~~
~~Exhaust filters, scrubbers, or other exhaust treatment~~	~~The pressure drop of device calculated at fan system design condition~~
~~Particulate filtration credit: MERV 9 - 12~~	~~0.5 inch w.c.~~
~~Particulate filtration credit: MERV 13 - 15~~	~~0.9 inch w.c.~~
~~Particulate filtration credit: MERV 16 and greater and electronically enhanced filters~~	~~Pressure drop calculated at 2x clean filter pressure drop at fan system design condition~~
~~Carbon and other gas-phase air cleaners~~	~~Clean filter pressure drop at fan system design condition~~
~~Biosafety cabinet~~	~~Pressure drop of device at fan system design condition~~
~~Energy recovery device, other than coil runaround loop~~	~~For each airstream (2.2 × energy recovery effectiveness – 0.5) inch w.c.~~
~~Coil runaround loop~~	~~0.6 inch w.c. for each airstream~~
~~Evaporative humidifier/ cooler in series with another cooling coil~~	~~Pressure drop of device at fan system design conditions~~
~~Sound attenuation section (fans serving spaces with design background noise goals below NC35)~~	~~0.15 inch w.c.~~
~~Exhaust system serving fume hoods~~	~~0.35 inch w.c.~~
~~Laboratory and vivarium exhaust systems in high-rise buildings~~	~~0.25 inch w.c./100 feet of vertical duct exceeding 75 feet~~
~~Deductions~~	
~~Systems without central cooling device~~	~~-0.6 inch w.c~~
~~Systems without central heating device~~	~~-0.3 inch w.c.~~
~~Systems with central electric resistance heat~~	~~-0.2 inch w.c.~~

~~For SI: 1 inch w.c. = 249 Pa, 1 inch = 25.4 mm. w.c. = water column.))~~

Fan System. Each *fan system* that includes at least one fan or fan array with *fan electrical input power* ≥ 1 kW, moving air into, out of, or between conditioned spaces or circulating air for the purpose of

conditioning air within a space shall comply with Sections C403.8.1.1 through C403.8.1.2.

C403.8.1.1 Determining fan power budget. For each *fan system*, the *fan system electrical input power* (Fan $kW_{design,system}$) determined in accordance with Section C403.8.1.2 at the *fan system airflow* shall not exceed Fan kW_{budget}. Calculate fan power budget (Fan kW_{budget}) for each *fan system* as follows:

1. Determine the *fan system airflow* and choose the appropriate table(s) for fan power allowance.

1.1. For *single-cabinet fan systems*, use the *fan system airflow* and the power allowances in both Table C403.8.1.1(1) and Table C403.8.1.1(2).

1.2. For *supply-only fan systems*, use the *fan system airflow* and power allowances in Table C403.8.1.1(1).

1.3. For *relief fan systems*, use the design relief airflow and the power allowances in Table C403.8.1.1(2).

1.4. For exhaust, return and transfer *fan systems*, use the *fan system airflow* and the power allowances in Table C403.8.1.1(2).

1.5. For complex and DOAS with energy recovery *fan systems*, separately calculate the *fan power* allowance for the supply and return/exhaust systems and sum them. For the supply airflow, use supply airflow at the *fan system* design conditions, and the power allowances in Table C403.8.1.1(1). For the return/exhaust airflow, use return/exhaust airflow at the *fan system* design conditions, and the power allowances in Table C403.8.1.1(2).

2. For each *fan system*, determine the components included in the fan system and sum the fan power allowances of those components. All fan systems shall include the system base allowance. If, for a given component, only a portion of the fan system airflow passes through the component, calculate the fan power allowance for that component in accordance with Equation 4-11:

(Equation 4-11)

$$FPA_{adj} = (Q_{comp}/Q_{sys}) \times FPA_{comp}$$

Where:

FPA_{adj}	=	The corrected fan power allowance for the component in W/cfm.
Q_{comp}	=	The airflow through component in cfm.
Q_{sys}	=	The *fan system airflow* in cfm.
FPA_{comp}	=	The fan power allowance of the component from Table C403.8.1.1(1) or Table C403.8.1.1(2).

3. Multiply the *fan system airflow* by the sum of the fan power allowances for the *fan system*.

4. Divide by 1,000 to convert to Fan kW_{budget}.

5. For building sites at elevations greater than 3,000 feet, multiply Fan kW_{budget} by 0.896.

Table C403.8.1.1(1)
Supply Fan Power Allowances (W/CFM)

Airflow	Multi-Zone VAV Systems[a] ≤ 5,000 cfm	Multi-Zone VAV Systems[a] > 5,000 and ≤ 10,000 cfm	Multi-Zone VAV Systems[a] > 10,000 cfm	All Other *Fan Systems* ≤ 5,000 cfm	All Other *Fan Systems* > 5,000 and ≤ 10,000 cfm	All Other *Fan Systems* > 10,000 cfm
Supply system base allowance for AHU serving spaces ≤ 6 floors away	0.395	0.453	0.413	0.232	0.256	0.236
Supply system base allowance for AHU serving spaces > 6 floors away	0.508	0.548	0.501	0.349	0.356	0.325
MERV 13 to MERV 16 Filter upstream of thermal conditioning equipment (two-times the clean filter pressure drop)[b]	0.136	0.114	0.105	0.139	0.120	0.107
MERV 13 to MERV 16 Final filter downstream of thermal conditioning equipment (two-times the clean filter pressure drop)[b]	0.225	0.188	0.176	0.231	0.197	0.177
Filtration allowance for > MERV 16 or HEPA Filter (two-times the clean filter pressure drop)[b]	0.335	0.280	0.265	0.342	0.292	0.264
Central hydronic heating coil allowance	0.046	0.048	0.052	0.046	0.050	0.054
Electric heat allowance	0.046	0.038	0.035	0.046	0.040	0.036
Gas heat allowance	0.069	0.057	0.070	0.058	0.060	0.072
Hydronic/DX cooling coil or heat pump coil (wet) allowance[c]	0.135	0.114	0.105	0.139	0.120	0.107
Solid or liquid desiccant system allowance	0.157	0.132	0.123	0.163	0.139	0.124
Reheat coil for dehumidification allowance	0.045	0.038	0.035	0.046	0.040	0.036

Airflow	Multi-Zone VAV Systems[a] ≤ 5,000 cfm	Multi-Zone VAV Systems[a] > 5,000 and ≤ 10,000 cfm	Multi-Zone VAV Systems[a] > 10,000 cfm	All Other *Fan Systems* ≤ 5,000 cfm	All Other *Fan Systems* > 5,000 and ≤ 10,000 cfm	All Other *Fan Systems* > 10,000 cfm
Allowance for evaporative humidifier/ cooler in series with a cooling coil. Value shown is allowed W/cfm per 1.0 inches of water gauge (in.w.g.). Determine pressure loss (in.w.g.) at 400 fpm or maximum velocity allowed by the manufacturer, whichever is less[d]	0.224	0.188	0.176	0.231	0.197	0.177
Allowance for 100% Outdoor air system[e]	0.000	0.000	0.000	0.070	0.100	0.107
Energy recovery allowance for 0.50 ≤ ERR <0.55[f]	0.135	0.114	0.105	0.139	0.120	0.107
Energy recovery allowance for 0.55 ≤ ERR <0.60[f]	0.160	0.134	0.124	0.165	0.141	0.126
Energy recovery allowance for 0.60 ≤ ERR <0.65[f]	0.184	0.155	0.144	0.190	0.163	0.146
Energy recovery allowance for 0.65 ≤ ERR <0.70[f]	0.208	0.175	0.163	0.215	0.184	0.165
Energy recovery allowance for 0.70 ≤ ERR <0.75[f]	0.232	0.196	0.183	0.240	0.205	0.184
Energy recovery allowance for 0.75 ≤ ERR <0.80[f]	0.257	0.216	0.202	0.264	0.226	0.203
Energy recovery allowance for ERR ≥ 0.80[f]	0.281	0.236	0.222	0.289	0.247	0.222
Coil runaround loop	0.135	0.114	0.105	0.139	0.120	0.107

Airflow	Multi-Zone VAV Systems[a] ≤ 5,000 cfm	Multi-Zone VAV Systems[a] > 5,000 and ≤ 10,000 cfm	Multi-Zone VAV Systems[a] > 10,000 cfm	All Other *Fan Systems* ≤ 5,000 cfm	All Other *Fan Systems* > 5,000 and ≤ 10,000 cfm	All Other *Fan Systems* > 10,000 cfm
Allowance for Gas phase filtration required by code or accredited standard. Value shown is allowed W/cfm per 1.0 in. wg air pressure drop[d]	0.224	0.188	0.176	0.231	0.197	0.177
Economizer damper return	0.045	0.038	0.035	0.046	0.040	0.036
Air blender allowance	0.045	0.038	0.035	0.046	0.040	0.036
Sound attenuation section [fans serving spaces with design background noise goals below NC35]	0.034	0.029	0.026	0.035	0.030	0.027
Deduction for systems that feed a terminal unit with a fan with electrical input power < 1kW	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
Low-turndown single-zone VAV fan systems[g]	0.000	0.000	0.000	0.070	0.100	0.089

[a] See definition of FAN SYSTEM, MULTI-ZONE VARIABLE AIR VOLUME (VAV).
[b] Filter fan power allowance can only be counted once per fan system, except fan systems in health care facilities, which can claim one of the MERV 13 to 16 filter allowances and the HEPA filter allowance if both are included in the *fan system*.
[c] Health care facilities can claim this fan power allowance twice per *fan system* where coil design leaving air temperature is less than 44ºF.
[d] Power allowance requires further calculation by multiplying the actual inches of water gauge (in.w.g.) of the device/component by the w/cfm in Table C403.8.1(1).
[e] The 100% outdoor air system must serve 3 or more HVAC zones and airflow during noneconomizer operating periods must comply with Section C403.2.2.1.
[f] Enthalpy Recovery Ratio (ERR) calculated per ANSI/ASHRAE 84-2020.
[g] A low-turndown single-VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.

Table C403.8.1.1(2)
Exhaust, Return, Relief, Transfer Fan Power Allowances (W/CFM)

Airflow	Multi-Zone VAV Systems[a] ≤ 5,000 cfm	Multi-Zone VAV Systems[a] > 5,000 and ≤ 10,000 cfm	Multi-Zone VAV Systems[a] > 10,000 cfm	All Other *Fan Systems* ≤ 5,000 cfm	All Other *Fan Systems* > 5,000 and ≤ 10,000 cfm	All Other *Fan Systems* > 10,000 cfm
Exhaust system base allowance	0.221	0.246	0.236	0.186	0.184	0.190
Filter (any MERV value)[b]	0.046	0.041	0.036	0.046	0.041	0.035
Energy recovery allowance for 0.50 ≤ ERR <0.55[c]	0.139	0.120	0.107	0.139	0.123	0.109

Airflow	Multi-Zone VAV Systems[a] ≤ 5,000 cfm	Multi-Zone VAV Systems[a] > 5,000 and ≤ 10,000 cfm	Multi-Zone VAV Systems[a] > 10,000 cfm	All Other *Fan Systems* ≤ 5,000 cfm	All Other *Fan Systems* > 5,000 and ≤ 10,000 cfm	All Other *Fan Systems* > 10,000 cfm
Energy recovery allowance for 0.55 ≤ ERR <0.60[c]	0.165	0.142	0.126	0.165	0.144	0.128
Energy recovery allowance for 0.60 ≤ ERR <0.65[c]	0.190	0.163	0.146	0.191	0.166	0.148
Energy recovery allowance for 0.65 ≤ ERR <0.70[c]	0.215	0.184	0.165	0.216	0.188	0.167
Energy recovery allowance for 0.70 ≤ ERR <0.75[c]	0.240	0.206	0.184	0.241	0.209	0.186
Energy recovery allowance for 0.75 ≤ ERR <0.80[c]	0.265	0.227	0.203	0.266	0.231	0.205
Energy recovery allowance for ERR ≥ 0.80[c]	0.289	0.248	0.222	0.291	0.252	0.225
Coil runaround loop	0.139	0.120	0.107	0.139	0.123	0.109
Return or exhaust systems required by code or accreditation standards to be fully ducted, or systems required to maintain air pressure differentials between adjacent rooms	0.116	0.100	0.089	0.116	0.102	0.091
Return and/or exhaust airflow control devices	0.116	0.100	0.089	0.116	0.102	0.091
Laboratory and vivarium exhaust systems in high-rise buildings for vertical duct exceeding 75 ft. Value shown is allowed W/cfm per 0.25 in. wg for each 100 feet exceeding 75 feet[d]	0.058	0.051	0.045	0.058	0.052	0.046

Airflow	Multi-Zone VAV Systems[a] ≤ 5,000 cfm	Multi-Zone VAV Systems[a] > 5,000 and ≤ 10,000 cfm	Multi-Zone VAV Systems[a] > 10,000 cfm	All Other *Fan Systems* ≤ 5,000 cfm	All Other *Fan Systems* > 5,000 and ≤ 10,000 cfm	All Other *Fan Systems* > 10,000 cfm
Biosafety cabinet. Value shown is allowed W/cfm per 1.0 in. wg air pressure drop[d]	0.231	0.198	0.177	0.232	0.202	0.179
Exhaust filters, scrubbers, or other exhaust treatment required by code or standard. Value shown is allowed W/cfm per 1.0 in. wg air pressure drop[d]	0.231	0.198	0.177	0.232	0.202	0.179
Health care facility allowance[e]	0.231	0.198	0.177	0.232	0.202	0.179
Sound attenuation section [Fans serving spaces with design background noise goals below NC35.]	0.035	0.030	0.027	0.035	0.031	0.028

[a] See definition of FAN SYSTEM, MULTI-ZONE VARIABLE AIR VOLUME (VAV) to be classified as a Multi-Zone VAV System.
[b] Filter pressure loss can only be counted once per fan system.
[c] Enthalpy Recovery Ratio (ERR) calculated per ANSI/ASHRAE 84-2020.
[d] Power allowance requires further calculation, multiplying the actual pressure drop (in. wg) of the device/component by the W/cfm in the Table C403.8.1(2).
[e] This allowance can only be taken for health care facilities.

C403.8.1.2 Determining *Fan System Electrical Input Power* (Fan $kW_{design,system}$). *Fan* $kW_{design,system}$ is the sum of *Fan* kW_{design} for each fan or fan array included in the *fan system*. If variable speed drives are used, their efficiency losses shall be included. Fan input power shall be calculated with two-times the clean filter pressure drop. The *Fan* kW_{design} for each fan or fan array shall be determined using one of the following methods. There is no requirement to use the same method for all fans in a *fan system*:

1. Use the default *Fan* kW_{design} in Table C403.8.1.2 for one or more of the fans. This method cannot be used for *complex fan systems*.

2. Use the *Fan* kW_{design} at *fan system design conditions* provided by the manufacturer of the fan, fan array, or equipment that includes the fan or fan array calculated per a test procedure included in 10 C.F.R. Part 430, 10 C.F.R. Part 431, ANSI/AMCA 208, ANSI/AMCA S210, AHRI 430, AHRI 440, or ISO 5801.

3. Use the *Fan* kW_{design} provided by the manufacturer, calculated at *fan system design conditions* per one of the methods listed in Section 5.3 of ANSI/AMCA 208.

4. Determine the *Fan* kW_{design} by using the maximum electrical input power provided on the motor nameplate.

Table C403.8.1.2

Default Values for Fan kW_{design} Based on Motor Nameplate HP[a,b]

Motor Nameplate HP	Default *Fan* kW_{design} with variable speed drive (Fan kW_{design})	Default *Fan* kW_{design} without variable speed drive (Fan kW_{design})
≤1	0.96	0.89
≥1 and <1.5	1.38	1.29
≥1.5 and <2	1.84	1.72
≥2 and <3	2.73	2.57
≥3 and <5	4.38	4.17
≥5 and <7.5	6.43	6.15
≥7.5 and <10	8.46	8.13
≥10 and <15	12.4	12.0
≥15 and <20	16.5	16.0
≥20 and <25	20.5	19.9
≥25 and <30	24.5	23.7
≥30 and <40	32.7	31.7
≥40 and <50	40.7	39.4
≥50 and <60	48.5	47.1
≥60 and <75	60.4	58.8
≥75 and ≤100	80.4	78.1

[a] This table cannot be used for motor nameplate horsepower values greater than 100.
[b] This table is to be used only with motors with a service factor ≤1.15. If the service factor is not provided, this table may not be used.

C403.8.2 Motor nameplate horsepower. For each fan, the selected fan motor shall be no larger than the first available motor size greater than the brake horsepower (bhp). The fan brake horsepower (bhp) shall be indicated on the design documents to allow for compliance verification by the *code official*.

EXCEPTIONS:
1. For fans less than 6 bhp (((~~4413~~)) 4476 W), where the first available motor larger than the brake horsepower has a nameplate rating within 50 percent of the bhp, selection of the next larger nameplate motor size is allowed.
2. For fans 6 bhp (((~~4413~~)) 4476 W) and larger, where the first available motor larger than the bhp has a nameplate rating within 30 percent of the bhp, selection of the next larger nameplate motor size is allowed.
3. For fans used only in *approved* life safety applications such as smoke evacuation.
4. Fans with motor nameplate horsepower less than 1 hp ((~~are exempt from this section~~)) or fans with a fan motor nameplate electrical input power of less than 0.89 kW.
5. Fans equipped with electronic speed control devices to vary the fan airflow as a function of load.

C403.8.3 Fan efficiency. ((~~Fans shall have a fan efficiency grade (FEG) of 67 or higher based on manufacturers' certified data, as defined by AMCA 205. The total efficiency of the fan at the design point of operation shall be within 15 percentage points of the maximum total efficiency of the fan.~~)) Each fan and *fan array* shall have a *fan energy index (FEI)* of not less than 1.00 at the design point of operation, as determined in accordance with AMCA 208 by an *approved*, independent testing laboratory and labeled by the manufacturer. Each fan and *fan array* used for a variable-air volume system shall have an *FEI* of not less than 0.95 at the design point of operation as determined in accordance with AMCA 208 by an *approved*, independent testing laboratory and labeled by the manufacturer. The *FEI* for *fan arrays* shall be calculated in accordance with AMCA 208 Annex C.

EXCEPTION: The following fans are not required to have a fan ((~~efficiency grade~~)) energy index:
1. ((~~Individual fans with a motor nameplate horsepower of 5 hp (3.7 kW) or less that are not part of a group operated as the functional equivalent of a single fan.~~)) Fans that are not *embedded pans* with motor nameplate horsepower of less than 1.0 hp (0.75 kW) or with a nameplate electrical input power of less than 0.89 kW.
2. *Embedded fans* that have a motor nameplate horsepower of 5 hp (3.7 kW) or less or with a fan system electrical input power of 4.1 kW or less.

3. Multiple fans operated in series or parallel as the functional equivalent of a single fan that have a combined motor nameplate horsepower of 5 hp (3.7 kW) or less ((and are operated as the functional equivalent of a single fan)) or with a fan system electrical input power of 4.1 kW or less.
((3.)) 4. Fans that are part of equipment covered under Section C403.3.2.
((4.)) 5. Fans included in an equipment package certified by an *approved agency* for air or energy performance.
((5. Powered wall/roof ventilators.)) 6. *Ceiling fans*.
((6. Fans outside the scope of AMCA 205.)) 7. Fans used for moving gases at temperatures above 425°F (250°C).
((7. Fans that are intended to operate only during emergency conditions.)) 8. Fans used for operation in explosive atmospheres.
9. Reversible fans used for tunnel ventilation.
10. Fans that are intended to operate only during emergency conditions.
11. Fans outside the scope of AMCA 208.

C403.8.4 ((Group R occupancy exhaust fan efficacy. ~~The Group R occupancies of the building shall be provided with ventilation that meets the requirements of the *International Mechanical Code*, as applicable, or with other approved means of ventilation. Mechanical ventilation system fans with 400 cfm or less~~)) **Low-capacity ventilation fans.** Mechanical ventilation system fans with motors less than 1/12 hp (0.062 kW) in capacity shall meet the efficacy requirements of Table C403.8.4 at one or more rating points.

EXCEPTIONS: 1. ((Group R heat recovery ventilator and energy recovery ventilator fans that are less than 400 cfm.)) Where ventilation fans are a component of a listed heating or cooling appliance.
2. ((Where whole house ventilation fans are integrated with forced-air systems that are tested and listed HVAC equipment, provided they are powered by an electronically commutated motor where required by Section C405.8.)) Dryer exhaust duct power ventilators and domestic range booster fans that operate intermittently.
((3. Domestic clothes dryer booster fans, domestic range hood exhaust fans, and domestic range booster fans that operate intermittently.))

Table C403.8.4
((Group R Exhaust Fan Efficacy))
Low-Capacity Ventilation Fan Efficacy[a]

((Fan Location	Air Flow Rate Minimum (cfm)	Minimum Efficacy (cfm/watt)	Air Flow Rate Maximum (cfm)
Exhaust fan: Bathroom, utility room, whole house	10	2.8	< 90
Exhaust fan: Bathroom, utility room, whole house	90	3.5	Any
In-line (single-port and multi-port) fans	Any	3.8	Any))

Fan Location	Airflow Rate Minimum (cfm)	Minimum Efficacy (cfm/watt)	Airflow Rate Maximum (cfm)
HRV or ERV	Any	1.2 cfm/watt	Any
Range hood	Any	2.8 cfm/watt	Any
In-line fan	Any	3.8 cfm/watt	Any
Bathroom, utility room	10	2.8 cfm/watt	< 90
Bathroom, utility room	90	3.5 cfm/watt	Any

For SI: 1 cfm/ft = 47.82 W.
[a] Airflow shall be tested in accordance with HVI 916 and listed. Efficacy shall be listed or shall be derived from listed power and airflow. Fan efficacy for fully ducted HRV, ERV, balanced and in-line fans shall be determined at a static pressure not less than 0.2 inch w.c. Fan efficacy for ducted range hoods, bathroom, and utility room fans shall be determined at a static pressure not less than 0.1 inch w.c.

C403.8.5 Fan controls. Controls shall be provided for fans in accordance with Section C403.8.5.1 and as required for specific systems provided in Section C403.

C403.8.5.1 Fan airflow control. Each cooling system listed in Table C403.8.5.1 shall be designed to vary the indoor fan airflow as a function of load and shall comply with the following requirements:

1. Direct expansion (DX) and chilled water cooling units that control the capacity of the mechanical cooling directly based on space temperature shall have not fewer than two stages of fan control. Low

or minimum speed shall not be greater than 66 percent of full speed. At low or minimum speed, the fan system shall draw not more than 40 percent of the fan power at full fan speed. Low or minimum speed shall be used during periods of low cooling load and ventilation-only operation.

2. Other units including DX cooling units and chilled water units that control the space temperature by modulating the airflow to the space shall have modulating fan control. Minimum speed shall be not greater than 50 percent of full speed. At minimum speed, the fan system shall draw no more than 30 percent of the power at full fan speed. Low or minimum speed shall be used during periods of low cooling load and ventilation-only operation.

3. Units that include an airside economizer in accordance with Section C403.5 shall have not fewer than two speeds of fan control during economizer operation.

EXCEPTIONS: 1. Modulating fan control is not required for chilled water and evaporative cooling units with fan motors of less than 1 hp (0.746 kW) where the units are not used to provide ventilation air and the indoor fan cycles with the load.
2. Where the volume of outdoor air required to comply with the ventilation requirements of the *International Mechanical Code* at low speed exceeds the air that would be delivered at the minimum speed defined in Section C403.8.5, the minimum speed shall be selected to provide the required ventilation air.

Table C403.8.5.1
Fan Control

Cooling System Type	Fan Motor Size	Mechanical Cooling Capacity
DX cooling	Any	≥ 42,000 Btu/h
Chilled water and evaporative cooling	≥ 1/4 hp	Any

C403.8.6 Large-diameter ceiling fans. Where provided, *large-diameter ceiling fans* shall be tested and labeled in accordance with AMCA 230.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-4038, filed 11/26/19, effective 7/1/20.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-4039 Section C403.9—Heat rejection and heat recovery equipment.

C403.9 Heat rejection and heat recovery equipment.

C403.9.1 Heat rejection equipment. Heat rejection equipment, including air-cooled condensers, dry coolers, open-circuit cooling towers, closed-circuit cooling towers and evaporative condensers, shall comply with this section.

EXCEPTION: Heat rejection devices where energy usage is included in the equipment efficiency ratings listed in Tables ((~~C403.3.2(1)A, C403.3.2(1)B, C403.3.2(1)C, C403.3.2(2), C403.3.2(3), C403.3.2(7) and C403.3.2(9)~~)) C403.3.2(1), C403.3.2(2), C403.3.2(3), C403.3.2(4), C403.3.2(8), C403.3.2(9), C403.3.2(10) and C403.3.2(16).

Heat rejection equipment shall have a minimum efficiency performance not less than values specified in Table C403.3.2((~~(8)~~)) (7).

C403.9.1.1 Fan speed control. Each fan powered by an individual motor or array of motors with a connected power, including the motor service factor, totaling 5 hp (3.7 kW) or more shall have controls and devices configured to automatically modulate the fan speed to control the leaving fluid temperature or condensing temperature and pressure of the heat rejection device. Fan motor power input shall be not more than 30 percent of design wattage at 50 percent of the design airflow.

EXCEPTIONS: 1. Fans serving multiple refrigerant or fluid cooling circuits.
2. Condenser fans serving flooded condensers.

C403.9.1.2 Multiple-cell heat rejection equipment. Multiple-cell heat rejection equipment with variable speed fan drives shall be controlled to operate the maximum number of fans allowed that comply with the manufacturer's requirements for all system components and so that all fans can operate at the same fan speed required for the instantaneous cooling duty, as opposed to staged (on/off) operation. The minimum fan speed shall be the minimum allowable speed of the fan drive system in accordance with the manufacturer's recommendations.

C403.9.1.3 Limitation on centrifugal fan open-circuit cooling towers. Centrifugal fan open-circuit cooling towers with a combined rated capacity of 1,100 gpm (4164 L/m) or greater at 95°F (35°C) condenser water return, 85°F (29°C) condenser water supply, and 75°F (24°C) outdoor air wet-bulb temperature shall meet the energy efficiency requirement for axial fan open-circuit cooling towers listed in Table C403.3.2((~~(8)~~)) (7).

C403.9.1.4 Tower flow turndown. Open-circuit cooling towers used on water-cooled chiller systems that are configured with multiple- or variable-speed condenser water pumps shall be designed so that all open circuit cooling tower cells can be run in parallel with the larger of the flow that is produced by the smallest pump at its minimum expected flow rate or at 50 percent of the design flow for the cell.

C403.9.2 Heat recovery.

C403.9.2.1 Condenser heat recovery for service water heating. Condenser heat recovery shall be installed for heating or reheating of service hot water provided the facility operates 24 hours a day, the total installed heat capacity of water cooled systems exceeds 1,500,000 Btu/hr of heat rejection, and the design service water heating load exceeds 250,000 Btu/hr.

The required heat recovery system shall have the capacity to provide the smaller of:

1. Sixty percent of the peak heat rejection load at design conditions; or

2. The preheating required to raise the peak service hot water draw to 85°F (29°C).

EXCEPTIONS: 1. Facilities that employ condenser heat recovery for space heating or reheat purposes with a heat recovery design exceeding 30 percent of the peak water-cooled condenser load at design conditions.
2. Facilities that provide 60 percent of their service water heating from site recovered energy.

C403.9.2.2 Steam condensate systems. On-site steam heating systems shall have condensate water heat recovery. On-site includes a system that is located within or adjacent to one or more buildings within the boundary of a contiguous area or campus under one ownership and which serves one or more of those buildings.

Buildings using ((~~steam generated~~)) off-site ((~~with steam heating systems which do not have condensate water recovery shall have~~)) generated steam where the condensate is not returned to the source, shall have an on-site condensate water heat recovery system.

C403.9.2.3 Refrigeration condenser heat recovery. Facilities having food service, meat or deli departments and having 500,000 Btu/h or greater of remote refrigeration condensers shall have condenser waste heat recovery from freezers and coolers and shall use the waste heat for service water heating, space heating or for dehumidification reheat. Facilities having a gross conditioned floor area of 40,000 ft^2 or greater and 1,000,000 Btu/h or greater of remote refrigeration shall have condenser waste heat recovery from freezers and coolers and shall use the waste heat for service water heating, and either for space heating or for dehumidification reheat for maintaining low space humidity.

C403.9.2.4 Condenser heat recovery for space heating. A water-source condenser heat recovery system meeting the requirements of Sections C403.9.2.4.1 through C403.9.2.4.4 shall be installed to serve space and ventilation heating systems in new buildings and additions meeting the following criteria:

1. The facility operates greater than 70 hours per week.
2. The sum of all heat rejection equipment capacity serving the new building or addition exceeds 1,500,000 Btu/hr.
3. The sum of zone minimum airflows in all zones with zone reheat coils divided by the conditioned floor area served by those systems is at least 0.45 cfm per square foot.

EXCEPTION: Systems complying with Section C403.3.5, Dedicated outdoor air systems.

C403.9.2.4.1 Water-to-water heat recovery. Ninety percent (90%) of the total building space and ventilation heating system design load shall be served by systems that include heat recovery chiller or water-to-water heat pump equipment capable of rejecting heat from the cooling loop to the space and ventilation heating loop as the first stage of heating.

C403.9.2.4.2 Exhaust heat recovery. Heat shall be recovered by the heat recovery system from 90 percent of the total building exhaust airflow. The maximum leaving air temperature of exhaust air after heat recovery shall be 55°F dry-bulb when operating at full capacity in heat recovery mode.

EXCEPTIONS:
1. Where energy recovery systems are restricted by Section 514 of the International Mechanical Code to sensible energy, those systems shall not be included in the calculation of total building exhaust airflow.
2. Exhaust air systems handling contaminated airstreams that are regulated by applicable codes or accreditation standards and pose a health risk to maintenance personnel to maintain heat recovery devices, those systems shall not be included in the calculation of total building exhaust airflow.

C403.9.2.4.3 Process heat recovery. Spaces with year-round cooling loads from lights and equipment of 5 watts and greater per square foot shall be served by water-cooled equipment. Cooling loops serving the water-cooled equipment shall be served by water source heat recovery systems meeting the requirements of Section C403.9.2.4.1. If such spaces are provided with an air or water economizer, the economizer controls shall be configured with an override signal from the building automation system to disable economizer operation during heat recovery mode.

C403.9.2.4.4 Water-to-water heat recovery sizing. The minimum total combined capacity of heat recovery chillers or water-to-water heat

pumps shall match the total combined capacity of installed equipment sized to meet the requirements of Sections C403.9.2.4.2 and C403.9.2.4.3.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-4039, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-4039, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40391 Section C403.10—Construction of HVAC system elements.

C403.10 Construction of HVAC system elements. Ducts, plenums, piping and other elements that are part of an HVAC system shall be constructed and insulated in accordance with Sections C403.10.1 through C403.10.3.1.

C403.10.1 Duct and plenum insulation and sealing.

C403.10.1.1 Ducts, shafts, and plenums conveying outdoor air. ((~~Ducts,~~)) Shafts and plenums conveying outdoor air from the exterior of the building to the mechanical system shall meet all air leakage and building envelope insulation requirements of Section C402, plus building envelope vapor control requirements from the *International Building Code*((~~, extending~~)).

Ducts conveying outdoor air shall be insulated continuously from the building exterior to an automatic shutoff damper or heating or cooling equipment. ((~~For the purposes of building envelope insulation requirements,~~)) Duct surfaces shall be insulated with the minimum insulation values in Table C403.10.1.1. Duct surfaces included as part of the building envelope shall not be used in the calculation of maximum glazing area as described in Section C402.4.1.

EXCEPTION((S)): ((~~1.~~)) Outdoor air ducts serving individual supply air units with less than 2,800 cfm of total supply air capacity, provided these are insulated to the minimum insulation values in Table C403.10.1.1.
((~~2. Unheated equipment rooms with combustion air louvers, provided they are isolated from conditioned space at sides, top and bottom of the room with R-11 nominal insulation.~~))

Table C403.10.1.1
Outdoor Air Ductwork Insulation

Duct system	Duct Location and Use	Climate Zone	Airflow	Minimum Installed Duct Insulation *R*-value[a,b]	Notes
Outdoor Air	Inside conditioned space and upstream of automatic shutoff damper	4C and 5B	≥ 2800 CFM	R-16	See Section C403.10.1.1 for additional requirements
Outdoor Air	Inside conditioned space and downstream of automatic shutoff damper to HVAC unit or room	4C	≥ 2800 CFM	R-8	

Duct system	Duct Location and Use	Climate Zone	Airflow	Minimum Installed Duct Insulation *R*-value[a,b]	Notes
Outdoor Air	Inside conditioned space and downstream of automatic shutoff damper to HVAC unit or room	5B	≥ 2800 CFM	R-12	
Outdoor Air	Inside conditioned space	4C and 5B	≤ 2800 CFM	R-7	See Exception 1 to Section C403.10.1.1 for additional details

[a] Insulation *R*-values, measured in $h \cdot ft^{2} \cdot °F/Btu$, are for the insulation as installed and do not include film resistance. The required minimum thicknesses do not consider water vapor transmission and possible surface condensation. Insulation resistance measured on a horizontal plane in accordance with ASTM C518 at a mean temperature of 75°F at the installed thickness.
[b] See *International Mechanical Code* Sections 603.12 and 604 for further details on duct insulation requirements.

C403.10.1.2 Other supply and return ducts. All other supply and return air ducts and plenums shall be insulated with a minimum of R-6 insulation where located in unconditioned spaces, and where located outside the building with a minimum of R-8 insulation in Climate Zone 4 and R-12 insulation in Climate Zone 5. Ducts located underground beneath buildings shall be insulated as required in this section or have an equivalent *thermal distribution efficiency*. Underground ducts utilizing the *thermal distribution efficiency* method shall be listed and labeled to indicate the *R*-value equivalency. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by minimum insulation value as required for exterior walls by Section C402.1.3.

EXCEPTIONS: 1. Where located within equipment.
2. Supply and return ductwork located in unconditioned spaces where the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15°F (8°C) and are insulated in accordance with Table C403.10.1.2.

Where located within conditioned space, supply ducts which convey supply air at temperatures less than 55°F or greater than 105°F shall be insulated with a minimum insulation *R*-value in accordance with Table C403.10.1.2.

EXCEPTION: Ductwork exposed to view within a zone that serves that zone is not required to be insulated.

Where located within conditioned space, return or exhaust air ducts that convey return or exhaust air downstream of an energy recovery media shall be insulated with a minimum insulation *R*-value in accordance with Table C403.10.1.2.

All ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the *International Mechanical Code*.

Table C403.10.1.2
Supply, Return, Exhaust and Relief Air Ductwork Insulation

Duct System	Duct Location and Use	Climate Zone	Minimum Installed Duct Insulation *R*-value[a,b]	Notes
Supply air or return air	Outside the building (outdoors and exposed to weather)[c]	4C	R-8	See Section C403.10.1.2 for details
Supply air or return air	Outside the building (outdoors and exposed to weather)[c]	5B	R-12	See Section C403.10.1.2 for details

Duct System	Duct Location and Use	Climate Zone	Minimum Installed Duct Insulation *R*-value[a,b]	Notes
Supply air or return air	Unconditioned space (enclosed but not in the building conditioned envelope)	4C and 5B	R-6	See Section C403.10.1.2 for details
Supply air or return air	Unconditioned space where the duct conveys air that is within 15°F of the air temperature of the surrounding unconditioned space	4C and 5B	R-3.3	See IMC Section 603.12 for additional requirements for condensation control at ductwork
Supply air or return air	Where located in a building envelope assembly	4C and 5B	R-16	Duct or plenum is separated from building envelope assembly with the minimum insulation value
Supply air	Within conditioned space where the supply duct conveys air that is less than 55°F or greater than 105°F	4C and 5B	R-3.3	See Section C403.10.1.2 for details
Supply air	Within conditioned space that the duct directly serves where the supply duct conveys air that is less than 55°F or greater than 105°F	4C and 5B	None	See Section C403.10.1.2 for details
Supply air	Within conditioned space where the supply duct conveys air that is 55°F or greater and 105°F or less	4C and 5B	None	
Return or exhaust air	Within conditioned space, downstream of an energy recovery media, upstream of an automatic shutoff damper	4C	R-8	
Return or exhaust air	Within conditioned space, downstream of an energy recovery media, upstream of an automatic shutoff damper	5B	R-12	
Relief or exhaust air	Conditioned space and downstream of an automatic shutoff damper	4C and 5B	R-16	

[a] Insulation *R*-values, measured in $h \cdot ft^2 \cdot °F/Btu$, are for the insulation as installed and do not include film resistance. The required minimum thicknesses do not consider water vapor transmission and possible surface condensation. Insulation resistance measured on a horizontal plane in accordance with ASTM C518 at a mean temperature of 75°F at the installed thickness.

[b] See *International Mechanical Code* Sections 603.12 and 604 for further details on duct insulation requirements.

[c] Includes attics above insulated ceilings, parking garages and crawl spaces.

C403.10.2 Duct construction. Ductwork shall be constructed and erected in accordance with the *International Mechanical Code*. For the purposes of this section, longitudinal seams are joints oriented in the direction of airflow. Transverse joints are connections of two duct sections oriented perpendicular to airflow. Duct wall penetrations are openings made by any screw, fastener, pipe, rod, or wire. All other connections are considered transverse joints including, but not limited to, spin-ins, taps, and other branch connections, access door frames and jambs, and duct connections to equipment.

C403.10.2.1 Low-pressure duct systems. Longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches water gauge (w.g.) (500 Pa) shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus embedded-fabric systems or tapes installed in accordance with the manufacturer's installation instructions. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*.

EXCEPTION: Continuously welded and locking-type longitudinal joints and seams on ducts operating at static pressures less than 2 inches water gauge (w.g.) (500 Pa) pressure classification.

C403.10.2.2 Medium-pressure duct systems. Ducts and plenums designed to operate at a static pressure greater than 2 inches water gauge (w.g.) (500 Pa) but less than 3 inches w.g. (750 Pa) shall be insulated and sealed in accordance with Section C403.10.1. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*.

C403.10.2.3 High-pressure duct systems. Ducts designed to operate at static pressures equal to or greater than 3 inches water gauge (w.g.) (750 Pa) shall be insulated and sealed in accordance with Section C403.10.1. In addition, ducts and plenums shall be leak-tested in accordance with the SMACNA *HVAC Air Duct Leakage Test Manual* and shown to have a rate of air leakage (*CL*) less than or equal to 4.0 as determined in accordance with Equation ((~~4-9~~)) 4-12.

(Equation ((4-9)) 4-12)

$$CL \quad F/P^{0.65}$$

Where:

F The measured leakage rate in cfm per 100 square feet of duct surface.

P The static pressure of the test.

Documentation shall be furnished ((~~by the designer~~)) demonstrating that representative sections totaling at least 25 percent of the duct area have been tested and that all tested sections meet the requirements of this section.

C403.10.3 Piping insulation. All piping, other than field installed HVAC system refrigerant piping, serving as part of a heating or cooling system shall be thermally insulated in accordance with Table C403.10.3.

EXCEPTIONS:
1. Factory-installed piping within HVAC equipment tested and rated in accordance with a test procedure referenced by this code.
2. Factory-installed piping within room fan-coils and unit ventilators tested and rated according to AHRI 440 (except that the sampling and variation provisions of Section 6.5 shall not apply) and 840, respectively.
3. Piping that conveys fluids that have a design operating temperature range between 60°F (15°C) and 105°F (41°C).
4. Piping that conveys fluids that have not been heated or cooled through the use of fossil fuels or electric power.
5. Strainers, control valves, and balancing valves associated with piping 1 inch (25 mm) or less in diameter.
6. Direct buried piping that conveys fluids at or below 60°F (15°C).
7. In radiant heating systems, sections of piping intended by design to radiate heat.

Table C403.10.3
Minimum Pipe Insulation Thickness (thickness in inches)[a]

Fluid Operating Temperature Range and Usage (°F)	Insulation Conductivity		Nominal Pipe or Tube Size (inches)				
	Conductivity Btu • in. /(h • ft^2 • °F)[b]	Mean Rating Temperature, °F	< 1	1 to < 1-1/2	1-1/2 to < 4	4 to < 8	≥ 8
> 350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0

Fluid Operating Temperature Range and Usage (°F)	Insulation Conductivity		Nominal Pipe or Tube Size (inches)				
	Conductivity Btu • in. /(h • ft^2 • °F)[b]	Mean Rating Temperature, °F	< 1	1 to < 1-1/2	1-1/2 to < 4	4 to < 8	≥ 8
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
105 - 140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 - 0.26	75	0.5	1.0	1.0	1.0	1.5

[a] For piping smaller than 1-1/2 inch (38 mm) and located in partitions within *conditioned spaces*, reduction of these thicknesses by 1 inch (25 mm) shall be permitted (before thickness adjustment required in footnote b) but not to a thickness less than 1 inch (25 mm).

[b] For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows:

$$T \qquad r\{(1 + t/r)^{K/k} - 1\}$$

Where:

T = Minimum insulation thickness.

r = Actual outside radius of pipe.

t = Insulation thickness listed in the table for applicable fluid temperature and pipe size.

K = Conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature (Btu × in/h × ft^2 × °F).

k = The upper value of the conductivity range listed in the table for the applicable fluid temperature.

[c] For direct-buried heating and hot water system piping, reduction of these thicknesses by 1-1/2 inches (38 mm) shall be permitted (before thickness adjustment required in footnote b but not to thicknesses less than 1 inch (25 mm).

C403.10.3.1 Protection of piping insulation. Piping insulation exposed to weather shall be protected from damage, including that due to sunlight, moisture, ((~~equipment maintenance~~)) physical damage and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Protection shall be removable for no less than six feet from the equipment for maintenance. Adhesive((~~s~~)) tape shall not be permitted.

C403.10.4 Insulation of HVAC system refrigerant piping. Field installed HVAC refrigerant piping, other than piping factory installed in HVAC equipment, shall have insulation as listed below, at a conductivity rating of 0.21 to 0.26 Btu × in/(h × ft^2 × °F) with a mean temperature rating of 75°F. Piping insulation exposed to weather shall be protected from damage, including that due to sunlight, moisture, physical damage and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted. Manufacturer's required minimum pipe insulation shall be maintained.

1. For lines that convey hot gas for space heating:

1.1. Minimum 1-inch insulation on the portions outside the building thermal envelope.

1.2. Minimum 1/2-inch insulation on the portions within the building thermal envelope.

2. Minimum 1/2-inch insulation on the liquid line for mini-split systems and other systems for which insulation is required by the manufacturer, or where the metering device is located in the outdoor unit.

3. No insulation is required on the liquid line for other heat pump types or for cooling-only units where insulation is not required by the manufacturer.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40391, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chap-

ter 19.27 RCW. WSR 19-24-040, § 51-11C-40391, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40393 Section C403.12—High efficiency single zone VAV systems.

C403.12 High efficiency single-zone variable air volume (VAV) systems. For HVAC systems subject to the requirements of Section C403.3.5 but utilizing Exception 2 of that section, a high efficiency single-zone VAV system may be provided without a separate parallel DOAS when the system is designed, installed, and configured to comply with all of the following criteria (this exception shall not be used as a substitution for a DOAS per Section C406.6 or as a modification to the requirements for the *Standard Reference Design* in accordance with Section C407):

1. The single-zone VAV system is provided with airside economizer in accordance with Section C403.3 without exceptions.

2. A direct-digital control (DDC) system is provided to control the system as a single zone in accordance with Section C403.4.11 regardless of sizing thresholds of Table C403.4.11.1.

3. Single-zone VAV systems with a minimum outdoor air requirement of 1,000 cfm (472 L/s) or greater shall be equipped with a device capable of measuring outdoor airflow intake under all load conditions. The system shall be capable of increasing or reducing the outdoor airflow intake based on Section C403.7.1, Demand controlled ventilation.

4. Allowable fan ((~~motor horsepower~~)) power shall not exceed 90 percent of the allowable ((~~HVAC fan system bhp (Option 2)~~)) fan power budget as defined by Section C403.8.1.1.

5. Each single-zone VAV system shall be designed to vary the supply fan airflow as a function of heating and cooling load and minimum fan speed shall not be more than the greater of:

5.1. 30 percent of peak design airflow; or

5.2. The required ventilation flow assuming no occupants.

6. Spaces that are larger than 150 square feet (14 m^2) and with an occupant load greater than or equal to 25 people per 1000 square feet (93 m^2) of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) shall be provided with all of the following features:

6.1. Demand control ventilation (DCV) shall be provided that utilizes a carbon dioxide sensor to reset the ventilation setpoint of the single-zone VAV system from the design minimum to design maximum ventilation rate as required by Chapter 4 of the *International Mechanical Code*.

6.2. Occupancy sensors shall be provided that are configured to reduce the minimum ventilation rate to zero and setback room temperature setpoints by a minimum of 5°F, for both cooling and heating, when the space is unoccupied.

7. Single-zone VAV systems shall comply with one of the following options:

7.1. Single-zone VAV air handling units with a hydronic heating coil connected to systems with hot water generation equipment limited to the following types of equipment: Gas-fired hydronic boilers with a

thermal efficiency, E_t, of not less than 92 percent, air-to-water heat pumps or heat recovery chillers. Hydronic heating coils shall be sized for a maximum entering hot water temperature of 120°F for peak anticipated heating load conditions.

7.2. Single-zone VAV air handing units with a chilled water coil connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than the minimum part load efficiencies listed in Table C403.3.2((~~(7)~~)) (3), in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify. The smallest chiller or compressor in the central plant shall not exceed 20 percent of the total central plant cooling capacity or the chilled water system shall include thermal storage sized for a minimum of 20 percent of the total central cooling plant capacity.

7.3. Single-zone VAV air handling units with DX cooling, heat pump heating or gas-fired furnace shall comply with the following requirements as applicable:

7.3.1. Have a DX cooling coil with cooling part load efficiency that is a minimum of 15 percent higher than the minimum SEER or IEER listed in Tables C403.3.2(1), C403.3.2(2), and C403.3.2((~~(2)~~)) (14).

7.3.2. Have a gas-fired furnace with a thermal efficiency, E_t, of not less than 90 percent or heat pump with a minimum heating HSPF or COP efficiency that are a minimum of 10 percent higher than the minimum heating efficiency in Tables C403.3.2(1), C403.3.2(2), and C403.3.2((~~(2)~~)) (14).

7.3.3. Heating coils or burner output shall be modulating or have a minimum of 2 stages with the first stage being less than 50 percent of total heating capacity. Cooling coils shall be modulating or have a minimum of 2 stages with the first stage being less than 50 percent of the total cooling capacity.

8. The DDC system shall include a fault detection and diagnostics (FDD) system complying with the following:

8.1. The following temperature sensors shall be permanently installed to monitor system operation:

8.1.1. Outside air.

8.1.2. Supply air.

8.1.3. Return air.

8.2. Temperature sensors shall have an accuracy of ±2°F (1.1°C) over the range of 40°F to 80°F (4°C to 26.7°C).

8.3. The single-zone VAV air handling unit controller shall be configured to provide system status by indicating the following:

8.3.1. Free cooling available.

8.3.2. Economizer enabled.

8.3.3. Compressor enabled.

8.3.4. Heating enabled.

8.3.5. Mixed air low limit cycle active.

8.3.6. The current value of each sensor.

8.4. The single-zone VAV air handling unit controller shall be capable of manually initiating each operating mode so that the operation of compressors, economizers, fans and the heating system can be independently tested and verified.

8.5. The single-zone VAV air handling unit shall be configured to report faults to a fault management application able to be accessed by day-to-day operating or service personnel or annunciated locally on zone thermostats.

8.6. The FDD system shall be configured to detect the following faults:

8.6.1. Air temperature sensor failure/fault.

8.6.2. Not economizing when the unit should be economizing.

8.6.3. Economizing when the unit should not be economizing.

8.6.4. Outdoor air or return air damper not modulating.

8.6.5. Excess outdoor air.

((~~**C403.13 Commissioning.** Mechanical systems shall be commissioned in accordance with Section C408.~~))

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40393, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40393, filed 11/26/19, effective 7/1/20.]

NEW SECTION

WAC 51-11C-40394 Section C403.13—Dehumidification for plant growth.

C403.15 Dehumidification in spaces for plant growth and maintenance. Equipment that dehumidifies building spaces used for plant growth and maintenance shall be one of the following:

1. *Stand-alone dehumidifiers* that meet the following minimum integrated energy factors as measured by the test conditions in Appendix X1 to Subpart B of 10 C.F.R. Part 430:

1.1. Minimum integrated energy factor of 1.77 L/kWh for product case volumes of 8.0 cubic feet or less;

1.2. Minimum integrated energy factor of 2.41 L/kWh for product case volumes greater than 8.0 cubic feet;

2. *Integrated HVAC system* including, but not limited to, heat pump technology, with on-site heat recovery designed to fulfill at least 75 percent of the annual energy for dehumidification reheat;

3. Chilled water system including, but not limited to, heat pump technology, with on-site heat recovery designed to fulfill at least 75 percent of the annual energy for dehumidification reheat; or

4. Solid or liquid *desiccant dehumidification system* for system designs that require dewpoint of 50°F (10°C) or less.

C403.14 Commissioning. Mechanical systems shall be commissioned in accordance with Section C408.

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AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40401 Section C404.1—General.

C404.1 General. This section covers the minimum efficiency of, and controls for, service water-heating equipment and insulation of service hot water piping.

EXCEPTION: Energy using equipment used by a manufacturing, industrial or commercial process other than maintaining comfort and amenities for the occupants are exempt from all Section C404 subsections except Sections C404.2 and C404.13.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40401, filed 2/1/13, effective 7/1/13.]

OPTION 1

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40402 Section C404.2—Service water-heating equipment performance efficiency.

C404.2 Service water-heating equipment performance efficiency. Water-heating equipment and hot water storage tanks shall meet the requirements of Table C404.2. The efficiency shall be verified through certification and *listed* under an *approved* certification program, or if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Water-heating equipment intended to be used to provide space heating shall meet the applicable provisions of Table C404.2.

C404.2.1 High input-rated service water heating systems for other than Group R-1 and R-2 occupancies. In new buildings where the combined input rating of the water-heating equipment installed in a building is equal to or greater than 1,000,000 Btu/h (293 kW), the ((~~combined input-capacity-weighted-average efficiency of water-heating equipment shall be no less than the following for each water heating fuel source~~)) water-heating equipment serving occupancies other than Group R-1 and R-2 shall be one or both of the following:

1. ((~~Electric: A rated COP of not less than 2.0. For air-source heat pump equipment, the COP rating will be reported at the design leaving heat pump water temperature with an entering air temperature of 60°F (15.6°C) or less~~)) Heat pump water heater.

2. Fossil fuel((~~: A~~)) fired with a combined input-capacity-weighted-average rated E_t of not less than ((~~90~~)) 92 percent as determined by the applicable test procedure in Table C404.2.

EXCEPTIONS:
1. Where not less than 25 percent of the annual service water-heating requirement is provided from any of the following sources:
1.1. Renewable energy generated on-site that is not being used to satisfy another requirement of this code; or
1.2. Site-recovered energy that is not being used to satisfy other requirements of this code.
2. Redundant equipment intended to only operate during equipment failure or periods of extended maintenance.
3. Electric resistance heated systems installed as part of an alteration where the water heating equipment is installed at the grade level in a building with a height of four stories or greater.
4. Hot water heat exchangers used to provide service water heating from a district utility (steam, heating hot water).
5. Water heaters provided as an integral part of equipment intended to only heat or boost the heat of water used by that equipment.
6. ((~~For electric heat systems, supplemental water heaters not meeting this criteria that function as auxiliary heating only when the outdoor temperature is below 32°F (0°C) or when a defrost cycle is required are not required to have a rated COP of 2.0. Such systems shall be sized and configured to lock out electric resistance or fossil fuel heating from operation when the outdoor temperature is above 32°F (0°C) unless the system is in defrost operation.~~)) For heat pump water heater systems, supplemental electric resistance and fossil fuel water heaters that function as auxiliary heating only when the outdoor temperature is below 32°F (0°C) or when a defrost cycle is required. Such systems shall be sized and configured to lock out electric resistance or fossil fuel heating from operation when the outdoor temperature is above 32°F (0°C).
7. Systems connected to a *low-carbon district energy exchange system*.

C404.2.2 High input-rated service water heating system for Group R-1 and R-2 occupancies. In new buildings with over 1,000,000 Btu/h installed service water heating capacity serving Group R-1 and R-2 occupancies, at least 25 percent of annual water heating energy shall be provided from any combination of the following water heating sources:

1. Renewable energy generated on-site that is not being used to satisfy other requirements of this code; or

2. Site-recovered energy that is not being used to satisfy other requirements of this code.

EXCEPTION: Compliance with this section is not required if ((~~the combined input-capacity-weighted average equipment rating for each service water heating fuel source type is not less than~~)) all service water heating is accomplished by equipment complying with one or more of the following:

1. Electric Resistance: ((~~An electric resistance water heater with a rating of 105 percent of the rated efficiency of Table C404.2.~~)) Electric resistance water heaters with an input capacity weighted average rating exceeding the average minimum efficiency of Table C404.2 by 5 percent.

2. Electric Heat Pump ((~~(10 C.F.R. Part 430): A heat pump water heater rated in accordance with 10 C.F.R. Part 430 with a rating of 105 percent of the rated efficiency of Table C404.2.~~)):

2.1. Heat pump water heaters with rated input of 12 kW or less and rated in accordance with 10 C.F.R. Part 430.

2.2. Commercial heat pump water heaters tested in accordance with Appendix E, Subpart G of 10 C.F.R. 431. Such systems shall be sized and configured to lock out electric resistance or fossil fuel heating from operation when the outdoor temperature is above 32°F (0°C) unless the system is in defrost operation.

3. ((~~Electric Heat Pump (not listed in accordance with 10 C.F.R. Part 430): A heat pump water heater not rated in accordance with 10 C.F.R. Part 430 shall have a COP of not less than 2.0. For air-source heat pump equipment the COP rating will be reported at the design leaving heat pump water temperature with an entering air temperature of 60°F (15.6°C) or less. Supplemental water heaters not meeting the above criteria that function as auxiliary heating only when the outdoor temperature is below 32°F (0°C) or when a defrost cycle is required are not required to have a rated COP of 2.0. Such systems shall be sized and configured to lock out electric resistance or fossil fuel heating from operation when the outdoor temperature is above 32°F (0°C) unless the system is in defrost operation.~~

~~4.~~)) Fossil Fuels: ((~~A~~)) Fossil fuel water heaters with an input capacity weighted rated E_t of not less than ((~~90~~)) 92 percent as determined by the applicable test procedures in Table C404.2.

((~~5.~~)) 4. Hot water heat exchangers used to provide service water heating from a district utility (steam, heating hot water).

5. Systems connected to a *low-carbon district energy exchange system*.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40402, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40402, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40402, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40402, filed 2/1/13, effective 7/1/13.]

OPTION 2

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40402 Section C404.2—Service water-heating equipment performance efficiency.

C404.2 Service water-heating equipment performance efficiency. Water-heating equipment and hot water storage tanks shall meet the requirements of Table C404.2. The efficiency shall be verified through certification and *listed* under an *approved* certification program, or if no certification program exists, the equipment efficiency ratings

shall be supported by data furnished by the manufacturer. Water-heating equipment intended to be used to provide space heating shall meet the applicable provisions of Table C404.2.

((**~~C404.2.1 High input-rated service water heating systems for other than Group R-1 and R-2 occupancies.~~** ~~In new buildings where the combined input rating of the water-heating equipment installed in a building is equal to or greater than 1,000,000 Btu/h (293 kW), the combined input-capacity-weighted-average efficiency of water-heating equipment shall be no less than the following for each water heating fuel source:~~

~~1. Electric: A rated COP of not less than 2.0. For air-source heat pump equipment, the COP rating will be reported at the design leaving heat pump water temperature with an entering air temperature of 60°F (15.6°C) or less.~~

~~2. Fossil Fuel: A rated E_t of not less than 90 percent as determined by the applicable test procedure in Table C404.2.~~

~~EXCEPTIONS:~~

~~1. Where not less than 25 percent of the annual service water-heating requirement is provided from any of the following sources:~~
~~1.1. Renewable energy generated on-site that is not being used to satisfy another requirement of this code; or~~
~~1.2. Site-recovered energy that is not being used to satisfy other requirements of this code.~~
~~2. Redundant equipment intended to only operate during equipment failure or periods of extended maintenance.~~
~~3. Electric resistance heated systems installed as part of an alteration where the water heating equipment is installed at the grade level in a building with a height of four stories or greater.~~
~~4. Hot water heat exchangers used to provide service water heating from a district utility (steam, heating hot water).~~
~~5. Water heaters provided as an integral part of equipment intended to only heat or boost the heat of water used by that equipment.~~
~~6. For electric heat systems, supplemental water heaters not meeting this criteria that function as auxiliary heating only when the outdoor temperature is below 32°F (0°C) or when a defrost cycle is required are not required to have a rated COP of 2.0. Such systems shall be sized and configured to lock out electric resistance or fossil fuel heating from operation when the outdoor temperature is above 32°F (0°C) unless the system is in defrost operation.~~

~~C404.2.2 High input-rated service water heating system for Group R-1 and R-2 occupancies.~~ ~~In new buildings with over 1,000,000 Btu/h installed service water heating capacity serving Group R-1 and R-2 occupancies, at least 25 percent of annual water heating energy shall be provided from any combination of the following water heating sources:~~

~~1. Renewable energy generated on-site that is not being used to satisfy other requirements of this code; or~~

~~2. Site-recovered energy that is not being used to satisfy other requirements of this code.~~

~~EXCEPTION:~~

~~Compliance with this section is not required if the combined input-capacity-weighted average equipment rating for each service water heating fuel source type is not less than the following:~~
~~1. Electric Resistance: An electric resistance water heater with a rating of 105 percent of the rated efficiency of Table C404.2.~~
~~2. Electric Heat Pump (10 C.F.R. Part 430): A heat pump water heater rated in accordance with 10 C.F.R. Part 430 with a rating of 105 percent of the rated efficiency of Table C404.2.~~
~~3. Electric Heat Pump (not listed in accordance with 10 C.F.R. Part 430): A heat pump water heater not rated in accordance with 10 C.F.R. Part 430 shall have a COP of not less than 2.0. For air-source heat pump equipment the COP rating will be reported at the design leaving heat pump water temperature with an entering air temperature of 60°F (15.6°C) or less. Supplemental water heaters not meeting the above criteria that function as auxiliary heating only when the outdoor temperature is below 32°F (0°C) or when a defrost cycle is required are not required to have a rated COP of 2.0. Such systems shall be sized and configured to lock out electric resistance or fossil fuel heating from operation when the outdoor temperature is above 32°F (0°C) unless the system is in defrost operation.~~
~~4. Fossil Fuels: A rated E_t of not less than 90 percent as determined by the applicable test procedures in Table C404.2.~~
~~5. Hot water heat exchangers used to provide service water heating from a district utility (steam, heating hot water).~~))

C404.2.1 Service water heating system type. Service water-heating equipment shall not use fossil fuel combustion or electric resistance. Service hot water shall be provided by an electric air-source heat pump water heating (HPWH) system meeting the requirements of this section. Supplemental service water heating equipment is permitted to use electric resistance in compliance with Section C404.2.1.4.

EXCEPTIONS:

1. 24 kW plus 0.1 watts per square foot of building area of electric resistance service water heating capacity is allowed per building.
2. Solar thermal, wastewater heat recovery, other *approved* waste heat recovery, ground source heat pumps, water-source heat pump systems utilizing waste heat, and combinations thereof, are permitted to offset all or any portion of the required HPWH capacity where such systems comply with this code and the *Uniform Plumbing Code*.
3. Systems that comply with the Northwest Energy Efficiency Alliance (NEEA) Commercial Electric Advanced Water Heating Specification.
4. Service hot water systems served by a district energy system that serves multiple buildings and that was in service before the effective date of this code.

5. Commercial dishwashers, commercial food service equipment, and other *approved* process equipment are permitted to utilize electric booster heaters for supply water temperatures 120°F (49°C) or higher.

C404.2.1.1 Primary heat pump system sizing. The system shall include a primary service output of 100 percent load at 40°F (4°C) dry bulb or wet bulb outdoor air temperature for air-source heat pumps, or 44°F (7°C) ground temperature for ground-source heat pumps that provides sufficient hot water as calculated using the equipment manufacturer's selection criteria or another *approved* methodology. Electric air source heat pumps shall be sized to deliver no less than 50 percent of the calculated demand for hot water production during the peak demand period when entering dry bulb or wet bulb outdoor air temperature of 24°F (-4°C).

EXCEPTION: Fifty percent sizing at entering dry bulb or wet bulb air temperature of 24°F (-4°C) is not required for air-source heat pumps located in a below-grade enclosed parking structure or other ventilated and unconditioned space that is not anticipated to fall below 40°F (4°C) at any time.

C404.2.1.2 Primary hot water storage sizing. The system shall provide sufficient hot water to satisfy peak demand period requirements.

C404.2.1.3 System design. The service water heating system shall be configured to conform to one of the following provisions:

1. For *single-pass* HPWHs, *temperature maintenance* heating provided for reheating return water from the building's heated water circulation system shall be physically decoupled from the primary service water heating system storage tank(s) in a manner that prevents destratification of the primary system storage tanks. *Temperature maintenance* heating is permitted to be provided by electric resistance or a separate dedicated heat pump system.

2. For *multi-pass* HPWHs, *recirculated temperature* maintenance water is permitted to be returned to the primary water storage tanks for reheating.

3. For unitary HPWHs, located in conditioned space, are permitted, where they are sized to meet all calculated service water heating demand using the heat pump compressor, and not supplementary heat.

C404.2.1.3.1 Mixing valve. A thermostatic mixing valve capable of supplying hot water to the building at the user temperature setpoint shall be provided, in compliance with requirements of the *Uniform Plumbing Code* and the HPWH manufacturer's installation guidelines. The mixing valve shall be sized and rated to deliver tempered water in a range from the minimum flow of the *temperature maintenance* recirculation system up to the maximum demand for the fixtures served.

C404.2.1.4 Supplemental water heating. Total supplemental electric resistance water heating equipment shall not have an output capacity greater than the primary water heating equipment at 40°F (4°C) entering dry bulb or wet bulb outdoor air temperature for air-source heat pumps or 44°F (7°C) ground temperature for ground-source heat pumps. Supplemental electric resistance heating is permitted for the following uses:

1. *Temperature maintenance* of heated-water circulation systems, physically separate from the primary service water heating system. *Temperature maintenance* heating capacity shall be no greater than the primary water heating capacity at 40°F (4°C) dry bulb or wet bulb outdoor air temperature for air-source heat pumps or 44°F (7°C) ground temperature for ground-source heat pumps.

2. Defrost of compressor coils.

3. Heat tracing of piping for freeze protection or for *temperature maintenance* in lieu of recirculation of hot water.

4. Backup or low ambient temperature conditions, where all of the following are true:

4.1. The supplemental heating capacity is no greater than the primary service water heating capacity at 40°F (4°C) dry bulb or wet bulb outdoor air temperature for air-source heat pumps or 44°F (7°C) ground temperature for ground-source heat pumps.

4.2. During normal operations, the supplemental heating is controlled to operate only when the entering air temperature at the air-source HPWH is below 40°F (4°C), and the primary HPWH compressor continues to operate together with the supplemental heating when the entering air temperature is between 17°F (-8°C) and 40°F (4°C).

4.3. The primary water heating equipment cannot satisfy the system load due to equipment failure or entering air temperature below 40°F (4°C).

C404.2.1.5 Alarms. The control system shall be capable of and configured to send automatic error alarms to building or maintenance personnel upon detection of equipment faults, low leaving water temperature from primary storage tanks, or low hot water supply delivery temperature to building distribution system.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40402, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40402, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40402, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40402, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-404021 Table C404.2—Minimum performance of water-heating equipment.

Table C404.2
Minimum Performance of Water-Heating Equipment

((~~Equipment Type~~	~~Size Category (input)~~	~~Subcategory or Rating Condition~~	~~Performance Required[a, b]~~	~~Test Procedure~~
~~Storage water heaters, electric~~	~~≤ 12 kW[d]~~	~~Tabletop[e] ≥ 20 gal and ≥ 120 gal~~	~~0.93 - 0.00132V, EF~~	~~DOE 10 C.F.R. Part 430~~
		~~Resistance ≥ 20 gal and ≤ 55 gal~~	~~0.960 - 0.0003V, EF~~	
		~~Grid-enabled[f] > 75 gal and ≤ 120 gal~~	~~1.06 - 0.00168V, EF~~	
	~~> 12 kW[d]~~	~~Resistance~~	~~$(0.3 + 27)/V_m$,%/h[g]~~	~~Section G.2 of ANSI Z21.10.3~~
	~~≤ 24 amps and ≤ 250 volts~~	~~Heat pump~~	~~2.057 - 0.00113V, EF~~	~~DOE 10 C.F.R. Part 430~~
~~Instantaneous water heaters, electric~~	~~All~~	~~Resistance~~	~~0.93 - 0.00132V, EF~~	~~DOE 10 C.F.R. Part 430~~
~~Storage water heaters, gas~~	~~≤ 75,000 Btu/h~~	~~≥ 20 gal and ≤ 55 gal~~	~~0.675 - 0.0015V, EF~~	~~DOE 10 C.F.R. Part 430~~
		~~> 55 gal and ≤ 100 gal~~	~~0.8012 - 0.00078V, EF~~	
	~~> 75,000 Btu/h~~	~~< 4,000 Btu/h/gal~~	~~80% E_t $(Q/800 + 110\sqrt{V})$ SL, Btu/h~~	~~Section G.1 and G.2 of ANSI Z21.10.3~~

((~~Equipment Type~~	~~Size Category (input)~~	~~Subcategory or Rating Condition~~	~~Performance Required[a, b]~~	~~Test Procedure~~
~~Instantaneous water heaters, gas~~	~~> 50,000 Btu/h and < 200,000 Btu/h~~	~~≥ 4,000 (Btu/h)/gal and < 2 gal~~	~~0.82 - 0.0019V, EF~~	~~DOE 10 C.F.R. Part 430~~
	~~≥ 200,000 Btu/h[c]~~	~~≥ 4,000 Btu/h/gal and < 10 gal~~	~~80% E_t~~	~~Section G.1 and G.2 of ANSI Z21.10.3~~
	~~≥ 200,000 Btu/h~~	~~≥ 4,000 Btu/h/gal and ≥ 10 gal~~	~~80% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h~~	
~~Storage water heaters, oil~~	~~≤ 105,000 Btu/h~~	~~≥ 20 gal~~	~~0.68 - 0.0019V, EF~~	~~DOE 10 C.F.R. Part 430~~
	~~> 105,000 Btu/h~~	~~< 4,000 Btu/h/gal~~	~~80% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h~~	~~Section G.1 and G.2 of ANSI Z21.10.3~~
~~Instantaneous water heaters, oil~~	~~≤ 210,000 Btu/h~~	~~≥ 4,000 Btu/h/gal and < 2 gal~~	~~0.59 - 0.0019V, EF~~	~~DOE 10 C.F.R. Part 430~~
	~~> 210,000 Btu/h~~	~~≥ 4,000 Btu/h/gal and < 10 gal~~	~~80% E_t~~	~~Section G.1 and G.2 of ANSI Z21.10.3~~
	~~> 210,000 Btu/h~~	~~≥ 4,000 Btu/h/gal and ≥ 10 gal~~	~~78% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h~~	
~~Hot water supply boilers, gas and oil~~	~~≥ 300,000 Btu/h and < 12,500,000 Btu/h~~	~~≥ 4,000 Btu/h/gal and < 10 gal~~	~~80% E_t~~	~~Section G.1 and G.2 of ANSI Z21.10.3~~
~~Hot water supply boilers, gas~~	~~≥ 300,000 Btu/h and < 12,500,000 Btu/h~~	~~≥ 4,000 Btu/h/gal and ≥ 10 gal~~	~~80% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h~~	
~~Hot water supply boilers, oil~~	~~≥ 300,000 Btu/h and < 12,500,000 Btu/h~~	~~≥ 4,000 Btu/h/gal and > 10 gal~~	~~78% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h~~	
~~Pool heaters, gas and oil~~	~~All~~	~~—~~	~~82% E_t~~	~~ASHRAE 146~~
~~Heat pump pool heaters~~	~~All~~	~~—~~	~~4.0 COP~~	~~AHRI 146~~
~~Unfired storage tanks~~	~~All~~	~~—~~	~~Minimum insulation requirement R-12.5 (h • ft^2 • °F)/Btu~~	~~(none)~~

~~For SI: °C = [(°F) - 32]/1.8, 1 British thermal unit per hour = 0.2931 W, 1 gallon = 3.785 L, 1 British thermal unit per hour per gallon = 0.078 W/L.~~

~~[a] Energy factor (EF) and thermal efficiency (E_t) are minimum requirements. In the EF equation, V is the rated volume in gallons.~~

~~[b] Standby loss (SL) is the maximum Btu/h based on a nominal 70°F temperature difference between stored water and ambient requirements. In the SL equation, Q is the nameplate input rate in Btu/h. In the SL equation for electric water heaters, V is the rated volume in gallons and V_m is the measured volume in gallons. In the SL equation for oil and gas water heaters and boilers, V is the rated volume in gallons.~~

~~[c] Instantaneous water heaters with input rates below 200,000 Btu/h shall comply with these requirements if the water heater is designed to heat water to temperatures 180°F or higher.~~

~~[d] Electric water heaters with an input rating of 12 kW (40,950 Btu/h) or less that are designed to heat water to temperatures of 180°F or greater shall comply with the requirements for electric water heaters that have an input rating greater than 12 kW (40,950 Btu/h).~~

~~[e] A tabletop water heater is a water heater that is enclosed in a rectangular cabinet with a flat top surface not more than three feet (0.91 m) in height.~~

~~[f] A grid-enabled water heater is an electric resistance water heater that meets all of the following:~~

~~1. Has a rated storage tank volume of more than 75 gallons.~~

~~2. Is manufactured on or after April 16, 2015.~~

~~3. Is equipped at the point of manufacture with an activation lock.~~

~~4. Bears a permanent label applied by the manufacturer that complies with all of the following:~~

~~4.1. Is made of material not adversely affected by water.~~

~~4.2. Is attached by means of nonwater soluble adhesive.~~

~~4.3. Advises purchasers and end-users of the intended and appropriate use of the product with the following notice printed in 16.5 point Arial narrow bold font: "IMPORTANT INFORMATION: This water heater is intended only for use as a part of an electric thermal storage or demand response program. It will not provide adequate hot water unless enrolled in such a program and activated by your utility company or another program operator. Confirm the availability of a program in your local area before purchasing or installing this product."~~

~~[g] %/h is the energy consumed to replace the heat loss from the tank while on standby, expressed as a percentage of the total energy in the stored water per hour.~~))

Equipment Type	Size Category (input)	Subcategory or Rating Condition	Draw Pattern	Performance Required[a]	Test Procedure[b]
Electric table-top water heaters[g]	≤ 12 kW	≥ 20 gal ≤ 120 gal[f]	Very small Low Medium High	UEF ≥ 0.6323 - (0.0058 × Vr) UEF ≥ 0.9188 - (0.0031 × Vr) UEF ≥ 0.9577 - (0.0023 × Vr) UEF ≥ 0.9884 - (0.0016 × Vr)	DOE 10 C.F.R. Part 430 App. E
Electric storage water heaters[g,i] resistance and heat pump	≤ 12 kW	≥ 20 gal ≤ 55 gal[f]	Very small Low Medium High	UEF ≥ 0.8808 - (0.0008 × Vr) UEF ≥ 0.9254 - (0.0003 × Vr) UEF ≥ 0.9307 - (0.0002 × Vr) UEF ≥ 0.9349 - (0.0001 × Vr)	DOE 10 C.F.R. Part 430 App. E
	≤ 12 kW	> 55 gal ≤ 120 gal[f]	Very small Low Medium High	UEF ≥ 1.9236 - (0.0011 × Vr) UEF ≥ 2.0440 - (0.0011 × Vr) UEF ≥ 2.1171 - (0.0011 × Vr) UEF ≥ 2.2418 - (0.0011 × Vr)	DOE 10 C.F.R. Part 430 App. E

Equipment Type	Size Category (input)	Subcategory or Rating Condition	Draw Pattern	Performance Required[a]	Test Procedure[b]
Electric storage water heaters[g,i]	> 12 kW			(0.3 + 27/Vm), %h	DOE 10 C.F.R. 431.106 App B.
Grid-enabled water heaters[g]		> 75 gal[f]	Very small Low Medium High	UEF ≥ 1.0136 - (0.0028 × Vr) UEF ≥ 0.9984 - (0.0014 × Vr) UEF ≥ 0.9853 - (0.0010 × Vr) UEF ≥ 0.9720 - (0.0007 × Vr)	10 C.F.R. 430 Appendix E
Electric instantaneous water heater[h]	≤ 12 kW	< 2 gal[f]	Very small Low Medium High	UEF ≥ 0.91 UEF ≥ 0.91 UEF ≥ 0.91 UEF ≥ 0.92	DOE 10 C.F.R. Part 430
	> 12 kW & ≤ 58.6 kW[c]	≤ 2 gal ≤ 180F	All	UEF ≥ 0.80	DOE 10 C.F.R. Part 430
Gas storage water heaters[g]	≤ 75,000 Btu/h	≥ 20 gal & ≤ 55 gal[f]	Very small Low Medium High	UEF ≥ 0.3456 - (0.0020 × Vr) UEF ≥ 0.5982 - (0.0019 × Vr) UEF ≥ 0.6483 - (0.0017 × Vr) UEF ≥ 0.6920 - (0.0013 × Vr)	DOE 10 C.F.R. Part 430 App. E
	≤ 75,000 Btu/h	> 55 gal & ≤ 100 gal[f]	Very small Low Medium High	UEF ≥ 0.6470 - (0.0006 × Vr) UEF ≥ 0.7689 - (0.0005 × Vr) UEF ≥ 0.7897 - (0.0004 × Vr) UEF ≥ 0.8072 - (0.0003 × Vr)	DOE 10 C.F.R. Part 430 App. E
	> 75,000 Btu/h and ≤ 105,000 Btu/h[d]	≤ 120 gal ≤ 180 F	Very small Low Medium High	UEF ≥ 0.2674-0.0009 x Vr UEF ≥ 0.5362-0.0012 x Vr UEF ≥ 0.6002-0.0011 x Vr UEF ≥ 0.6597-0.0009 x Vr	DOE 10 C.F.R. Part 430 App. E
	> 105,000 Btu/h[d,f]			80% E_t SL ≤ (Q/800 +110√V), Btu/h	DOE 10 C.F.R. 431.106
Gas instantaneous water heater[h]	> 50,000 Btu/h and < 200,000 Btu/h	< 2 gal	Very small Low Medium High	UEF ≥ 0.80 UEF ≥ 0.81 UEF ≥ 0.81 UEF ≥ 0.81	DOE 10 C.F.R. Part 430 App. E
	≥ 200,000 Btu/h[d,f]	< 10 gal[f]		80% E_t	DOE 10 C.F.R. 431.106
	≥ 200,000 Btu/h[f]	≥ 10 gal		80% E_t SL ≤ (Q/800 +110√V), Btu/h	
Oil storage water heaters[g]	≤ 105,000 Btu/h	≤ 50 gal[f]	Very small Low Medium High	UEF = 0.2509 – (0.0012 × Vr) UEF = 0.5330 – (0.0016 × Vr) UEF = 0.6078 – (0.0016 × Vr) UEF = 0.6815 – (0.0014 × Vr)	DOE 10 C.F.R. Part 430
	> 105,000 Btu/h and ≤ 140,000 Btu/h[e]	≤ 120 gal ≤ 180 F	Very small Low Medium High	UEF ≥ 0.2932-0.0015 x Vr UEF ≥ 0.5596-0.0018 x Vr UEF ≥ 0.6194-0.0016 x Vr UEF ≥ 0.6740-0.0013 x Vr	DOE 10 C.F.R. Part 430 App. E
	> 140,000 Btu/h			80% E_t SL ≤ (Q/800 +110√V), Btu/h	DOE 10 C.F.R. 431.106

Equipment Type	Size Category (input)	Subcategory or Rating Condition	Draw Pattern	Performance Required[a]	Test Procedure[b]
Oil instantaneous water heater[h]	≤ 210,000 Btu/h	< 2 gal		80% E_t EF ≥ 0.59 - 0.0005 x V	DOE 10 C.F.R. Part 430 App. E
	> 210,000 Btu/h	< 10 gal		80% E_t	DOE 10 C.F.R. 431.106
	> 210,000 Btu/h	≥ 10 gal		78% E_t SL ≤ (Q/800 +110√V), Btu/h	DOE 10 C.F.R. 431.106
Hot water supply boilers, gas and oil[h]	≥ 300,000 Btu/h and < 12,500,000 Btu/h	< 10 gal		80% E_t	DOE 10 C.F.R. 431.106
Hot water supply boilers, gas[h]	≥ 300,000 Btu/h and < 12,500,000 Btu/h	≥ 10 gal		80% E_t SL ≤ (Q/800 +110√V), Btu/h	DOE 10 C.F.R. 431.106
Hot water supply boilers, oil[h]	≥ 300,000 Btu/h and < 12,500,000 Btu/h	≥ 10 gal		78% E_t SL ≤ (Q/800 +110√V), Btu/h	DOE 10 C.F.R. 431.106
Pool heaters, gas	All			82% E_t	DOE 10 C.F.R. Part 430 App. P
Heat pump pool heaters	All	50°F db 44.2°F wb outdoor air 80.0°F entering water		4.0 COP	DOE 10 C.F.R. Part 430 App. P
Unfired storage tanks	All			Minimum insulation requirement R-12.5 (h-ft^2-°F)/Btu	(none)

[a] Thermal efficiency (E_t) is a minimum requirement, while standby loss is a maximum requirement. In the standby loss equation, V is the rated volume in gallons and Q is the nameplate input rate in Btu/h. V_m is the measured volume in the tank in gallons. Standby loss for electric water heaters is in terms of %/h and denoted by the term "S," and standby loss for gas and oil water heaters is in terms of Btu/h and denoted by the term "SL" Draw pattern (DP) refers to the water draw profile in the Uniform Energy Factor (UEF) test. UEF and Energy Factor (EF) are minimum requirements. In the UEF standard equations, V_r refers to the rated volume in gallons.

[b] Chapter 6 contains a complete specification, including the year version, of the referenced test procedure.

[c] Electric instantaneous water heaters with input capacity > 12 kW and ≤ 58.6 kW that have either (1) a storage volume > 2 gal; or (2) is designed to provide outlet hot water at temperatures greater than 180°F; or (3) uses three-phase power has no efficiency standard.

[d] Gas storage water heaters with input capacity > 75,000 Btu/h and ≤ 105,000 Btu/h must comply with the requirements for the > 105,000 Btu/h if the water heater either (1) has a storage volume > 120 gal; (2) is designed to provide outlet hot water at temperatures greater than 180°F; or (3) uses three-phase power.

[e] Oil storage water heaters with input capacity > 105,000 Btu/h and ≤ 140,000 Btu/h must comply with the requirements for the > 140,000 Btu/h if the water heater either (1) has a storage volume > 120 gal; (2) is designed to provide outlet hot water at temperatures greater than 180°F; or (3) uses three-phase power.

[f] Water heaters or gas pool heaters in this category are regulated as consumer products by the USDOE as defined in 10 C.F.R. Part 430 and do not need to be checked for code compliance. Numbers in table are for reference or to use for over code performance determinations.

[g] Table top and storage water heaters have a ratio of input capacity (Btu/h) to tank volume (gal) < 4000.

[h] Instantaneous water heaters and hot water supply boilers have an input capacity (Btu/h) divided by storage volume (gal) ≥ 4000 Btu/h-gal.

[i] There are no minimum efficiency requirements for electric heat pump water heaters greater than 12 kW or for gas heat pump water heaters.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-404021, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-404021, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-13-089, § 51-11C-404021, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-404021, filed

1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-404021, filed 2/1/13, effective 7/1/13.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40403 Section C404.3—Efficient heated water supply piping.

C404.3 Efficient heated water supply piping. Heated water supply piping shall be in accordance with Section C404.3.1 or C404.3.2. The flow rate through 1/4-inch (6.4 mm) piping shall be not greater than 0.5 gpm (1.9 L/m). The flow rate through 5/16-inch (7.9 mm) piping shall be not greater than 1 gpm (3.8 L/m). The flow rate through 3/8-inch (9.5 mm) piping shall be not greater than 1.5 gpm (5.7 L/m). Water heaters, circulating water systems and heat trace temperature maintenance systems shall be considered sources of heated water.

C404.3.1 Maximum allowable pipe length method. The maximum allowable piping length from the nearest source of heater water to the termination of the fixture supply pipe shall be in accordance with the following. Where the piping contains more than one size of pipe, the largest size of pipe within the piping shall be used for determining the maximum allowable length of the piping in Table C404.3.1.

1. For a public lavatory faucet, use the "Public lavatory faucets" column in Table C404.3.1.

2. For all other plumbing fixtures and plumbing appliances, use the "Other fixtures and appliances" column in Table C404.3.1.

Table C404.3.1
Piping Volume and Maximum Piping Lengths

Nominal Pipe Size (inches)	Volume (liquid ounces per foot length)	Maximum Piping Length (feet)	
		Public lavatory faucets	Other fixtures and appliances
1/4	0.33	6	50
5/16	0.5	4	50
3/8	0.75	3	50
1/2	1.5	((~~2~~)) 8	43
5/8	2	((~~1~~)) 8	32
3/4	3	0.5	21
7/8	4	0.5	16
1	5	0.5	13
1 1/4	8	0.5	8
1 1/2	11	0.5	6
2 or larger	18	0.5	4

C404.3.2 Maximum allowable pipe volume method. The water volume in the piping shall be calculated in accordance with Section C404.3.2.1.

The volume from the nearest source of heated water to the termination of the fixture supply pipe shall be as follows:

1. For a public lavatory faucet: Not more than 2 ounces (0.06 L).

2. For other plumbing fixtures or plumbing appliances; not more than 0.5 gallon (1.89 L).

C404.3.2.1 Water volume determination. The volume shall be the sum of the internal volumes of pipe, fittings, valves, meters and manifolds between the nearest source of heated water and the termination of the fixture supply pipe. The volume in the piping shall be determined from the "Volume" column in Table C404.3.1 or from Table C404.3.2.1. The volume contained within fixture shutoff valves, within flexible water supply connectors to a fixture fitting and within a fixture fitting shall not be included in the water volume determination. Where heated water is supplied by a recirculating system or heat-traced piping, the volume shall include the portion of the fitting on the branch pipe that supplies water to the fixture.

Table C404.3.2.1
Internal Volume of Various Water Distribution Tubing

Ounces of Water per Foot of Tube									
Nominal Size (inches)	Copper Type M	Copper Type L	Copper Type K	CPVC CTS SDR 11	CPVC SCH 40	CPVC SCH 80	PE-RT SDR	Composite ASTM F1281	PEX CTS SDR 9
3/8	1.06	0.97	0.84	N/A	1.17	—	0.64	0.63	0.64
1/2	1.69	1.55	1.45	1.25	1.89	1.46	1.18	1.31	1.18
3/4	3.43	3.22	2.90	2.67	3.38	2.74	2.35	3.39	2.35
1	5.81	5.49	5.17	4.43	5.53	4.57	3.91	5.56	3.91
11/4	8.70	8.36	8.09	6.61	9.66	8.24	5.81	8.49	5.81
11/2	12.18	11.83	11.45	9.22	13.20	11.38	8.09	13.88	8.09
2	21.08	20.58	20.04	15.79	21.88	19.11	13.86	21.48	13.86

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40403, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40403, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40404 Section C404.4—Heat traps.

C404.4 Heat traps for hot water storage tanks. Storage tank-type water heaters and hot water storage tanks that have vertical water pipes connecting to the inlet and outlet of the tank shall be provided with integral heat traps at ((~~those~~)) the vertical inlets and outlets or shall have pipe-configured heat traps in the piping connected to those inlets and outlets. Tank inlets and outlets associated with solar water heating system circulation loops shall not be required to have heat traps.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40404, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40404, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40406 Section C404.6—Pipe insulation.

C404.6 Insulation of piping. Piping from a water heater to the termination of the heated water fixture supply pipe shall be insulated in accordance with Table C403.10.3. On both the inlet and outlet piping of a storage water heater or heated water storage tank, the piping to a heat trap or the first 8 feet (2438 mm) of piping, whichever is less, shall be insulated. Piping that is heat traced shall be insulated in accordance with Table C403.10.3 or the heat trace manufacturer's instructions. Tubular pipe insulation shall be installed in accordance with the insulation manufacturer's instructions. Pipe insulation shall be continuous, including through hangers and supports, such that thermal bridging is prevented, except where the piping passes through a framing member. The minimum insulation thickness requirements of this section shall not supersede any greater insulation thickness requirements necessary for the protection of piping from freezing temperatures or the protection of personnel against external surface temperatures on the insulation.

EXCEPTION: Tubular pipe insulation shall not be required on the following:
1. The tubing from the connection at the termination of the fixture supply piping to a plumbing fixture or plumbing appliance.
2. Valves, pumps, strainers and threaded unions in piping that is 1 inch (25 mm) or less in nominal diameter.
3. Piping from user-controlled shower and bath mixing valves to the water outlets.
4. Cold-water piping of a demand recirculation water system.
5. Tubing from a hot drinking-water heating unit to the water outlet.
6. Piping at locations where a vertical support of the piping is installed.
7. Piping surrounded by building insulation with a thermal resistance (*R*-value) of not less than R-3.
8. Hot water piping that is part of the final pipe run to the plumbing fixture and is not part of the heated-water circulation system circulation path is not required to meet the minimum insulation requirements of Section C404.6.

C404.6.1 Storage tank insulation. Unfired storage tanks used to store service hot water at temperatures above 130°F (54°C) shall be wrapped with an insulating product, installed in accordance with the insulation manufacturer's instructions and providing a minimum of R-2 additional insulation for every 10°F (5°C) increase in stored water temperature above 130°F (54°C). Such additional insulation is also permitted to be integral to the tank. The insulation is permitted to be discontinuous at structural supports.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40406, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40406, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27A and 19.27 RCW. WSR 19-02-089, § 51-11C-40406, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40406, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40406, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40407 Section C404.7—Heated-water circulating and temperature maintenance systems.

C404.7 Heated-water circulating and heat trace temperature maintenance systems. Heated-water circulation systems for *temperature maintenance* shall be in accordance with Section C404.7.1. Electric resistance heat trace ((~~temperature maintenance~~)) systems for *temperature maintenance* shall be in accordance with Section C404.7.2. Controls for hot water storage shall be in accordance with Section C404.7.3. Automatic controls, temperature sensors and pumps shall be in a location with *access*. Manual controls shall be in a location with *ready access*.

C404.7.1 Circulation systems. Heated-water circulation systems shall be provided with a circulation pump. The pump shall have an electronically commutated motor with a means of adjusting motor speed for system balancing. The system return pipe shall be a dedicated return pipe. Gravity and thermo-syphon circulation systems ((~~shall be~~)) are prohibited. Controls shall start the circulation pump based on the identification of a demand for hot water within the occupancy.

C404.7.1.1 Single riser systems. Where the circulation system serves only a single domestic hot water riser or zone, the following controls shall be provided:

1. Controls shall be configured to automatically turn off the pump when the water in the circulation loop is at the design supply temperature and shall not turn the pump back on until the temperature is a minimum of 10°F (5°C) lower than the design supply temperature ((~~or have controls equipped with automatic time switches or other controls that can be set to switch off the pump during unoccupied hours when hot water is not required~~)).
2. Controls shall be equipped with a manual switch or other control((~~s~~)) method that can be used to turn off the circulating pump during extended periods when hot water is not required.

C404.7.1.2 Multiple riser systems. Where the circulation system serves multiple domestic hot water risers or piping zones, the following controls shall be provided ((~~such that they can be set to switch off the~~)):

1. Controls shall be configured to automatically turn off the circulation pump during extended periods when hot water is not required.
2. System shall include means for balancing the flow rate through each individual hot water supply riser or piping zone.
3. For circulation systems that use a variable flow circulation pump, each riser and piping zone shall have a self-actuating thermostatic balancing valve.

C404.7.1.3 Electronic thermostatic mixing valve (TMV). Where a heated water circulation system utilizes an electronic TMV to control the temperature of hot water supplied to the building, the TMV shall be configured so that it either reverts closed (fully COLD) or maintains its current valve position upon power failure or cessation of circulation flow.

C404.7.2 Heat trace systems. Electric heat trace systems shall comply with IEEE 515.1. Controls for such systems shall be able to automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy. Heat trace shall be arranged to be turned off automatically when there is no hot water demand.

C404.7.3 Controls for hot water storage. The controls on pumps that circulate water between a water heater and a heated-water storage tank shall limit operation of the pump from heating cycle startup to not greater than 5 minutes after the end of the cycle.

C404.7.3.1 Pipe insulation. For heated water circulation systems, both supply and return pipe insulation shall be at minimum 1.0 inch thicker than that required by Table C403.10.3.

EXCEPTION: Where piping is centered within a wall, ceiling or floor framing cavity with a depth at least 4 inches greater than the diameter of the pipe and that is completely filled with batt or blown-in insulation, additional pipe insulation is not required.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40407, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40407, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40407, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40410 Section C404.11—Pools and spas.

C404.11 Energy consumption of pools and permanent spas. The energy consumption of pools and permanent spas shall be controlled by the requirements in Sections C404.11.1 through C404.11.4.

C404.11.1 Heaters. Pool water heaters using electric resistance heating as the primary source of heat are prohibited for pools over 2,000 gallons. Heat pump pool heaters shall have a minimum COP of 4.0 at 50°F (10°C) db, 44.2°F (6.8°C) wb outdoor air and 80°F (27°C) entering water, determined in accordance with ((~~ASHRAE Standard 146~~)) AHRI 1160. Other pool heating equipment shall comply with the applicable efficiencies in Section C404.2.

The electric power to all heaters shall be controlled by an on-off switch that is an integral part of the heater, mounted on the exterior of the heater, or external to and within 3 feet of the heater in a location with *ready access*. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with constant burning pilot lights.

C404.11.2 Time switches. Time switches or other control method that can automatically turn off and on heaters and pump motors according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

EXCEPTIONS: 1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat-recovery pool heating systems.

C404.11.3 Covers. Heated pools and permanent spas shall be provided with a vapor-retardant cover on or at the water surface. Pools heated to more than 90°F shall have a pool cover with a minimum insulation value of R-12, and the sides and bottom of the pool shall also have a minimum insulation value of R-12.

C404.11.4 Heat recovery. Heated indoor swimming pools, spas or hot tubs with water surface area greater than 200 square feet shall provide for energy conservation by an exhaust air heat recovery system that heats ventilation air, pool water or domestic hot water. The heat recovery system shall be configured to decrease the exhaust air temperature at design heating conditions (80°F indoor) by 36°F (10°C).

EXCEPTION: Pools, spas or hot tubs that include system(s) that provide equivalent recovered energy on an annual basis through one of the following methods:
1. Solar water heating systems not claimed in Section C406.5 or C407;
2. Dehumidification heat recovery;
3. Waste heat recovery; or
4. A combination of these system sources capable of and configured to provide at least 70 percent of the heating energy required over an operating season.

C404.12 ((~~Energy consumption of~~)) Portable spas. The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP 14.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40410, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40410, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40410, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40413 Section C404.13—Service water pressure-booster systems.

C404.13 Service water pressure-booster systems. Service water pressure-booster systems shall be designed and configured such that the following apply:

1. One or more pressure sensors shall be used to vary pump speed and/or start and stop pumps. The sensors shall either be located near the critical fixtures that determine the pressure required, or logic shall be employed that adjusts the setpoint to simulate operations of remote sensors.

2. No devices shall be installed for the purpose of reducing the pressure of all of the water supplied by any booster system pump or booster system, except for safety devices.

3. Booster system pumps shall not operate when there is no service water flow except to refill hydro-pneumatic tanks.

4. System pump motors ((~~7.5~~)) 5.0 hp and greater shall be provided with variable flow capacity in accordance with Section ((~~C403.2.3~~)) C403.2.4.

((**~~C404.14 Commissioning.~~** ~~Service water heating systems shall be commissioned in accordance with Section C408.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40413, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40413, filed 1/19/16, effective 7/1/16.]

NEW SECTION

WAC 51-11C-40414 Section C404.14—Demand responsive water heating.

C404.14 Demand responsive water heating. Electric storage water heaters with rated water storage volume between 40 and 120 gallons and a nameplate input rating equal to or less than 12kW shall be provided with *demand responsive controls* that comply with ANSI/CTA-2045-B Level 2 or another equivalent *approved demand responsive control*.

EXCEPTIONS:
1. Water heaters that provide a hot water delivery temperature of 180°F (82°C) or greater.
2. Water heaters that comply with Section IV, Part HLW or Section X of the ASME Boiler and Pressure Vessel Code.
3. Water heaters that use three-phase electric power.
4. Storage water heaters with *demand responsive controls* that comply with ANSI/CTA 2045-A or ANSI/CTA 2045-B Level 1, that are also capable of initiating water heating to meet the temperature setpoint in response to a *demand response signal*.

[]

NEW SECTION

WAC 51-11C-40415 Section C404.15—Service water heating commissioning.

C404.15 Commissioning. Service water heating systems shall be commissioned in accordance with Section C408.

[]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40501 Section C405.1—General.

C405.1 General. ((~~This section covers~~)) Lighting system controls, the maximum lighting power for interior and exterior applications, electrical energy consumption, vertical and horizontal transportation systems, and minimum efficiencies for motors and transformers shall comply with this section.

((~~*Dwelling units* within multifamily buildings shall comply with Sections C405.1.1 and C405.7. All other *dwelling units* in dormitory, hotel and other residential occupancies that are not classified as multifamily residential occupancies shall comply with Section C405.2.5 and Section C405.1.1 or Section C405.4.~~)) *Sleeping units* shall comply with Section ((~~C405.2.5~~)) C405.2.6, item 2 and Section C405.1.1 or Section C405.4.

General lighting shall consist of all lighting included when calculating the total connected interior lighting power in accordance with Section C405.4.1 and which does not require specific application controls in accordance with Section C405.2.5.

Lighting installed in *walk-in coolers*, *walk-in freezers*, *refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall comply with the lighting requirements of Section C410.2.

Transformers, uninterruptable power supplies, motors and electrical power processing equipment in *data center systems* shall comply with Section 8 of ASHRAE Standard 90.4 in addition to this code.

EXCEPTION: Energy using equipment used by a manufacturing, industrial or commercial process other than maintaining comfort and amenities for the occupants are exempt from all Section C405 subsections except Section C405.8. Data center and computer room HVAC equipment is not covered by this exemption.

C405.1.1 ((~~Dwelling and sleeping unit lighting efficacy~~)) Lighting for dwelling and sleeping units. No less than 90 percent of the ((~~lamps~~)) permanently installed lighting serving *dwelling units* or *sleeping units*, excluding kitchen appliance lighting, shall be provided by ((~~light emitting diodes (LED), T-8 or smaller diameter linear fluorescent lamps, or other~~)) lamps with a minimum efficacy of 65 lumens per watt or luminaires with an efficacy of not less than 45 lumens per watt.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40501, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40501, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40501, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40502 Section C405.2—Electrical power and lighting systems.

C405.2 Lighting controls. Lighting systems shall be provided with controls that comply with one of the following:

1. Lighting controls as specified in Sections C405.2.1 through ((~~C405.2.7~~)) C405.2.10.

2. ((~~Luminaire level~~)) *Luminaire-level* lighting controls (LLLC) ((~~and lighting controls as specified in Sections C405.2.1, C405.2.3 and C405.2.5. The LLLC luminaire shall be independently configured to:~~

~~2.1. Monitor occupant activity to brighten or dim lighting when occupied or unoccupied, respectively.~~

~~2.2. Monitor ambient light, both electric and daylight, and brighten or dim artificial light to maintain desired light level.~~

~~2.3. For each control strategy, configuration and reconfiguration of performance parameters including: Bright and dim setpoints, time-outs, dimming fade rates, sensor sensitivity adjustments, and wireless zoning configuration~~)) as specified in Section C405.2.8.1.

EXCEPTION: Except for specific application controls required by Section ((~~C405.2.5~~)) C405.2.6, lighting controls are not required for the following:
1. Areas designated as security or emergency areas that are required to be continuously lighted.
2. Means of egress illumination serving the exit access that does not exceed ((~~0.02~~)) 0.01 watts per square foot of building area.
3. Emergency egress lighting that is normally off.
4. Industrial or manufacturing process areas, as may be required for production and safety.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40502, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40502, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40502, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40502, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-405021 Section C405.2.1—Occupant sensor controls.

C405.2.1 Occupant sensor controls. Occupant sensor controls shall be installed to control ((~~lights~~)) luminaires in the following space types((~~:~~)) and in compliance with Sections C405.2.1.1 through C405.2.1.6.

1. Classrooms/lecture/training rooms.
2. Conference/meeting/multipurpose rooms.
3. Copy/print rooms.
4. Lounges/breakrooms.
5. Enclosed offices.
6. Open plan office areas.
7. Restrooms.
8. Storage rooms.
9. Locker rooms.
10. Other spaces 300 square feet (28 m^2) or less that are enclosed by floor-to-ceiling height partitions.
11. Warehouse storage areas.
12. Enclosed ((~~fire rated~~)) stairways.
13. ((~~Service~~)) Corridors.
14. Covered parking areas.

((~~Occupant sensor controls in warehouse storage areas, corridors, and library stacks, shall comply with Section C405.2.1.2. Occupant sensor controls in fire rated stairways shall comply with Section C405.2.1.5. Occupant sensor controls in open plan office areas shall comply with Section C405.2.1.3. Occupant sensor controls in covered parking areas shall comply with Section C405.2.1.4.~~)) 15. Library stacks.

Occupant sensor controls for all other spaces shall comply with Section C405.2.1.1.

EXCEPTIONS:
1. Corridors in manufacturing facilities.
2. *General lighting* and task lighting in shop and laboratory classrooms.
3. ((~~Digital timer switch controls may be provided in lieu of occupant sensor controls in the following space types if under 300 square feet: Copy/print rooms, storage rooms, and janitorial closets. Digital timer switches shall comply with the following:~~)) Luminaires that are required to have specific application controls in accordance with Section C405.2.6 unless specifically required to comply with this section by Section C405.2.6.

((~~3.1. Turn lights on or off with operation of a button, switch or other manual means.~~
~~3.2. Automatically turn lights off within 15 minutes of the lights being turned on. The means for setting the time delay shall not be visible on the front of the switch.~~
~~3.3. The switch shall provide both audible and visual indication of impending time-out of the switch. Audible and visual indication shall be given at least once within 5 minutes of time-out of the switch. Visual indication shall consist of turning the lights momentarily off, and then back on.~~))

C405.2.1.1 Occupant sensor control function. Occupant sensor controls for the space types listed in Section C405.2.1 shall comply with all of the following:

1. They shall be configured to automatically turn off lights within 20 minutes of all occupants leaving the space.
2. They shall be manual on or configured to automatically turn the lighting on to not more than 50 percent power.

((~~EXCEPTION: Full automatic-on controls shall be permitted to control lighting in public corridors, stairways, restrooms, primary building entrances areas and lobbies, and areas where manual-on operation would endanger the safety or security of the room or building occupants.~~))

3. They shall incorporate a manual control to allow occupants to turn lights off.

EXCEPTION: Full automatic-on controls with no manual control shall be permitted in corridors, interior parking areas, stairways, restrooms, locker rooms, library stacks, lobbies, and areas where manual operation would endanger occupant safety or security.

4. They shall incorporate a manual control to allow occupants to turn lights off.

C405.2.1.2 Occupant sensor control function in warehouse((s,)) storage areas and ((service corridors. ~~Occupant sensor controls shall be configured to comply with all of the following:~~)) **library stacks.** Lighting in library stacks and warehouse storage areas shall be controlled as follows.

1. ((~~Automatically reduce lighting power by not less than 50 percent within 20 minutes of all occupants leaving the area.~~

~~2. Control lighting in each aisleway and corridor independently, and shall not control lighting beyond the aisleway or corridor being controlled by the sensor.~~)) Lighting in each aisleway shall be controlled independently of lighting in all other aisleways and open areas.

2. Occupant sensors shall automatically reduce lighting power within each controlled area to an unoccupied setpoint of not more than 50 percent within 20 minutes after all occupants have left the controlled area.

3. ((~~Automatically~~)) Lights which are not turned off by occupant sensors shall be turned off by time schedule sweep to turn lighting off within 20 minutes of all occupants leaving the space, or comply with Section C405.2.2 to turn lighting off when the building is vacant.

4. Restore lighting to full power or target light level when occupants enter the space.

5. A *manual* control shall be provided to allow occupants to turn off lights in the space.

C405.2.1.3 Occupant sensor control function in open plan office areas. Occupant sensor controls in open plan office spaces less than 300 square feet (28 m^2) in area shall comply with Section C405.2.1.1. Occupant sensor controls in all other open plan office spaces shall be configured to comply with all of the following:

1. *General lighting* is controlled separately in control zones with floor areas not greater than 600 square feet (55 m^2) within the open plan office space.

2. *General lighting* in each control zone shall be permitted to automatically turn on upon occupancy within the control zone. *General lighting* in other unoccupied zones within the open plan office space shall be permitted to turn on to not more than 20 percent of full power or remain unaffected.

3. Automatically turn off *general lighting* in all control zones within 20 minutes after all occupants have left the open plan office space.

((~~3.~~)) 4. *General lighting* ((~~power~~)) in each control zone ((~~is reduced by not less than 80 percent of the full zone general lighting power within 20 minutes of all occupants leaving that control zone. Control functions that switch control zone lights completely off when the zone is unoccupied meet this requirement.~~

~~4. Daylight responsive controls activate open plan office space general lighting or control zone general lighting only when occupancy for the same area is detected.~~

~~C405.2.1.4 Occupant sensor control function in parking garages.~~ ~~Occupant sensor controls shall be configured to comply with all of the following:~~

~~1. Lighting power of each *luminaire* shall be automatically reduced by a minimum of 30 percent when there is no vehicle or pedestrian activity detected within a lighting zone for 20 minutes. Light-~~

~~ing zones for this requirement shall be no larger than 3,600 square feet.~~

~~**Exceptions:**~~

~~1.1. Lighting in daylight transition zones and ramps without parking.~~

~~1.2. Covered parking garages with a total lighting power less than 0.07 watts per square foot.~~

~~2. Where time switch controls in accordance with Section C405.2.2 are not installed, the occupant sensor shall automatically turn all the lighting off within 20 minutes of all occupants leaving the space and restore lighting to full power when occupants enter the space.~~)) shall turn off or uniformly reduce lighting power to an unoccupied setpoint of not more than 20 percent of full power within 20 minutes after all occupants have left the control zone.

5. Lighting controls in open plan office areas larger than 5,000 square feet must also comply with Section C405.2.7.

C405.2.1.5 Occupant sensor control function in enclosed fire rated stairways. Occupant sensor controls shall be configured to automatically reduce lighting power by not less than 50 percent when no occupants have been detected in the stairway for a period not exceeding 20 minutes and restore lighting to full power when occupants enter the stairway. All portions of stairways shall remain illuminated to meet the requirements of Section 1009 of the *International Building Code* when the lighting power is reduced.

C405.2.1.6 Occupant sensor control function in corridors. Occupant sensor controls in *corridors* shall uniformly reduce lighting power to an unoccupied setpoint of not more than 50 percent of full power within 20 minutes after all occupants have left the space.

EXCEPTION: *Corridors* provided with less than two foot-candles of illumination on the floor at the darkest point with all lights on.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-405021, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405021, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405021, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405021, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405022 Section C405.2.2—Time switch controls.

C405.2.2 Time switch controls. Each area of the building that is not provided with *occupant sensor controls* ((~~or digital timer switch controls~~)) complying with Section ((~~C405.2.1~~)) C405.2.1.1 shall be provided with time switch controls complying with Section C405.2.2.1.

EXCEPTIONS: ((~~Where a manual control provides light reduction in accordance with Section C405.2.3.1, time switch controls shall not be required for the following:~~)) 1. Luminaires which are required to have specific application controls in accordance with Section C405.2.6 unless specifically required to comply with this section by Section C405.2.6.
((~~1.~~)) 2. Spaces where patient care is directly provided.
((~~2.~~)) 3. Spaces where an automatic shutoff would endanger occupant safety or security.
((~~3.~~)) 4. Lighting intended for continuous operation.
((~~4.~~)) 5. Shop and laboratory classrooms.

C405.2.2.1 Time switch control function. Time switch controls shall comply with the following:

1. Have a minimum 7 day clock.

2. Be capable of being set for 7 different day types per week.

3. Incorporate an automatic holiday "shut-off" feature, which turns off all controlled lighting loads for at least 24 hours and then resumes normally scheduled operations.

4. Have program back-up capabilities, which prevent the loss of program and time settings for at least 10 hours, if power is interrupted.

5. Include an override switching device that complies with the following:

5.1. The override switch shall be a *manual* control.

5.2. The override switch, when initiated, shall permit the controlled lighting to remain on for not more than 2 hours.

5.3. Any individual override switch shall control the lighting for an area not larger than 5,000 square feet (465 m^2).

6. Time switch controls are allowed to automatically turn on lighting to full power in corridors, lobbies, restrooms, storage rooms less than 50 square feet, and medical areas of health care facilities. In all other spaces, time switch controls are allowed to automatically turn on the lighting to not more than 50 percent power.

EXCEPTION((S)): ((1.)) Within mall concourses, auditoriums, sales areas, manufacturing facilities, pools, gymnasiums, skating rinks, and sports arenas: ((1.1.)) 1. The time limit shall be permitted to be greater than 2 hours provided the switch is a captive key device. ((1.2.)) 2. The area controlled by the override switch shall not be limited to 5,000 square feet (465 m^2), provided that such area is less than 20,000 square feet (1860 m^2).

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405022, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405022, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405022, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405023 Section C405.2.3—Manual controls.

C405.2.3 Manual controls. All lighting shall have *manual* controls complying with the following:

1. They shall be in a location with *ready access* to occupants.

2. They shall be located where the controlled lights are visible, or shall identify the area served by the lights and indicate their status.

3. Each control device shall control an area no larger than a single room, or 2,500 square feet, whichever is less, if the room area is less than or equal to 10,000 square feet, or one-quarter of the room area or 10,000 square feet, whichever is less, if the room area is greater than 10,000 square feet.

EXCEPTIONS: 1. A *manual* control may be installed in a remote location for the purpose of safety or security provided each remote control device has an indicator pilot light as part of or next to the control device and the light is clearly labeled to identify the controlled lighting.
2. Restrooms.

((**C405.2.3.1 Light reduction controls.** Manual controls shall be configured to provide light reduction control that allows the occupant to reduce the connected lighting load between 30 and 70 percent. Lighting reductions shall be achieved by one of the following *approved* methods:

1. Controlling all lamps or luminaires.

2. Dual switching of alternate rows of luminaires, alternate luminaires or alternate lamps.

3. Switching the middle lamp luminaires independently of the outer lamps.

4. Switching each luminaire or each lamp.

EXCEPTIONS: 1. Light reduction controls are not required in daylight zones with *daylight responsive controls* complying with Section C405.2.4.
2. Where provided with manual control, the following areas are not required to have light reduction control:
2.1. Spaces that have only one luminaire with a rated power of less than 100 watts.
2.2. Spaces that use less than 0.6 watts per square foot (6.5 W/m^2).
2.3. Lighting in corridors, lobbies, electrical rooms, restrooms, storage rooms, airport concourse baggage areas, dwelling and sleeping rooms, and mechanical rooms.))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405023, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405023, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405023, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405024 Section C405.2.4—((~~Daylight responsive~~)) Light-reduction controls.

((**C405.2.4 Daylight responsive controls.** *Daylight responsive controls* complying with Section C405.2.4.1 shall be provided to control the lighting within *daylight zones* in the following spaces:

1. *Sidelit* zones as defined in Section C405.2.4.2 with more than two *general lighting* fixtures within the combined primary and secondary *sidelit* zones.

2. *Toplit* zones as defined in Section C405.2.4.3 with more than two general lighting fixtures within the daylight zone.

EXCEPTION: *Daylight responsive controls* are not required for the following:
1. Spaces in health care facilities where patient care is directly provided.
2. Lighting that is required to have specific application control in accordance with Section C405.2.4.
3. *Sidelit* zones on the first floor above grade in Group A-2 and Group M occupancies.
4. Daylight zones where the total proposed lighting power density is less than 35 percent of the lighting power allowance per Section C405.4.2.

C405.2.4.1 Daylight responsive controls function. Where required, daylight responsive controls shall be provided within each space for control of lights in that space and shall comply with all of the following:

1. Lights in primary *sidelit* zones shall be controlled independently of lights in secondary *sidelit* zones in accordance with Section C405.2.4.2.

EXCEPTION: Spaces enclosed by walls or ceiling height partitions with no more than three general lighting fixtures may have combined daylight zone control of primary and secondary daylight zones provided *uniform illumination* can be achieved.

2. Lights in *toplit zones* in accordance with Section C405.2.4.3 shall be controlled independently of lights in *sidelit* zones in accordance with Section C405.2.4.2.

3. *Daylight responsive controls* within each space shall be configured so that they can be calibrated from within that space by authorized personnel.

4. Calibration mechanisms shall be in a location with *ready access*.

5. *Daylight responsive controls* shall be configured to completely shut off all controlled lights in that zone.

6. Lights in *sidelit zones* in accordance with Section C405.2.4.2 facing different cardinal orientations (i.e., within 45 degrees of due north, east, south, west) shall be controlled independently of each other.

EXCEPTION: Up to two light fixtures in each space are permitted to be controlled together with lighting in a daylight zone facing a different cardinal orientation.

7. Incorporate time-delay circuits to prevent cycling of light level changes of less than three minutes.

8. The maximum area a single *daylight responsive control* device serves shall not exceed 2,500 square feet (232 m^2).

9. Occupant override capability of daylight dimming controls is not permitted, other than a reduction of light output from the level established by the daylighting controls.

C405.2.4.1.1 Dimming. *Daylight responsive controls* shall be configured to automatically reduce the power of *general lighting* in the daylight zone in response to available daylight, while maintaining *uniform illumination* in the space through one of the following methods:

1. Continuous dimming using dimming ballasts/dimming drivers and daylight-sensing controls. The system shall reduce lighting power continuously to less than 15 percent of rated power at maximum light output.

2. Stepped dimming using multi-level switching and daylight-sensing controls. The system shall provide a minimum of two steps of uniform illumination between 0 percent and 100 percent of rated power at maximum light output. Each step shall be in equal increments of power, plus or minus 10 percent.

General lighting within daylight zones in offices, classrooms, laboratories and library reading rooms shall use the continuous dimming method. Stepped dimming is not allowed as a method of daylight zone control in these spaces.

C405.2.4.2 Sidelit zone. The *sidelit zone* is the floor area adjacent to vertical fenestration which complies with the following:

1. Where the *fenestration* is located in a wall, the *sidelit zone* includes the primary and secondary daylight zones. The primary daylight zone shall extend laterally to the nearest full height wall, or up to 1.0 times the height from the floor to the top of the *fenestration*, and longitudinally from the edge of the fenestration to the nearest full height wall, or up to 2 feet (610 mm), whichever is less, as indicated in Figure C405.2.4.2(1). The secondary daylight zone begins at the edge of the primary daylight zone and extends laterally to the nearest full height wall, or up to 2.0 times the height from the floor to the top of the fenestration, whichever is less, as indicated in Figure C405.2.4.2(1).

2. Where *clerestory fenestration* is located in a wall, the *sidelit zone* includes a lateral area twice the depth of the clerestory fenestration height, projected upon the floor at a 45 degree angle from the center of the clerestory fenestration. The longitudinal width of the sidelit zone is calculated the same as for fenestration located

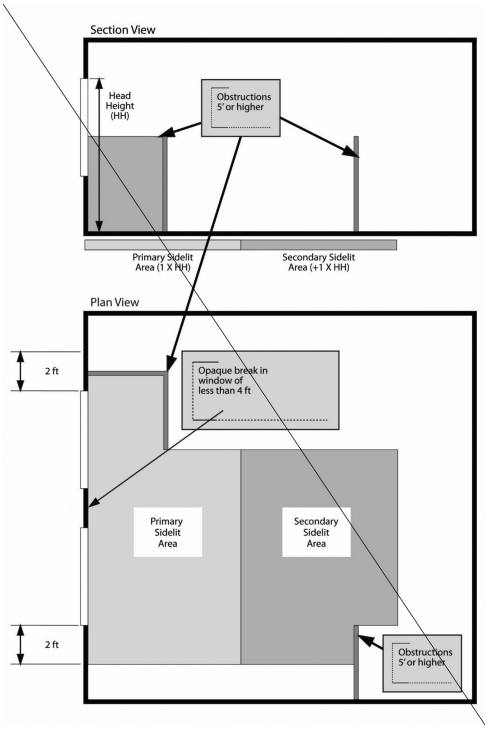
~~in a wall. Where the 45 degree angle is interrupted by an obstruction greater than 0.7 times the ceiling height, the sidelit zone shall remain the same lateral area but be located between the clerestory and the obstruction, as indicated in Figure C405.2.4.2(2).~~

~~3. If the rough opening area of a vertical fenestration assembly is less than 10 percent of the calculated primary sidelit zone area for this fenestration, it does not qualify as a sidelit zone.~~

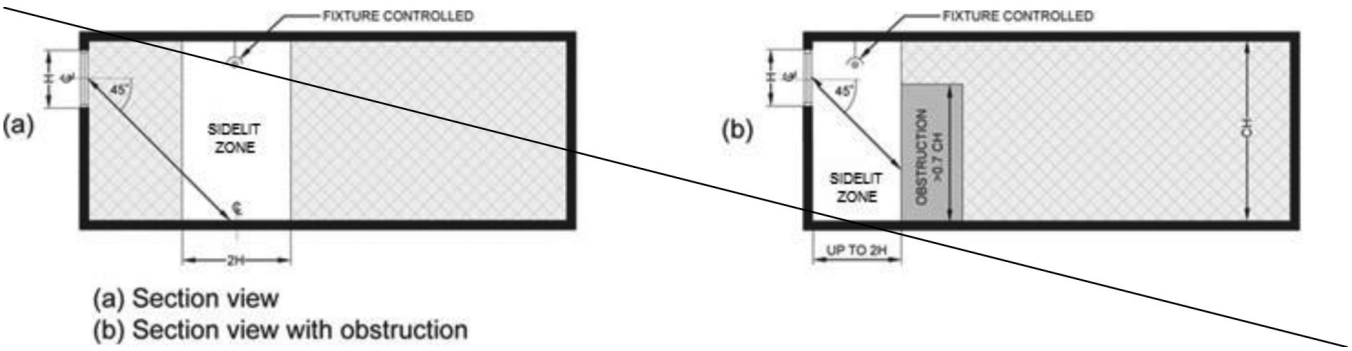
~~4. The visible transmittance of the fenestration is no less than 0.20.~~

~~5. In parking garages with floor area adjacent to perimeter wall openings, the sidelit zone shall include the area within 20 feet of any portion of a perimeter wall that has a net opening to wall ratio of at least 40 percent.~~

~~Figure C405.2.4.2(1)~~
~~Sidelit Zone Adjacent to Fenestration in a Wall~~



~~Figure C405.2.4.2(2)~~
~~Sidelit Zone Adjacent to Clerestory Fenestration in a Wall~~



(a) Section view
(b) Section view with obstruction

~~C405.2.4.3 *Toplit* zone.~~ ~~The *toplit zone* is the floor area underneath a roof fenestration assembly which complies with the following:~~

~~1. The *toplit zone* shall extend laterally and longitudinally beyond the edge of the roof *fenestration* assembly to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.7 times the ceiling height, whichever is less, as indicated in Figure C405.2.4.3(1).~~

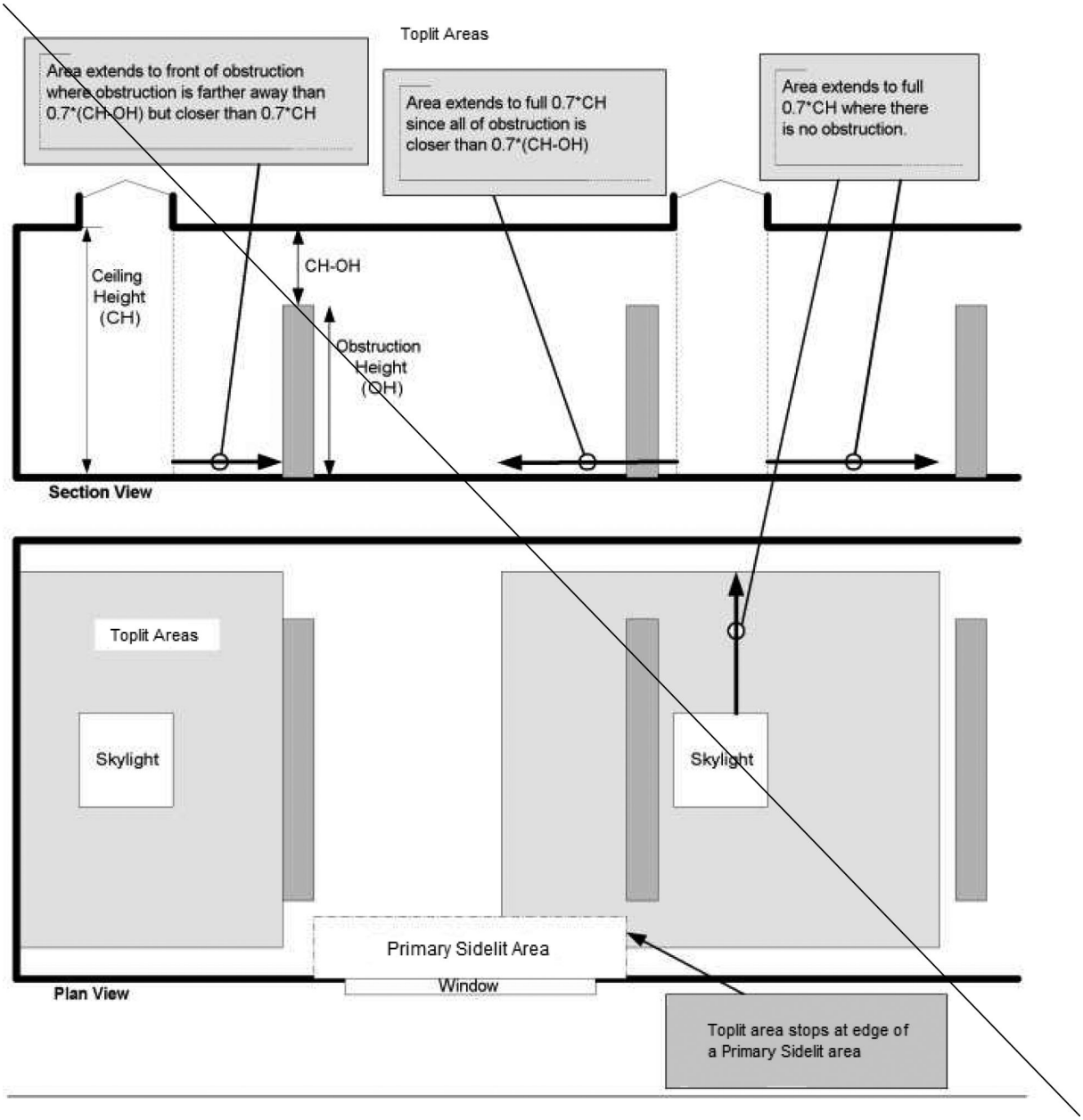
~~2. Where the fenestration is located in a rooftop monitor, the *toplit* zone shall extend laterally to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 1.0 times the height from the floor to the bottom of the fenestration, whichever is less, and longitudinally from the edge of the fenestration to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.25 times the height from the floor to the bottom of the fenestration, whichever is less, as indicated in Figures C405.2.4.3(2) and C405.2.4.3(3).~~

~~3. Where *toplit* zones overlap with *sidelit* zones, lights within the overlapping area shall be assigned to the *toplit* zone.~~

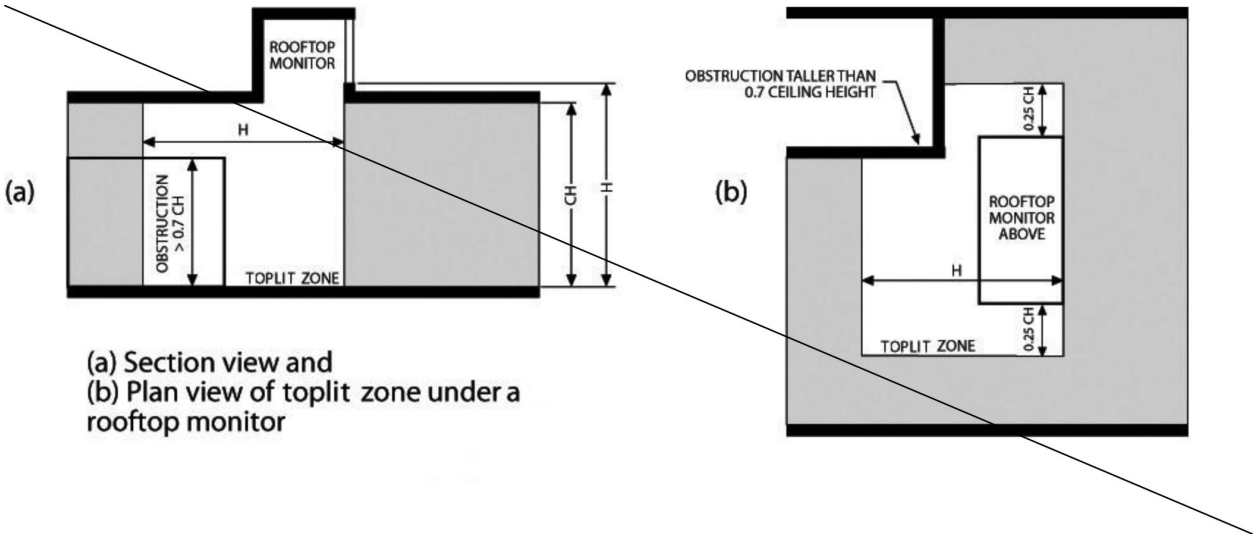
~~4. The product of the *visible transmittance* of the roof *fenestration* assembly and the area of the rough opening of the roof fenestration assembly, divided by the area of the *toplit* zone is no less than 0.008.~~

~~5. Where located under atrium fenestration, the *toplit zone* shall include the bottom floor area directly beneath the atrium fenestration, and the top floor directly under the atrium fenestration, as indicated in Figure C405.2.4.3(4). The toplit zone area at the top floor is calculated the same as for a *toplit* zone. Intermediate levels below the top floor that are not directly beneath the atrium are not included.~~

~~**Figure C405.2.4.3(1)**~~
~~**Toplit Zone Under a Rooftop Fenestration Assembly**~~

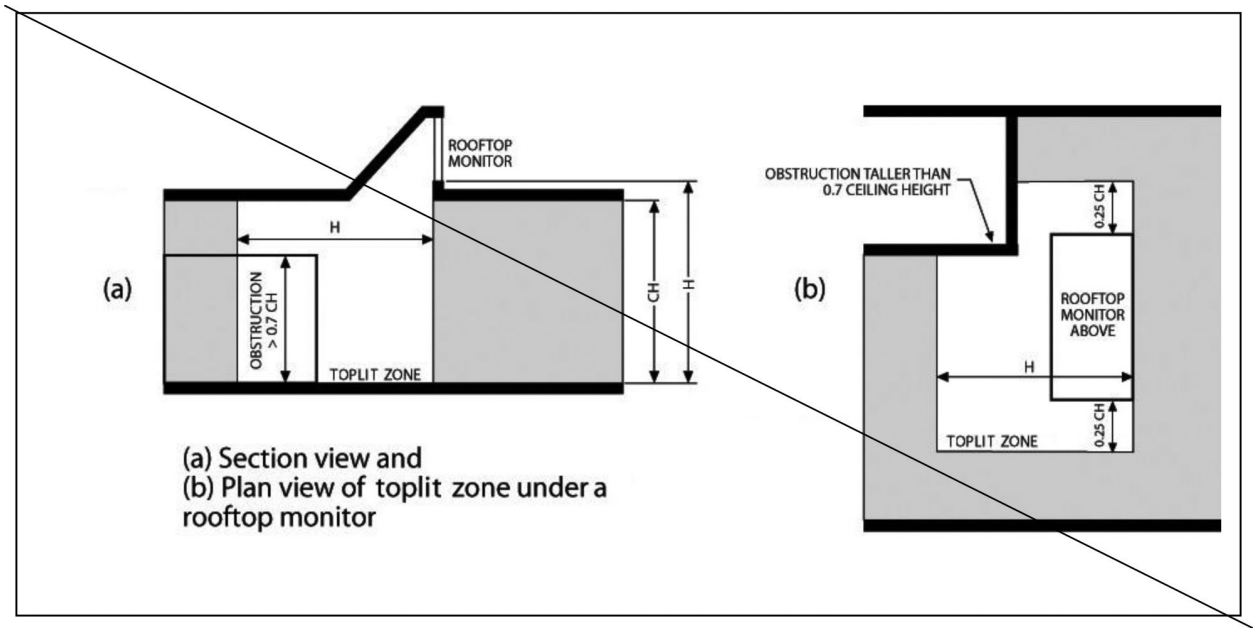


~~Figure C405.2.4.3(2)~~
~~Toplit Zone Under a Rooftop Monitor~~



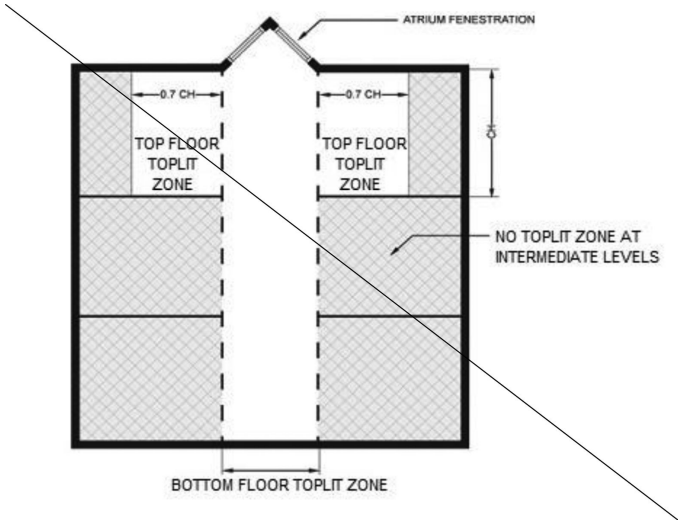
(a) Section view and
(b) Plan view of toplit zone under a rooftop monitor

~~Figure C405.2.4.3(3)~~
~~Toplit Zone Under a Sloped Rooftop Monitor~~



(a) Section view and
(b) Plan view of toplit zone under a rooftop monitor

~~**Figure C405.2.4.3(4)**~~
~~**Toplit Zone Under Atrium Fenestration**~~



))

C405.2.4 Light-reduction controls. Where not provided with occupant sensor controls complying with Section C405.2.1.1, *general lighting* shall be provided with light-reduction controls complying with Section C405.2.4.1.

EXCEPTIONS:
1. Luminaires controlled by daylight responsive controls complying with Section C405.2.5.
2. Luminaires controlled by special application controls complying with Section C405.2.6.
3. Where provided with manual control, the following areas are not required to have light reduction control:
3.1. Spaces that have only one luminaire with a rated power of less than 60 watts.
3.2. Spaces that use less than 0.45 watts per square foot (4.9 W/m^2).
3.3. Corridors, lobbies, electrical rooms and/or mechanical rooms.

C405.2.4.1 Light reduction control function. *Manual* controls shall be configured to provide light reduction control that allows the occupant to reduce the connected lighting load by not less than 50 percent in a reasonable uniform illumination pattern with an intermediate step in addition to full on or off, or with continuous dimming control, by using one of the following or another *approved* method:

1. Continuous dimming of all luminaires from full output to less than 20 percent of full power.
2. Switching all luminaires to a reduced output of not less than 30 percent and not more than 70 percent of full power.
3. Switching alternate rows of luminaires or alternate luminaires to achieve a reduced output of not less than 30 percent and not more than 70 percent of full power.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405024, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405024, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405024, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-405025 Section C405.2.5—((~~Additional lighting~~)) Daylight responsive controls.

((**~~C405.2.5 Additional lighting controls.~~** ~~Specific application lighting shall be provided with controls, in addition to controls required by other sections, for the following:~~

~~1. The following lighting shall be controlled by an occupant sensor complying with Section C405.2.1.1 or a time switch control complying with Section C405.2.2.1. In addition, a manual control shall be provided to control such lighting separately from the general lighting in the space:~~

~~1.1. Display and accent.~~

~~1.2. Lighting in display cases.~~

~~1.3. Supplemental task lighting, including permanently installed under-shelf or under-cabinet lighting.~~

~~1.4. Lighting equipment that is for sale or demonstration in lighting education.~~

~~2. *Sleeping units* shall have control device(s) or systems configured to automatically switch off all permanently installed luminaires and switched receptacles within 20 minutes after all occupants have left the unit.~~

~~EXCEPTIONS: 1. Lighting and switched receptacles controlled by card key controls.~~
~~2. Spaces where patient care is directly provided.~~

~~3. Permanently installed luminaires within dwelling units shall be provided with controls complying with either Section C405.2.1.1 or C405.2.3.1.~~

~~4. Lighting for nonvisual applications, such as plant growth and food warming, shall be controlled by a dedicated control that is independent of the controls for other lighting within the room or space. Each control zone shall be no greater than the area served by a single luminaire or 4,000 square feet, whichever is larger.~~

~~5. Luminaires serving the exit access and providing means of egress illumination required by Section 1008.2 of the *International Building Code*, including luminaires that function as both normal and emergency means of egress illumination shall be controlled by a combination of listed emergency relay and occupancy sensors, or signal from another building control system, that automatically shuts off the lighting when the areas served by that illumination are unoccupied.~~

~~EXCEPTION: Means of egress illumination serving the exit access that does not exceed 0.02 watts per square foot of building area is exempt from this requirement.~~))

C405.2.5 Daylight responsive controls. *Daylight responsive controls* complying with Section C405.2.5.1 shall be provided to control the *general lighting* within *daylight zones* in the following spaces:

1. Spaces with a total of more than 75 watts of *general lighting* within *primary sidelit daylight zones* complying with Section C405.2.5.2.

2. Spaces with a total of more than 150 watts of *general lighting* within the combined *primary* and *secondary daylight zones* complying with Section C405.2.5.2.

3. Spaces with a total of more than 75 watts of *general lighting* within *toplit daylight zones* complying with Section C405.2.5.3.

EXCEPTION: *Daylight responsive controls* are not required for the following:
1. Spaces in health care facilities where patient care is directly provided.

2. Sidelit daylight zones on the first floor above grade in Group A-2 and Group M occupancies where the fenestration adjoins a sidewalk or other outdoor pedestrian area, provided that the light fixtures are controlled separately from the general area lighting.

C405.2.5.1 Daylight responsive controls function. Where required, daylight responsive controls shall be provided within each space for control of lights in that space and shall comply with all of the following:

1. Lights in primary sidelit daylight zones shall be controlled independently of lights in secondary sidelit daylight zones in accordance with Section C405.2.5.2.

2. Lights in toplit daylight zones in accordance with Section C405.2.5.3 shall be controlled independently of lights in sidelit daylight zones in accordance with Section C405.2.5.2.

3. *Daylight responsive controls* within each space shall be configured so that they can be calibrated from within that space by authorized personnel.

4. Calibration mechanisms shall be in a location with *ready access*.

5. *Daylight responsive controls* shall dim lights continuously from full light output to 15 percent of full light output or lower.

6. *Daylight responsive controls* shall be configured to completely shut off all controlled lights in that zone.

7. When occupant sensor controls have reduced the lighting power to an unoccupied setpoint in accordance with Sections C405.2.1.2 through C405.2.1.4, *daylight responsive controls* shall continue to adjust electric light levels in response to available daylight but shall be configured to not increase the lighting power above the specified unoccupied setpoint.

8. Lights in sidelit daylight zones in accordance with Section C405.2.5.2 facing different cardinal orientations (i.e., within 45 degrees of due north, east, south, west) shall be controlled independently of each other.

EXCEPTION: Up to 75 watts of *general lighting* are permitted to be controlled together with lighting in a daylight zone facing a different cardinal orientation.

9. Incorporate time-delay circuits to prevent cycling of light level changes of less than three minutes.

10. The maximum area a single *daylight responsive control* device serves shall not exceed 2,500 square feet (232 m^2).

11. Occupant override capability of daylight dimming controls is not permitted, other than a reduction of light output from the level established by the daylighting controls.

C405.2.5.2 Sidelit daylight zone. The sidelit daylight zone is the floor area adjacent to vertical *fenestration* which complies with the following:

1. Where the *fenestration* is located in a wall, the primary sidelit daylight zone shall extend laterally to the nearest full height wall, or up to 1.0 times the height from the floor to the top of the *fenestration*, and longitudinally from the edge of the *fenestration* to the nearest full height wall, or up to 0.5 times the height from the floor to the top of the fenestration, whichever is less, as indicated in Figure C405.2.5.2(1).

2. The secondary sidelit daylight zone is directly adjacent to the primary daylight zone and shall extend laterally to 2.0 times the height from the floor to the top of the *fenestration* or to the nearest full height wall, whichever is less, and longitudinally from the edge of the *fenestration* to the nearest full height wall or up to 2 feet, whichever is less, as indicated in Figure C405.2.5.2(1).

3. Where *clerestory fenestration* is located in a wall, the sidelit daylight zone includes a lateral area twice the depth of the *clerestory fenestration* height, projected upon the floor at a 45 degree angle from the center of the *clerestory fenestration*. The longitudinal width of the sidelit daylight zone is calculated the same as for *fenestration* located in a wall. Where the 45 degree angle is interrupted by an obstruction greater than 0.7 times the ceiling height, the sidelit daylight zone shall remain the same lateral area but be located between the clerestory and the obstruction, as indicated in Figure C405.2.5.2(2).

4. Where the *fenestration* is located in a rooftop monitor, the sidelit daylight zone shall extend laterally to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 1.0 times the height from the floor to the bottom of the *fenestration*, whichever is less, and longitudinally from the edge of the *fenestration* to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.25 times the height from the floor to the bottom of the *fenestration*, whichever is less, as indicated in Figures C405.2.5.2(3) and C405.2.5.2(4).

5. If the rough opening area of a vertical fenestration assembly is less than 10 percent of the calculated primary sidelit daylight zone area for this fenestration, it does not qualify as a sidelit daylight zone.

6. The visible transmittance of the fenestration is no less than 0.20.

7. The projection factor (determined in accordance with Equation 4-5) for any overhanging projection which is shading the *fenestration* is not greater than 1.0 for fenestration oriented 45 degrees or less from true north, and not greater than 1.5 for all other orientations.

Figure C405.2.5.2(1)
Sidelit Daylight Zone Adjacent to Fenestration in a Wall

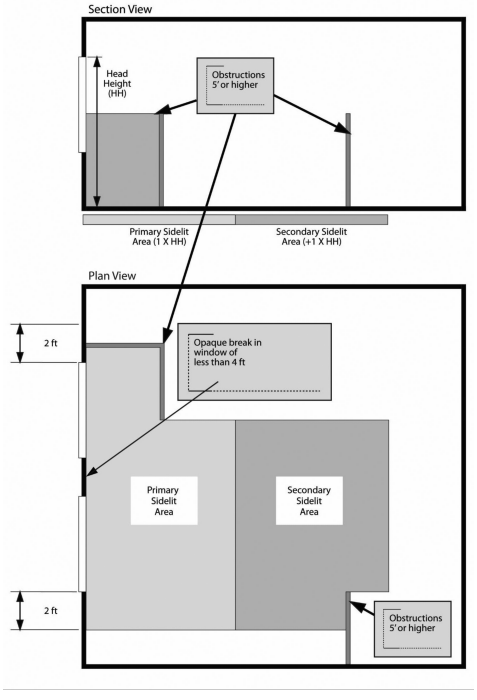


Figure C405.2.5.2(2)
Sidelit Daylight Zone Adjacent to Clerestory Fenestration in a Wall

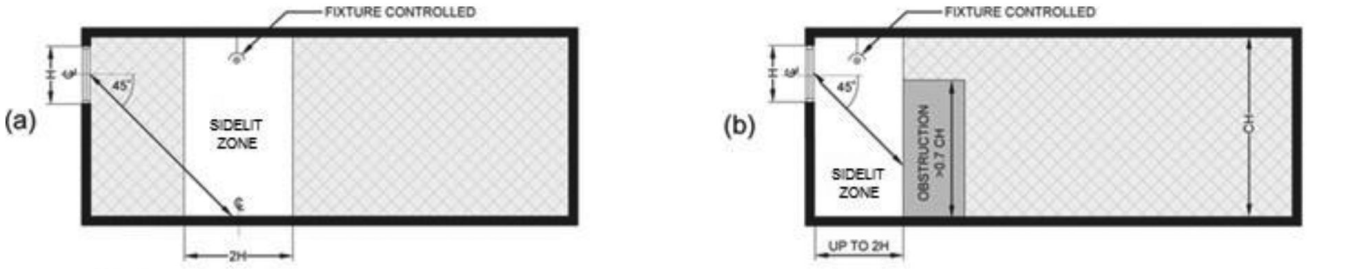
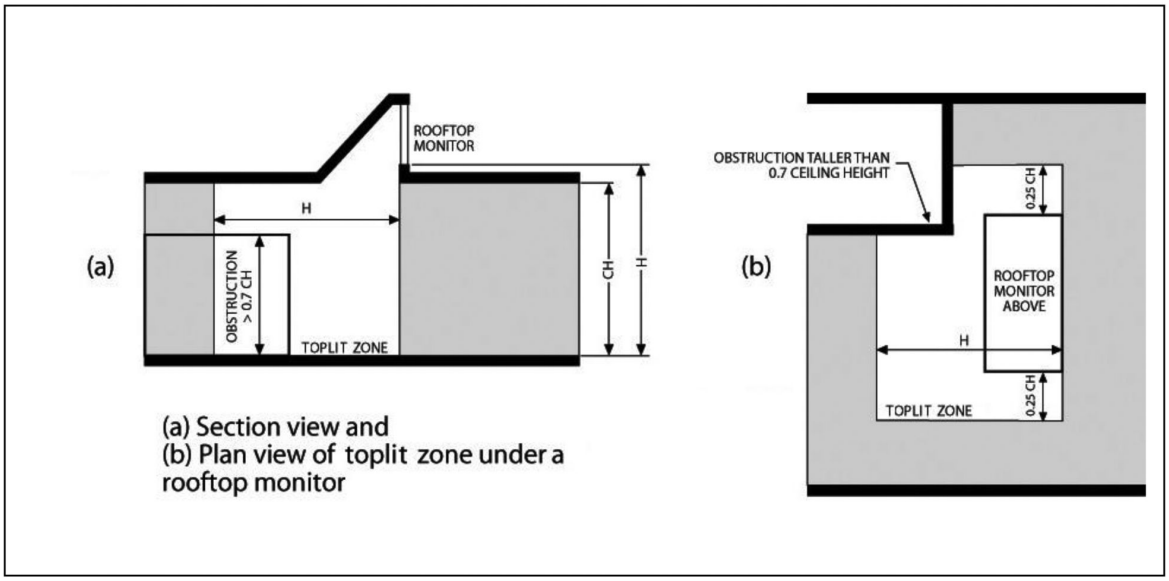


Figure C405.2.5.2(3)
Sidelit Daylight Zone Under a Sloped Rooftop Monitor



C405.2.5.3 Toplit daylight zone. The toplit daylight zone is the floor area underneath a roof fenestration assembly which complies with the following:

1. The toplit daylight zone shall extend laterally and longitudinally beyond the edge of the roof *fenestration* assembly to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.7 times the ceiling height, whichever is less, as indicated in Figure C405.2.5.3(1).

2. Where toplit daylight zones overlap with sidelit daylight zones, lights within the overlapping area shall be assigned to the toplit daylight zone.

3. The product of the *visible transmittance* of the roof *fenestration* assembly and the area of the rough opening of the roof fenestration assembly, divided by the area of the toplit daylight zone is no less than 0.008.

4. Where located under atrium fenestration, the toplit daylight zone shall include the bottom floor area directly beneath the atrium

fenestration, and the top floor directly under the atrium fenestration, as indicated in Figure C405.2.5.3(4). The toplit daylight zone area at the top floor is calculated the same as for a toplit daylight zone. Intermediate levels below the top floor that are not directly beneath the atrium are not included.

Figure C405.2.5.3(1)
Toplit Daylight Zone Under a Rooftop Fenestration Assembly

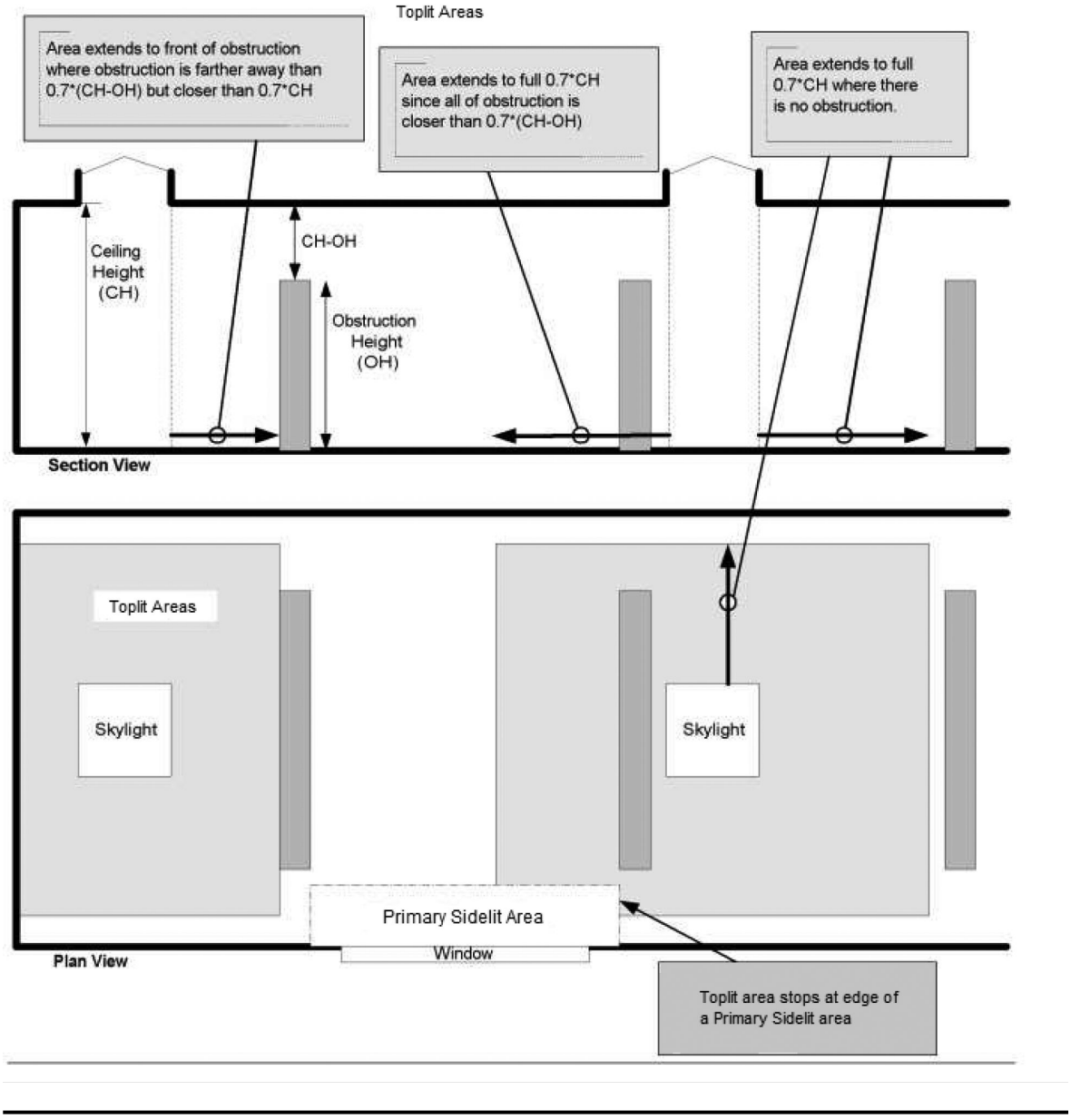
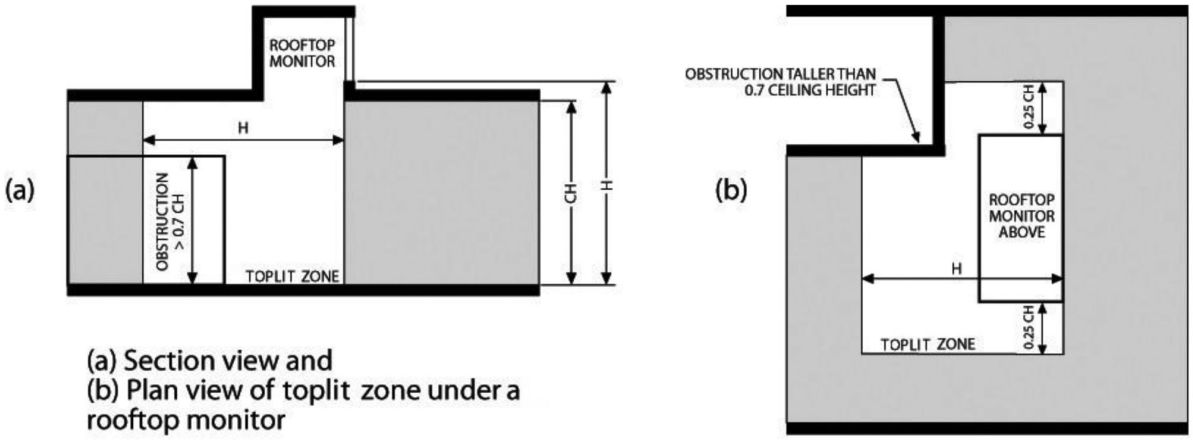
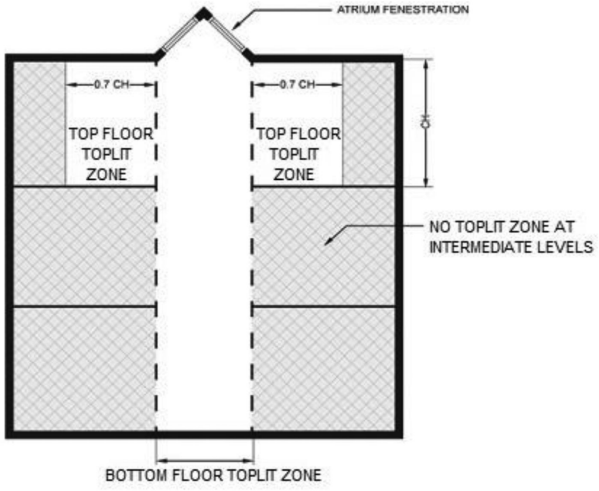


Figure C405.2.5.3(2)
Toplit Daylight Zone Under a Rooftop Monitor



(a) Section view and
(b) Plan view of toplit zone under a rooftop monitor

Figure C405.2.5.4
Toplit Daylight Zone Under Atrium Fenestration



C405.2.5.4 Atriums. Daylight zones at atrium spaces shall be established at the top floor surrounding the atrium and at the floor of the atrium space, and not on intermediate floors, as indicated in Figure C405.2.5.4.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-405025, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405025, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405025, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters

19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405025, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405026 Section C405.2.6—((~~Exterior~~)) Additional lighting controls. ((~~**C405.2.6 Exterior lighting controls.** Exterior lighting systems shall be provided with controls that comply with Sections C405.2.6.1 through C405.2.6.4. Decorative lighting systems shall comply with Sections C405.2.6.1, C405.2.6.2, and C405.2.6.4.~~

~~EXCEPTIONS: 1. Lighting for covered vehicle entrances or exits from buildings or parking structures where required for safety, security or eye adaption.~~
~~2. Lighting controlled from within dwelling units.~~

~~**C405.2.6.1 Daylight shutoff.** Lights shall be configured to automatically turn off when daylight is present and satisfies the lighting needs.~~

~~**C405.2.6.2 Façade and landscape lighting shutoff.** Building façade and landscaping lighting shall be configured to automatically shutoff for a minimum of 6 hours per night or from not later than 1 hour after business closing to not earlier than 1 hour before business opening, whichever is less.~~

~~EXCEPTION: Areas where an automatic shutoff would endanger safety or security.~~

~~**C405.2.6.3 Lighting setback.** Lighting that is not controlled in accordance with Section C405.2.6.2 shall be controlled so that the total wattage of such lighting is automatically reduced by not less than 30 percent by selectively switching off or dimming luminaires at one of the following times:~~

~~1. From not later than 12 midnight to 6 a.m.~~

~~2. From not later than 1 hour after business closing to not earlier than 1 hour before business opening.~~

~~3. During any period when no activity has been detected for 15 minutes or more.~~

~~**C405.2.6.4 Exterior time-switch control functions.** Time-switch controls for exterior lighting shall comply with the following:~~

~~1. They shall have a clock capable of being programmed for not fewer than 7 days.~~

~~2. They shall be capable of being set for 7 different day types per week.~~

~~3. They shall incorporate an automatic holiday setback feature.~~

~~4. They shall have program backup capabilities that prevent the loss of program and time settings for a period of at least 10 hours in the event that power is interrupted.~~))

C405.2.6 Additional lighting controls. Specific application lighting shall be provided with controls, in addition to controls required by other sections, for the following:

1. The following lighting shall be controlled by an occupant sensor complying with Section C405.2.1.1 or a time switch control complying with Section C405.2.2.1. In addition, a *manual* control shall be provided to control such lighting separately from the *general lighting* in the space:

1.1. Luminaires for which additional lighting power is claimed in accordance with Section C405.4.2.2.1.

1.2. Display and accent.

1.3. Lighting in display cases.

1.4. Supplemental task lighting, including permanently installed under-shelf or under-cabinet lighting.

1.5. Lighting equipment that is for sale or demonstration in lighting education.

1.6. Display lighting for exhibits in galleries, museums and monuments that is in addition to *general lighting*.

2. *Sleeping units* shall have control device(s) or systems configured to automatically switch off all permanently installed luminaires and switched receptacles within 20 minutes after all occupants have left the unit.

EXCEPTIONS: 1. Lighting and switched receptacles controlled by card key controls.
2. Spaces where patient care is directly provided.

3. Lighting for life support of nonhuman life forms and food warming, shall be controlled by a dedicated control that is independent of the controls for other lighting within the room or space. Each control zone shall be no greater than the area served by a single luminaire or 4,000 square feet (372 m^2), whichever is larger.

4. Task lighting for medical and dental purposes that is in addition to *general lighting* shall be provided with a manual control.

5. Luminaires serving the exit access and providing means of egress illumination required by Section 1008.2 of the *International Building Code*, including luminaires that function as both normal and emergency means of egress illumination shall be controlled by a combination of listed emergency relay and occupancy sensors, or signal from another building control system, that automatically shuts off the lighting when the areas served by that illumination are unoccupied.

EXCEPTION: Means of egress illumination serving the exit access that does not exceed 0.01 watts per square foot (0.108 W/m^2) of building area is exempt from this requirement.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405026, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405026, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405027 ((~~Reserved.~~)) Section C405.2.7—~~Area controls.~~

C405.2.7 Area controls. The maximum lighting power that may be controlled from a single switch or automatic control device shall not exceed that which is provided by a 20 ampere circuit loaded to not more than 80 percent. A master control may be installed provided the individual switches retain their capability to function independently. Circuit breakers may not be used as the sole means of switching.

EXCEPTION: Areas less than 5 percent of the building footprint for footprints over 100,000 ft^2.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405027, filed 11/26/19, effec-

tive 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405027, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-405028 Section ((~~C405.2.7 Area~~)) C405.2.8 Advanced lighting controls.

((~~**C405.2.7 Area controls.** The maximum lighting power that may be controlled from a single switch or automatic control device shall not exceed that which is provided by a 20 ampere circuit loaded to not more than 80 percent. A master control may be installed provided the individual switches retain their capability to function independently. Circuit breakers may not be used as the sole means of switching.~~

~~EXCEPTION: Areas less than 5 percent of the building footprint for footprints over 100,000 ft^2.~~))

C405.2.8 Advanced lighting controls. Any contiguous open office area larger than 5,000 square feet shall have its *general lighting* controlled by either:

1. *Luminaire-level lighting controls* (LLLC) conforming to the requirements of Section C405.2.8.1.
2. Networked lighting control (NLC) conforming to the requirements of Section C405.2.8.2.

C405.2.8.1 Luminaire-level lighting controls. Where *luminaire-level lighting controls* are required, they shall be configured to provide the controls or equivalent control function specified in Sections C405.2.1, C405.2.3, and C405.2.5. In addition, each LLLC luminaire shall be independently configured to:

1. Provide for continuous full range dimming.
2. Monitor occupant activity to brighten or dim lights when occupied or unoccupied, respectively.
3. Monitor ambient lighting, both electric and daylight, and brighten or dim artificial light to maintain desired light level. A maximum of 8 fixtures are permitted to be controlled together to maintain uniform light levels within a single daylight zone.
4. Allow configuration and reconfiguration of performance parameters for each control strategy including: High trim and low trim setpoints, timeouts, dimming fade rates, and sensor sensitivity adjustment.
5. Construction documents shall include a submittal of a sequence of operations including a specification outlining each of the functions required by this section.
6. Luminaires shall be configured with high end trim in accordance with Section C405.2.8.3.

C405.2.8.2 Networked lighting control (NLC). Where NLC are required, they shall be configured to provide controls and minimum function as specified in Section C405.2. In addition, each NLC luminaire shall be independently configured to:

1. Provide for continuous full range dimming.
2. Each luminaire shall be individually addressed.

EXCEPTIONS TO ITEM 2:

1. Multiple luminaires mounted on no more than 12 linear feet of a single lighting track and addressed as a single luminaire.

2. Multiple linear luminaires that are ganged together to create the appearance of a single longer fixture and addressed as a single luminaire, where the total length of the combined luminaires is not more than 12 feet.

3. Monitor occupant activity to brighten or dim lighting when occupied or unoccupied, respectively.

4. Monitor ambient lighting, both electric and daylight, and brighten or dim artificial light to maintain desired light level. A maximum of 8 fixtures are permitted to be controlled together to maintain uniform light levels within a single daylight zone.

5. Allow configuration and reconfiguration of performance parameters for each control strategy including: High trim and low trim setpoints, timeouts, dimming fade rates, and sensor sensitivity adjustment.

6. Allow for demand response load shed.

7. Construction documents shall include a submittal of a sequence of operations including a specification outlining each of the functions required by this section.

8. Luminaires shall be configured with high end trim in accordance with Section C405.2.8.3.

C405.2.8.3 High end trim. Luminaires subject to high end trim shall be initially configured with the following:

1. Programmed to limit the initial maximum lumen output or maximum lighting power to 85 percent or less of full light output or full power from full output or to meet the target light level documented in project sequence of operations using the least amount of power.

2. High end trim power levels are allowed to automatically reset to accommodate lumen maintenance.

3. High end trim controls shall be accessible only to authorized personnel.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-405028, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405028, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405028, filed 1/19/16, effective 7/1/16.]

NEW SECTION

WAC 51-11C-405029 Section C405.2.9—Exterior lighting controls.

C405.2.9 Exterior lighting controls. Exterior lighting systems shall be provided with controls that comply with Sections C405.2.9.1 through C405.2.9.4.

EXCEPTIONS:
1. Lighting for covered vehicle entrances or exits from buildings or parking structures where required for safety, security or eye adaption.
2. Lighting controlled from within dwelling units.

C405.2.9.1 Daylight shutoff. Lights shall be configured to automatically turn off when daylight is present and satisfies the lighting needs.

C405.2.9.2 Building façade and landscape lighting. Building façade and landscaping lighting shall be configured to automatically shutoff for a minimum of 6 hours per night or from not later than 1 hour after

business closing to not earlier than 1 hour before business opening, whichever is less.

EXCEPTION: Areas where an automatic shutoff would endanger safety or security.

C405.2.9.3 Lighting setback. Lighting that is not controlled in accordance with Section C405.2.9.2 shall comply with all of the following:

1. Be controlled so that the total wattage of such lighting is automatically reduced by not less than 50 percent by selectively switching off or dimming luminaires at one of the following times:

1.1. From not later than 12 midnight to 6 a.m.

1.2. From not later than 1 hour after business closing to not earlier than 1 hour before business opening.

1.3. During any period when no activity has been detected for 15 minutes or more.

2. Luminaires serving outdoor parking areas and having a rated input wattage of greater than 40 watts and a mounting height of 30 feet (9144 mm) or less above the ground shall also be controlled so that the total wattage of such lighting is automatically reduced by not less than 50 percent during any time where activity has not been detected for 15 minutes or more. Not more than 1,500 watts of lighting power shall be controlled together.

C405.2.9.4 Exterior time-switch control functions. Time-switch controls for exterior lighting shall comply with the following:

1. They shall have a clock capable of being programmed for not fewer than 7 days.

2. They shall be capable of being set for 7 different day types per week.

3. They shall incorporate an automatic holiday setback feature.

4. They shall have program backup capabilities that prevent the loss of program and time settings for a period of at least 10 hours in the event that power is interrupted.

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AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40503 ((~~Reserved.~~)) Section C405.2.10—Parking garage lighting control.

C405.2.10 Parking garage lighting control. Parking garage lighting shall be controlled by an *occupant sensor* complying with Section C405.2.1.1 or a *time-switch control* complying with Section C405.2.2.1. Additional lighting controls shall be provided as follows:

1. Lighting power of each luminaire shall be automatically reduced by not less than 30 percent when there is no activity detected within a lighting zone for 20 minutes. Lighting zones for this requirement shall be not larger than 3,600 square feet (334.5 m^2).

2. Where lighting for eye adaptation is provided at covered vehicle entrances and exits from buildings and parking structures, such lighting shall be separately controlled by a device that automatically reduces lighting power by at least 50 percent from sunset to sunrise.

3. The power to luminaires within 20 feet (6096 mm) of perimeter wall openings shall automatically reduce in response to daylight by at least 50 percent.

EXCEPTIONS TO ITEM 3:

1. Daylight transition lighting for covered vehicle entrances and exits from buildings and parking structures; each transition zone shall not exceed a depth of 66 feet inside the structure and a width of 50 feet.
2. Where permanent screens or architectural elements obstruct more than 50 percent of the opening.
3. Where the top of any existing adjacent structure or natural object is at least twice as high above the openings as its horizontal distance from the opening.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40503, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40503, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-11C-405030 Section C405.3—Lighting for plant growth and maintenance.

C405.3 Lighting for plant growth and maintenance. All permanently installed luminaires used for plant growth and maintenance shall have a *photosynthetic photon efficacy* of not less than 1.7 µmol/J for greenhouses and not less than 1.9 µmol/J for all other indoor growing spaces as defined in accordance with ANSI/ASABE S640.

EXCEPTION: Buildings with no more than 10 kW of aggregate horticultural lighting load.

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AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-405051 Section C405.4.1—Total connected interior lighting power.

C405.4.1 Total connected interior lighting power. The total connected interior lighting power shall be determined in accordance with Equation ((~~4-10~~)) 4-13.

$$TCLP = [LVL + BLL + TRK + POE + Other]$$

(Equation ((~~4-10~~)) 4-13)

Where:

TCLP = Total connected lighting power (watts).

LVL = For luminaires with lamps connected directly to building power, such as line voltage lamps, the rated wattage of the lamp, which must be minimum 60 lumens/watt.

BLL = For luminaires incorporating a ballast or transformer, the rated input wattage of the ballast or transformer when operating the lamp.

TRK = For lighting track, cable conductor, rail conductor and plug-in busway systems that allow the addition and relocation of luminaires without rewiring, the wattage shall be one of the following:

1. The specified wattage of the luminaires, but not less than 16 W/lin. ft. (52 W/lin. m).

2. The wattage limit of the permanent current limiting devices protecting the system.

3. The wattage limit of the transformer supplying the system.

POE = For other modular lighting systems served with power supplied by a driver, power supply for transformer including, but not limited to, low-voltage lighting systems, the wattage of the system shall be the maximum rated input wattage of the driver, power supply or transformed published in the manufacturer's catalogs, as specified by UL 2108 or 8750. For power-over-Ethernet lighting systems, power provided to installed nonlighting devices may be subtracted from the total power rating of the power-over-Ethernet systems.

Other = The wattage of all other luminaires and lighting, sources not covered above and associated with interior lighting verified by data supplied by the manufacturer or other *approved* sources.

The connected power associated with the following lighting equipment is not included in calculating total connected lighting power.

1. Television broadcast lighting for playing areas in sports arenas.

2. Emergency lighting automatically off during normal building operation.

3. Lighting in spaces specifically designed for use by occupants with special lighting needs including those with visual impairment and other medical and age-related issues.

4. Casino gaming areas.

5. General area lighting power in industrial and manufacturing occupancies dedicated to the inspection or quality control of goods and products.

6. Mirror lighting in dressing rooms.

7. Task lighting for medical and dental purposes that is in addition to *general lighting* ((~~and controlled by an independent control device~~)).

8. Display lighting for exhibits in galleries, museums and monuments that is in addition to *general lighting* ((~~and controlled by an independent control device~~)).

9. Lighting for theatrical purposes, including performance, stage, film production and video production.

10. Lighting for photographic processes.

11. Lighting integral to equipment or instrumentation and installed by the manufacturer.

12. Task lighting for plant growth or maintenance where the lamp efficacy is not less than 90 lumens per watt.

13. Advertising signage or directional signage.

14. Lighting for food warming.

15. Lighting equipment that is for sale.

16. Lighting demonstration equipment in lighting education facilities.

17. Lighting *approved* because of safety considerations.

18. Lighting in retail display windows, provided the display area is enclosed by ceiling-height partitions.

19. Furniture mounted supplemental task lighting that is controlled by automatic shutoff.

20. Exit signs.

21. Lighting used for aircraft painting.

22. Antimicrobial lighting used for the sole purpose of disinfecting a space.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-405051, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405051, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405051, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405051, filed 2/1/13, effective 7/1/13.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405052 Section C405.4.2—Interior lighting power requirements.

C405.4.2 Interior lighting power allowance. The total interior lighting power allowance (watts) ((~~is~~)) for an entire building shall be determined according to Table C405.4.2(1) using the Building Area Method, or Table C405.4.2(2) using the Space-by-Space Method((~~, for all areas of the building covered in this permit~~)). The interior lighting power allowance for projects that involve only portions of a building shall be determined according to Table C405.4.2(2) using the Space-by-Space Method. Buildings with unfinished spaces shall use the Space-by-Space Method.

C405.4.2.1 Building area method. For the Building Area Method, the interior lighting power allowance is ((~~the floor area~~)) calculated as follows:

1. For each building area type ((~~listed in Table C405.4.2(1) times the value from Table C405.4.2(1) for~~)) inside the building, determine the applicable building area type and the allowed lighting power density for that type from Table C405.4.2(1). For building area types not listed, select the building area type that most closely represents the use of that area. For the purposes of this method, an "area" shall be defined as all contiguous spaces that accommodate or are associated with a single building area type ((~~as~~)).

2. Determine the floor area for each building area type listed in Table C405.4.2(1) and multiply this area by the applicable value from Table C405.4.2(1) to determine the lighting power (watts) for each building area type. ((~~Where this method is used to calculate~~))

3. The total interior lighting power allowance (watts) for ((~~an~~)) the entire building((~~,~~)) is the sum of the lighting power from each building area type ((~~shall be treated as a separate area~~)).

C405.4.2.2 Space-by-Space Method. ((~~For the Space-by-Space Method, the interior lighting power allowance is determined by multiplying the floor area of each space times the value for the space type in Table C405.4.2(2) that most closely represents the proposed use of the space, and then summing the lighting power allowances for all spaces. Tradeoffs among spaces are permitted.~~)) Where a building has a space designated as unfinished, neither the area nor the lighting power in

the space shall be calculated as part of the LPA. For the Space-by-Space Method, the interior lighting power allowance is calculated as follows:

1. For each area enclosed by partitions that are not less than 80 percent of the ceiling height ((~~or taller shall be considered a separate space and assigned the appropriate space type from Table C405.4.2(2). If a space has multiple functions where more than one space type is applicable, that space shall be broken up into smaller subspaces, each using their own space type. Any of these subspaces that are smaller in floor area than 20 percent of the enclosed space and less than 1,000 square feet need not be broken out separately~~)) determine the applicable space type from Table C405.4.2(2). For space types not listed, select the space type that most closely represents the proposed use of the space. Where a space has multiple functions, that space shall be broken up into smaller subspaces, each using their own space type. If an entire space has multiple functions that necessitate a higher lighting power allowance in order to serve one of the primary functions, the higher allowance is permitted to be used.

2. Determine the total floor area of all of the spaces of each space type and multiply by the value for the space type in Table C405.4.2(2) to determine the lighting power (watts) for each space type.

3. The total interior lighting power allowance (watts) shall be the sum of the lighting power allowances for all space types.

C405.4.2.2.1 Additional interior lighting power. Where using the Space-by-Space Method, an increase in the interior lighting power allowance is permitted for specific lighting functions. Additional power shall be permitted only where the specified lighting is installed in addition to and automatically controlled separately from ((~~the~~)) *general lighting*, ((~~to be turned off during nonbusiness hours~~)) in accordance with Section C405.2.6. This additional power shall be used only for the specified luminaires and shall not be used for any other purpose.

An increase in the interior lighting power allowance is permitted for lighting equipment to be installed in sales areas specifically to highlight merchandise. The additional lighting power shall be determined in accordance with Equation ((~~4-11~~)) 4-14.

(Equation ((~~4-11~~)) 4-14)

Additional Interior Lighting Power Allowance = 500 watts + (Retail Area 1 × 0.45 W/ft^2) + (Retail Area 2 × 0.45 W/ft^2) + (Retail Area 3 × 1.05 W/ft^2) + (Retail Area 4 × 1.87 W/ft^2).

Where:

Retail Area 1 = The floor area for all products not listed in Retail Area 2, 3 or 4.

Retail Area 2 = The floor area used for the sale of vehicles, sporting goods and small electronics.

Retail Area 3 = The floor area used for the sale of furniture, clothing, cosmetics and artwork.

Retail Area 4 = The floor area used for the sale of jewelry, crystal and china.

EXCEPTION: Other merchandise categories are permitted to be included in Retail Areas 2 through 4, provided that justification documenting the need for additional lighting power based on visual inspection, contrast, or other critical display requirement is *approved* by the code official.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405052, filed 11/26/19, effec-

tive 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405052, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405052, filed 2/1/13, effective 7/1/13.]

OTS-3535.1

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405053 Table C405.4.2(1)—Interior lighting power allowances—Building area method.

Table C405.4.2(1)
Interior Lighting Power Allowances—Building Area Method

Building Area Type	LPD (w/ ft^2)
Automotive facility	0.64
Convention center	0.64
Court house	0.79
Dining: Bar lounge/leisure	0.79
Dining: Cafeteria/fast food	0.72
Dining: Family	0.71
Dormitory(([a,b]))	0.46
Exercise center	0.67
Fire station((a))	0.54
Gymnasium	0.75
Health care clinic	0.70
Hospital((a))	0.84
Hotel/motel((a,b))	0.56
Library	0.83
Manufacturing facility	0.82
Motion picture theater	0.44
((~~Multifamily~~[c])) Multiple family	0.41
Museum	0.55
Office	0.64
Parking garage	0.14
Penitentiary	0.65
Performing arts theater	0.84
Police station	0.66
Post office	0.65
Religious building	0.67
Retail	0.84
School/university	0.70

Building Area Type	LPD (w/ ft^2)
Sports arena	0.62
Town hall	0.69
Transportation	0.50
Warehouse	0.40
Workshop	0.91

((a ~~Where sleeping units are excluded from lighting power calculations by application of Section R404.1, neither the area of the sleeping units nor the wattage of lighting in the sleeping units is counted.~~
b ~~Where dwelling units are excluded from lighting power calculations by application of Section R404.1, neither the area of the dwelling units nor the wattage of lighting in the dwelling units is counted.~~
c ~~Dwelling units are excluded. Neither the area of the dwelling units nor the wattage of lighting in the dwelling units is counted.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405053, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405053, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405053, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-405054 Table C405.4.2(2)—Interior lighting power allowances—Space-by-space method.

Table C405.4.2(2)
Interior Lighting Power Allowances—Space-by-Space Method

Common Space-by-Space Types[a,i]	LPD (w/ft^2)
Atrium - Less than 20 feet in height	0.39
Atrium - 20 to 40 feet in height	0.48
Atrium - Above 40 feet in height	0.60
Audience/seating area - Permanent[i]	
In an auditorium	0.61
In a gymnasium	0.23
In a motion picture theater	0.27
In a penitentiary	0.67
In a performing arts theater	1.16
In a religious building	0.72
In a sports arena	0.33
Otherwise	0.23
Banking activity area((n)) [i]	0.61
Breakroom (see lounge/breakroom)	
Classroom/lecture hall/training room	
In a penitentiary	0.89
Otherwise[h]	0.71((m))

Common Space-by-Space Types[a,i]	LPD (w/ft^2)
Computer room, data center	0.94
Conference/meeting/multipurpose	0.97
Confinement cell	0.70
Copy/print room	0.31
Corridor	
In a facility for the visually impaired (and not used primarily by the staff)[b]	0.71
In a hospital	0.71
In a manufacturing facility	0.41
Otherwise[c,i]	0.41
Courtroom[c]	1.20
Dining area	
In a penitentiary	0.42
In a facility for the visually impaired (and not used primarily by the staff)[b]	1.27
In a bar/lounge or leisure dining[((n)) i]	0.86
In cafeteria or fast food dining	0.40
In a family dining area[((n)) i]	0.60
Otherwise	0.43
Electrical/mechanical	0.43
Emergency vehicle garage	0.52
Food preparation	1.09
Guest room[a,b]	0.41
Laboratory	
In or as a classroom	1.11
Otherwise	1.33
Laundry/washing area	0.53
Loading dock, interior	0.88
Lobby[c]	
In a facility for the visually impaired (and not used primarily by the staff)[b]	1.69
For an elevator	0.65
In a hotel	0.51
In a motion picture theater	0.23
In a performing arts theater	1.25
Otherwise	0.84
Locker room	0.52
Lounge/breakroom[((n)) i]	
In a health care facility[((n)) c,i]	0.42
Otherwise[((n)) i]	0.59
Office	
Enclosed ≤ 250	0.74

Common Space-by-Space Types[a,i]	LPD (w/ft^2)
Enclosed > 250	0.66
Open plan	0.61
Parking area, interior	0.15
Pharmacy area	1.66
Restroom	
In a facility for the visually impaired (and not used primarily by the staff)[b]	1.26
Otherwise(([n])) [i]	0.63
Sales area	1.05
Seating area, general	0.23
Stairway (see space containing stairway)	
Stairwell((([n])) [c,i]	0.49
Storage room	
< 50 ft^2	0.51
50-100 ft^2	0.38
All other storage	0.38
Vehicular maintenance	0.60
Workshop	1.26

Building Specific Space-by-Space Types[a]	LPD (w/ft^2)
Automotive (see vehicular maintenance)	
Convention center - Exhibit space[i]	0.61
Dormitory living quarters[a,b]	0.50
Facility for the visually impaired[b]	
In a chapel (and not used primarily by the staff)[b]	0.70
In a recreation room (and not used primarily by the staff)[b]	1.77
Fire stations((([g]))	
Sleeping quarters	0.23
Gymnasium/fitness center	
In an exercise area	0.90
In a playing area	0.85
Health care facility[c,i]	
In an exam/treatment room	1.40
In an imaging room	0.94
In a medical supply room	0.62
In a nursery	0.92
In a nurse's station	1.17
In an operating room	2.26
In a patient room((([g]))	0.68
In a physical therapy room	0.91
In a recovery room	1.25

Building Specific Space-by-Space Types[a]	LPD (w/ft^2)
Library	
In a reading area((n)) i	((0.31)) 0.96
In the stacks	1.10
Manufacturing facility	
In a detailed manufacturing area	0.80
In an equipment room	0.76
In an extra high bay area (greater than 50-foot floor-to-ceiling height)	1.42
In a high bay area (25 - 50-foot floor-to-ceiling height)	1.24
In a low bay (< 25-foot floor-to-ceiling height)	0.86
Museum	
In a general exhibition area[i]	0.31
In a restoration room	1.10
Performing arts theater dressing/ fitting room	0.41
Post office - Sorting area	0.76
Religious buildings	
In a fellowship hall((n)) i	0.54
In a worship/pulpit/choir area((n)) i	0.85
Retail facilities	
In a dressing/fitting room	0.51
In a mall concourse	0.82
Sports arena - Playing area	
For a Class 1 facility((i)) d	2.94
For a Class 2 facility((j)) e	2.01
For a Class 3 facility((k)) f	1.30
For a Class 4 facility((l)) g	0.86
Transportation	
In a baggage/carousel area	0.39
In an airport concourse	0.25
At a terminal ticket counter((n)) i	0.51
Warehouse - Storage area	
For medium to bulky palletized items	0.33
For smaller, hand-carried items	0.69

For SI: 1 foot = 304.8 mm, 1 watt per square foot = ((11)) 10.76 W/m^2.

a In cases where both a common space type and a building area specific space type are listed, the building area specific space type shall apply.

b A facility for the visually impaired is a facility that is licensed or will be licensed by local or state authorities for senior long-term care, adult daycare, senior support or people with special visual needs.

c ((~~For spaces in which lighting is specified to be installed in addition to, and controlled separately from, the general lighting for the purpose of highlighting art or exhibits, provided that the additional lighting power shall not exceed 0.5 W/ft^2 of such spaces.~~)) Additional lighting power allowance of 0.2 watts per square foot for the purpose of highlighting art or exhibits. This additional power shall be permitted only where the specified lighting is installed in addition to and controlled separately from *general lighting* in accordance with Section C405.2.6. This additional power shall be used only for the specified luminaires and shall not be used for any other purpose and it shall not be added to any other space or the interior power allowance.

((d ~~Reserved.~~

~~e Reserved.~~

~~f Reserved.~~

~~g Where sleeping units are excluded from lighting power calculations by application of Section R404.1, neither the area of the sleeping units nor the wattage of lighting in the sleeping units is counted.~~

~~h Where dwelling units are excluded from lighting power calculations by application of Section R404.1, neither the area of the dwelling units nor the wattage of lighting in the dwelling units is counted.~~

~~i~~)) Class I facilities consist of professional facilities; and semiprofessional, collegiate or club facilities with seating for 5,000 or more spectators.

d

((~~j~~)) Class II facilities consist of collegiate and semiprofessional facilities with seating for fewer than 5,000 spectators; club facilities with seating between 2,000 and 5,000 spectators; and amateur league and high school facilities with seating for more than 2,000 spectators.

e

((~~k~~)) Class III facilities consist of club, amateur league and high school facilities with seating for 2,000 or fewer spectators.

f

((~~l~~)) Class IV facilities consist of elementary school and recreational facilities; and amateur league and high school facilities without provisions for spectators.

g

((~~m~~)) For classrooms, additional lighting power allowance of 4.50 W/ lineal foot of white or chalk boards for directional lighting dedicated to white or chalk boards.

h

((~~n~~)) Additional lighting power allowance of ((~~0.30~~)) 0.15 W/ft^2 for ornamental lighting. Qualifying ornamental lighting includes luminaires ((~~such as chandeliers, sconces, lanterns, neon and cold cathode, light emitting diodes, theatrical projectors, moving lights and light color panels when any of those lights are~~)) that are specifically used in a decorative manner ((~~that does not serve as~~)). This additional power shall be permitted only where the specified lighting is installed in addition to and controlled separately from display ((~~lighting~~)) or *general lighting* in accordance with Section C405.2.6. This additional power shall be used only for the specified luminaires and it shall not be added to any other space or the interior power allowance.

i

j Where a space is designated as unfinished, neither the area nor the lighting power in the space shall be calculated as part of the LPA.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-405054, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405054, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405054, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405054, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405061 Section C405.5.1—Exterior building grounds lighting.

C405.5.1 Exterior building grounds lighting. All exterior building grounds luminaires that operate at greater than ((~~50~~)) 25 watts shall have a minimum efficacy of 100 lumens per watt ((~~unless the luminaire is controlled by a motion sensor or qualifies for one of the exceptions under Section C405.5.2~~)).

EXCEPTIONS: 1. ((~~Solar-powered lamps not connected to any electrical source.~~
~~2.~~)) Luminaires controlled by a motion sensor.
((~~3.~~)) 2. Luminaires that qualify for one of the exceptions under Section C405.5.2.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405061, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405061, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405061, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-405062 Section C405.5.2—Exterior building lighting power.

C405.5.2 Total connected exterior building lighting power. The total exterior connected lighting power shall be the total maximum rated wattage of all exterior lighting that is powered through the energy service for the building.

EXCEPTION: Lighting used for the following applications shall not be included:
1. Lighting approved because of safety considerations;
2. Emergency lighting automatically off during normal business operation;
3. Exit signs;
4. Specialized signal, directional and marker lighting associated with transportation;
5. Advertising signage or directional signage;
6. Integral to equipment or instrumentation and is installed by its manufacturer;
7. Theatrical purposes, including performance, stage, film production and video production;
8. Athletic playing areas;
9. Temporary lighting;
10. Industrial production, material handling, transportation sites and associated storage areas;
11. Theme elements in theme/amusement parks;
12. Lighting integrated within or used to highlight features of art, public monuments and the national flag;
13. Lighting for water features and swimming pools; and
14. Lighting that is controlled from within dwelling units, where the lighting complies with Section R404.1.

C405.5.3 Exterior lighting power allowance. ((~~The total exterior lighting power allowance is the sum of the base site allowance plus the individual allowances for areas that are to be illuminated by lighting that is powered through the energy service for the building. Lighting power allowances are as specified in Table C405.5.3(2). The lighting zone for the building exterior is determined in accordance with Table C405.5.3(1) unless otherwise specified by the code official.~~)) The exterior lighting power allowance (watts) is calculated as follows:

1. Determine the Lighting Zone (LZ) for the building according to Table C405.5.3(1), unless otherwise specified by the code official.

2. For each exterior area that is to be illuminated by lighting that is powered through the energy service for the building, determine the applicable area type from Table C405.5.3(2). For area types not listed, select the area type that most closely represents the proposed use of the area. Covered parking garage lighting is not considered exterior lighting for the purposes of this calculation.

3. Determine the total area or length of each area type and multiply by the value for the area type in Table C405.5.3(2) to determine the lighting power (watts) allowed for each area type.

4. The total exterior lighting power allowance (watts) is the sum of the base site allowance determined according to Table C405.5.3(2), plus the watts from each area type.

C405.5.3.1 Additional exterior lighting power. ((~~Any increase in the~~)) Additional exterior lighting power allowances ((~~is limited to~~)) are available for the specific lighting applications ((~~indicated~~)) listed in Table C405.5.3(3). ((~~The~~)) These additional power allowances shall be used only for the luminaires ((~~that are~~)) serving these applications and shall not be used ((~~for any other purpose~~)) to increase any other lighting power allowance.

C405.5.4 Gas lighting. Gas-fired lighting appliances shall not be equipped with continuously burning pilot ignition systems.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405062, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405062, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405062, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-405064 Table C405.5.3(2)—Individual lighting power allowances for building exteriors.

Table C405.5.3(2)
Lighting Power Allowances for Building Exteriors

	Lighting Zones			
	Zone 1	**Zone 2**	**Zone 3**	**Zone 4**
Base Site Allowance	((~~350~~)) 160 W	((~~400~~)) 280 W	((~~500~~)) 400 W	((~~900~~)) 560 W
Uncovered Parking Areas				
Parking areas and drives	((~~0.03~~)) 0.015 W/ft^2	((~~0.04~~)) 0.026 W/ft^2	((~~0.06~~)) 0.037 W/ft^2	((~~0.08~~)) 0.052 W/ft^2
Building Grounds				
Walkways and ramps less than 10 feet wide	((~~0.5 W/ linear foot~~)) 0.04 W/ft^2	((~~0.5 W/ linear foot~~)) 0.07 W/ft^2	((~~0.6 W/ linear foot~~)) 0.10 W/ft^2	((~~0.7 W/ linear foot~~)) 0.14 W/ft^2
Walkways and ramps 10 feet wide or greater, plaza areas, special feature areas	((~~0.10~~)) 0.04 W/ft^2	((~~0.10~~)) 0.07 W/ft^2	((~~0.11~~)) 0.10 W/ft^2	0.14 W/ft^2
Dining areas	((~~0.65~~)) 0.156 W/ft^2	((~~0.65~~)) 0.273 W/ft^2	((~~0.75~~)) 0.390 W/ft^2	((~~0.95~~)) 0.546 W/ft^2

	Lighting Zones			
	Zone 1	**Zone 2**	**Zone 3**	**Zone 4**
Stairways	((~~0.6 W/ ft^2~~)) Exempt	((~~0.7 W/ ft^2~~)) Exempt	((~~0.7 W/ ft^2~~)) Exempt	((~~0.7 W/ ft^2~~)) Exempt
Pedestrian tunnels	((~~0.12~~)) 0.063 W/ft^2	((~~0.12~~)) 0.110 W/ft^2	((~~0.14~~)) 0.157 W/ft^2	((~~0.21~~)) 0.220 W/ft^2
Landscaping	((~~0.03~~)) 0.014 W/ft^2	((~~0.04~~)) 0.025 W/ft^2	((~~0.04~~)) 0.036 W/ft^2	((~~0.04~~)) 0.050 W/ft^2
Building Entrances and Exits				
Pedestrian and vehicular entrances and exits	((~~14~~)) 5.6 W/linear foot of opening	((~~14~~)) 9.8 W/linear foot of opening	((~~21~~)) 14.0 W/ linear foot of opening	((~~21~~)) 19.6 W/ linear foot of opening
Entry canopies	((~~0.2~~)) 0.072 W/ft^2	((~~0.25~~)) 0.126 W/ft^2	((~~0.4~~)) 0.180 W/ft^2	((~~0.4~~)) 0.252 W/ft^2
Loading docks	((~~0.35~~)) 0.104 W/ft^2	((~~0.35~~)) 0.182 W/ft^2	((~~0.35~~)) 0.260 W/ft^2	((~~0.35~~)) 0.364 W/ft^2
Sales Canopies				
Free standing and attached	((~~0.4~~)) 0.20 W/ft^2	((~~0.4~~)) 0.35 W/ft^2	((~~0.6~~)) 0.50 W/ft^2	((~~0.7~~)) 0.70 W/ft^2
Outdoor Sales				
Open areas (including vehicle sales lots)	((~~0.2~~)) 0.072 W/ft^2	((~~0.2~~)) 0.126 W/ft^2	((~~0.35~~)) 0.180 W/ft^2	((~~0.5~~)) 0.252 W/ft^2
Street frontage for vehicle sales lots in addition to "open area" allowance	No Allowance	7 W/ linear foot	((~~7~~)) 10.3 W/linear foot	((~~21~~)) 14.4 W/ linear foot

For SI: 1 foot = 304.8 mm, 1 watt per square foot = ((~~W/0.0929~~)) 10.76 W per m^2

Table C405.5.3(3)
Individual Lighting Power Allowances for Building Exteriors

	((~~Lighting Zones~~			
	~~**Zone 1**~~	~~**Zone 2**~~	~~**Zone 3**~~	~~**Zone 4**~~
~~Building facades~~	~~No allowance~~	~~0.075 W/ft^2 of gross above-grade wall area~~	~~0.113 W/ft^2 of gross above-grade wall area~~	~~0.150 W/ft^2 of gross above-grade wall area~~
~~Automated teller machines and night depositories~~	~~135W per location plus 45W per additional ATM per location~~			
~~Uncovered entrances and gatehouse inspection stations at guarded facilities~~	~~0.5 W/ft^2~~			
~~Uncovered loading areas for law enforcement, fire, ambulance and other emergency service vehicles~~	~~0.35 W/ft^2~~			

	((~~Lighting Zones~~			
	~~Zone 1~~	~~Zone 2~~	~~Zone 3~~	~~Zone 4~~
~~Drive-up windows/doors~~	~~200 W per drive-through~~			
~~Parking near 24-hour retail entrances~~	~~400 W per main entry~~))			

	Lighting Zones			
	Zone 1	Zone 2	Zone 3	Zone 4
Base site allowance	No allowance	0.075 W/ft^2 of gross above-grade wall area	0.113 W/ft^2 of gross above-grade wall area	0.150 W/ft^2 of gross above-grade wall area
Automated teller machines (ATM) and night depositories	80 W per location plus 25 per additional ATM	80 W per location plus 25 per additional ATM	80 W per location plus 25 per additional ATM	80 W per location plus 25 per additional ATM
Uncovered entrances and gatehouse inspection stations at guarded facilities	0.144 W/ft^2	0.252 W/ft^2	0.360 W/ft^2	0.504 W/ft^2
Uncovered loading areas for law enforcement, fire, ambulance and other emergency service vehicles	0.104 W/ft^2	0.182 W/ft^2	0.260 W/ft^2	0.364 W/ft^2
Drive-up windows/doors	53 W per drive through	92 W per drive through	132 W per drive through	185 W per drive through
Parking near 24-hour retail entrances	80 W per main entry	140 W per main entry	200 W per main entry	280 W per main entry

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-405064, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-405064, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-405064, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-405064, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40507 Sections C405.6 and C405.7—Electrical energy consumption.

C405.6 Electrical transformers. Low-voltage dry-type distribution electric transformers shall meet the minimum efficiency requirements of Table C405.6 as tested and rated in accordance with the test procedure listed in DOE 10 C.F.R. 431. The efficiency shall be verified through certification under an approved certification program or, where no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the transformer manufacturer.

EXCEPTION: The following transformers are exempt:
1. Transformers that meet the Energy Policy Act of 2005 exclusions based on the DOE 10 C.F.R. 431 definition of special purpose applications.
2. Transformers that meet the Energy Policy Act of 2005 exclusions that are not to be used in general purpose applications based on information provided in DOE 10 C.F.R. 431.
3. Transformers that meet the Energy Policy Act of 2005 exclusions with multiple voltage taps where the highest tap is not less than 20 percent more than the lowest tap.

4. Drive transformers.
5. Rectifier transformers.
6. Auto-transformers.
7. Uninterruptible power system transformers.
8. Impedance transformers.
9. Regulating transformers.
10. Sealed and nonventilating transformers.
11. Machine tool transformer.
12. Welding transformer.
13. Grounding transformer.
14. Testing transformer.

Table C405.6
Minimum Nominal Efficiency Levels For 10 C.F.R. 431 Low Voltage Dry-Type Distribution Transformers

Single Phase Transformers		Three Phase Transformers	
kVA[a]	Efficiency (%)[b]	kVA[a]	Efficiency (%)[b]
15	97.70	15	97.89
25	98.00	30	98.23
37.5	98.20	45	98.40
50	98.30	75	98.60
75	98.50	112.5	98.74
100	98.60	150	98.83
167	98.70	225	98.94
250	98.80	300	99.02
333	98.90	500	99.14
		750	99.23
		1000	99.28

[a] kiloVolt-Amp rating.

[b] Nominal efficiencies shall be established in accordance with the DOE 10 C.F.R. 431 test procedure for low voltage dry-type transformers.

C405.7 Dwelling unit electrical energy consumption. Each dwelling unit located in a Group R-2 building shall have a separate electrical meter. A utility tenant meter meets this requirement. See Section C409 for additional requirements for energy metering and energy consumption management.

EXCEPTION: Dwelling units in other than Group R-2 multi-family and live/work units are not required to provide a separate electrical metering at each dwelling unit where electrical usage is metered separately for each of the following building end uses:
1. Dwelling units.
2. Sleeping units.
3. Commercial kitchens.
4. Central laundries.

C405.7.1 Electric receptacles at dwelling unit gas appliances. Where *dwelling unit* appliances are served by natural gas, an electrical receptacle or junction box and circuit shall be provided at each gas appliance with sufficient capacity to serve a future electric appliance in the same location. The receptacles and circuits shall be included in the electrical service load calculation and shall meet the requirements of items 1 through 3 below. The receptacle or junction box for each gas appliance shall be located within 12 inches of the appliance and without obstructions between the appliance and the outlet. An electric receptacle is not required for a decorative gas fireplace.

1. Each gas range, cooktop, or oven, or combination appliance, location shall be served by a dedicated 240/208-volt, 40-amp receptacle connected to the *dwelling unit* electric panel with a 3-conductor

branch circuit complying with 210.19 (A)(3) of the NEC as adopted by Washington state and a minimum included load of 9600 VA for 240-volt systems or 8000 VA for 208-volt systems.

2. Each gas clothes dryer location shall be served by a dedicated 240/208-volt, 30-amp receptacle connected to the *dwelling unit* electric panel with a 3-conductor branch circuit and a minimum included load of 5000 VA.

3. Each gas domestic water heater location shall be served by a dedicated 240/208-volt, 30-amp junction box connected to the *dwelling unit* electrical panel with a 3-conductor branch circuit and a minimum included load of 4500 VA.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40507, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-062, § 51-11C-40507, filed 5/2/17, effective 6/2/17; WSR 16-13-089, § 51-11C-40507, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40507, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40507, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40508 Section C405.8—Electric motors.

C405.8 Electric motor efficiency. All electric motors, fractional or otherwise, shall meet the minimum efficiency requirements of Tables C405.8(1) through C405.8(4) when tested and rated in accordance with DOE 10 C.F.R. 431. The efficiency shall be verified through certification under an approved certification program or, where no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the motor manufacturer.

EXCEPTION: The standards in this section shall not apply to the following exempt electric motors.
1. Air-over electric motors.
2. Components sets of an electric motor.
3. Liquid-cooled electric motors.
4. Submersible electric motors.
5. Inverter-only electric motors.

Fractional hp fan motors that are 1/12 hp or greater and less than 1 hp (based on output power) which are not covered by Tables C405.8(3) and C405.8(4) shall be electronically commutated motors or shall have a minimum motor efficiency of 70 percent when rated in accordance with DOE 10 C.F.R. 431. These motors shall also have the means to adjust motor speed for either balancing or remote control. Belt-driven fans may use sheave adjustments for airflow balancing in lieu of a varying motor speed.

EXCEPTIONS: 1. Motors that are an integral part of specialized process equipment.
2. Where the motor is integral to a listed piece of equipment for which no complying motor has been approved.
3. Motors used as a component of the equipment meeting the minimum efficiency requirements of Section C403.3.2 and Tables C403.3.2(1) through C403.3.2(((~~12~~))) (16) provided that the motor input is included when determining the equipment efficiency.
4. Motors in the airstream within fan-coils and terminal units that operate only when providing heating to the space served.
5. Fan motors that are not covered by Tables C405.8(1) through C405.8(4) and are used to power heat recovery ventilators, energy recovery ventilators, or local exhaust fans in Group R subject to the efficacy requirements of Section C403.8.4.
6. Domestic clothes dryer booster fans, range hood exhaust fans, and domestic range booster fans that operate intermittently.
7. Radon and contaminated soil exhaust fans.
8. Group R heat recovery ventilator and energy recovery ventilator fans that are less than 400 cfm.

Table C405.8(1)
Minimum Nominal Full-load Efficiency for NEMA Design A, NEMA Design B and IEC Design N Motors (Excluding Fire Pump) Electric Motors at 60 Hz[a,b]

Motor horsepower (Standard kilowatt equivalent)	Nominal full-load efficiency (%) as of June 1, 2016							
	2 pole		4 pole		6 pole		8 pole	
	Enclosed	Open	Enclosed	Open	Enclosed	Open	Enclosed	Open
1 (0.75)	77.0	77.0	85.5	85.5	82.5	82.5	75.5	75.5
1.5 (1.1)	84.0	84.0	86.5	86.5	87.5	86.5	78.5	77.5
2 (1.5)	85.5	85.5	86.5	86.5	88.5	87.5	84.0	86.5
3 (2.2)	86.5	85.5	89.5	89.5	89.5	88.5	85.5	87.5
5 (3.7)	88.5	86.5	89.5	89.5	89.5	89.5	86.5	88.5
7.5 (5.5)	89.5	88.5	91.7	91.0	91.0	90.2	86.5	89.5
10 (7.5)	90.2	89.5	91.7	91.7	91.0	91.7	89.5	90.2
15 (11)	91.0	90.2	92.4	93.0	91.7	91.7	89.5	90.2
20 (15)	91.0	91.0	93.0	93.0	91.7	92.4	90.2	91.0
25 (18.5)	91.7	91.7	93.6	93.6	93.0	93.0	90.2	91.0
30 (22)	91.7	91.7	93.6	94.1	93.0	93.6	91.7	91.7
40 (30)	92.4	92.4	94.1	94.1	94.1	94.1	91.7	91.7
50 (37)	93.0	93.0	94.5	94.5	94.1	94.1	92.4	92.4
60 (45)	93.6	93.6	95.0	95.0	94.5	94.5	92.4	93.0
75 (55)	93.6	93.6	95.4	95.0	94.5	94.5	93.6	94.1
100 (75)	94.1	93.6	95.4	95.4	95.0	95.0	93.6	94.1
125 (90)	95.0	94.1	95.4	95.4	95.0	95.0	94.1	94.1
150 (110)	95.0	94.1	95.8	95.8	95.8	95.4	94.1	94.1
200 (150)	95.4	95.0	96.2	95.8	95.8	95.4	94.5	94.1
250 (186)	95.8	95.0	96.2	95.8	95.8	95.8	95.0	95.0
300 (224)	95.8	95.4	96.2	95.8	95.8	95.8		
350 (261)	95.8	95.4	96.2	95.8	95.8	95.8		
400 (298)	95.8	95.8	96.2	95.8				
450 (336)	95.8	96.2	96.2	96.2				
500 (373)	95.8	96.2	96.2	96.2				

a Nominal efficiencies shall be established in accordance with DOE 10 C.F.R. 431.

b For purposes of determining the required minimum nominal full-load efficiency of an electric motor that has a horsepower or kilowatt rating between two horsepower or two kilowatt ratings listed in this table, each such motor shall be deemed to have a listed horsepower or kilowatt rating, determined as follows:
1. A horsepower at or above the midpoint between the two consecutive horsepowers shall be rounded up to the higher of the two horsepowers.
2. A horsepower below the midpoint between the two consecutive horsepowers shall be rounded down to the lower of the two horsepowers.
3. A kilowatt rating shall be directly converted from kilowatts to horsepower using the formula 1 kW = (1/0.746) horsepower. The conversion should be calculated to three significant decimal places, and the resulting horsepower shall be rounded in accordance with 1 or 2, whichever applies.

Table C405.8(2)
Minimum Nominal Full-load Efficiency for NEMA Design C and IEC Design H Motors at 60 Hz[a,b]

Motor horsepower (Standard kilowatt equivalent)	Nominal full-load efficiency (%) as of June 1, 2016					
	4 pole		6 pole		8 pole	
	Enclosed	Open	Enclosed	Open	Enclosed	Open
1 (0.75)	85.5	85.5	82.5	82.5	75.5	75.5
1.5 (1.1)	86.5	86.5	87.5	86.5	78.5	77.5
2 (1.5)	86.5	86.5	88.5	87.5	84.0	86.5

Motor horsepower (Standard kilowatt equivalent)	Nominal full-load efficiency (%) as of June 1, 2016					
	4 pole		6 pole		8 pole	
	Enclosed	Open	Enclosed	Open	Enclosed	Open
3 (2.2)	89.5	89.5	89.5	88.5	85.5	87.5
5 (3.7)	89.5	89.5	89.5	89.5	86.5	88.5
7.5 (5.5)	91.7	91.0	91.0	90.2	86.5	89.5
10 (7.5)	91.7	91.7	91.0	91.7	89.5	90.2
15 (11)	92.4	93.0	91.7	91.7	89.5	90.2
20 (15)	93.0	93.0	91.7	92.4	90.2	91.0
25 (18.5)	93.6	93.6	93.0	93.0	90.2	91.0
30 (22)	93.6	94.1	93.0	93.6	91.7	91.7
40 (30)	94.1	94.1	94.1	94.1	91.7	91.7
50 (37)	94.5	94.5	94.1	94.1	92.4	92.4
60 (45)	95.0	95.0	94.5	94.5	92.4	93.0
75 (55)	95.4	95.0	94.5	94.5	93.6	94.1
100 (75)	95.4	95.4	95.0	95.0	93.6	94.1
125 (90)	95.4	95.4	95.0	95.0	94.1	94.1
150 (110)	95.8	95.8	95.8	95.4	94.1	94.1
200 (150)	96.2	95.8	95.8	95.4	94.5	94.1

NR - No requirement.

[a] Nominal efficiencies shall be established in accordance with DOE 10 C.F.R. 431.

[b] For purposes of determining the required minimum nominal full-load efficiency of an electric motor that has a horsepower or kilowatt rating between two horsepower or two kilowatt ratings listed in this table, each such motor shall be deemed to have a listed horsepower or kilowatt rating, determined as follows:

1. A horsepower at or above the midpoint between the two consecutive horsepowers shall be rounded up to the higher of the two horsepowers.
2. A horsepower below the midpoint between the two consecutive horsepowers shall be rounded down to the lower of the two horsepowers.
3. A kilowatt rating shall be directly converted from kilowatts to horsepower using the formula 1 kW = (1/0.746) horsepower. The conversion should be calculated to three significant decimal places, and the resulting horsepower shall be rounded in accordance with 1 or 2, whichever applies.

Table C405.8(3)
Minimum Average Full Load Efficiency for Polyphase Small Electric Motors[a]

OPEN MOTORS			
NUMBER OF POLES ==>	**2**	**4**	**6**
SYNCHRONOUS SPEED (RPM) ==>	**3600**	**1800**	**1200**
MOTOR HORSEPOWER ▼			
0.25	65.6	69.5	67.5
0.33	69.5	73.4	71.4
0.50	73.4	78.2	75.3
0.75	76.8	81.1	81.7
1	77.0	83.5	82.5
1.5	84.0	86.5	83.8
2	85.5	86.5	N/A
3	85.5	86.9	N/A

[a] Average full load efficiencies shall be established in accordance with 10 C.F.R. 431.

Table C405.8(4)
Minimum Average Full Load Efficiency For Capacitor-start Capacitor-run

and Capacitor-start Induction-run Small Electric Motors[a]

OPEN MOTORS			
NUMBER OF POLES ==>	2	4	6
SYNCHRONOUS SPEED (RPM) ==>	3600	1800	1200
MOTOR HORSEPOWER ▼			
0.25	66.6	68.5	62.2
0.33	70.5	72.4	66.6
0.50	72.4	76.2	76.2
0.75	76.2	81.8	80.2
1	80.4	82.6	81.1
1.5	81.5	83.8	N/A
2	82.9	84.5	N/A
3	84.1	N/A	N/A

[a] Average full load efficiencies shall be established in accordance with 10 C.F.R. 431.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40508, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40508, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40508, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40508, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40509 Section C405.9—Vertical and horizontal transportation systems.

C405.9 Vertical and horizontal transportation systems and equipment. Vertical and horizontal transportation systems and equipment shall comply with this section.

C405.9.1 Elevator cabs. For the luminaires in each elevator cab, not including signals and displays, the sum of the lumens divided by the sum of the watts shall be no less than 35 lumens per watt. Ventilation fans in elevators that do not have their own air conditioning system shall not consume more than 0.33 watts/cfm at the maximum rated speed of the fan. Controls shall be provided that will deenergize ventilation fans and lighting systems when the elevator is stopped, unoccupied and with its doors closed for over 15 minutes.

C405.9.2 Escalators and moving walks. Escalators and moving walks shall comply with ASME A17.1/CSA B44 and shall have automatic controls ((~~configured to~~)) that reduce speed ((~~to the minimum~~)) as permitted speed in accordance with ASME A17.1/CSA B44 ((~~or~~)) and applicable local code when not conveying passengers.

EXCEPTION: A variable voltage drive system that reduces operating voltage in response to light loading conditions ((~~may~~)) is allowed to be provided in ((~~place~~)) lieu of the variable speed function.

C405.9.2.1 ((~~Regenerative drive.~~ ~~An escalator designed either for one-way down operation only or for reversible operation shall have a variable frequency regenerative drive that supplies electrical energy to the building electrical system when the escalator is loaded with passengers whose combined weight exceeds 750 pounds.~~)) **Energy recovery.** Escalators shall be designed to recover electrical energy when resisting overspeed in the down direction. The escalator shall be designed to recover, on average, more power than is consumed by the power recovery feature of its motor controller system.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40509, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40509, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40509, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40510 Section C405.10—Controlled receptacles.

C405.10 ((~~Controlled~~)) Automatic receptacle((s)) control. ((~~At least 50 percent of all 125 volt 15- and 20-ampere receptacles installed in private offices, open offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, individual workstations and classrooms, including those installed in modular partitions and modular office workstation systems, shall be controlled as required by this section. In rooms larger than 200 square feet (19 m^2), a controlled receptacle shall be located within 72 inches (1.8 m) of each uncontrolled receptacle. Controlled receptacles shall be visibly differentiated from standard receptacles and shall be controlled by one of the following automatic control devices:~~

~~1. An occupant sensor that turns receptacle power off when no occupants have been detected for a maximum of 20 minutes.~~

~~2. A time-of-day operated control device that turns receptacle power off at specific programmed times and can be programmed separately for each day of the week. The control device shall be configured to provide an independent schedule for each portion of the building not to exceed 5,000 square feet (465 m^2) and not to exceed one full floor. The device shall be capable of being overridden for periods of up to two hours by a timer in a location with *access* to occupants. Any individual override switch shall control the controlled receptacles for a maximum area of 5,000 square feet (465 m^2). Override switches for controlled receptacles are permitted to control the lighting within the same area.~~

EXCEPTION: ~~Receptacles designated for specific equipment requiring 24-hour operation, for building maintenance functions, or for specific safety or security equipment are not required to be controlled by an automatic control device and are not required to be located within 72 inches (1.8 m) of a controlled receptacle.~~))

The following shall have automatic receptacle control complying with Section C405.10.1:

1. At least 50 percent of all 125V, 15- and 20-amp receptacles installed in enclosed offices, conference rooms, rooms used primarily for copy or print functions, breakrooms, classrooms and individual workstations, including those installed in modular partitions and module office workstation systems.

2. At least 50 percent of branch circuit feeders installed for modular furniture not shown on the construction documents.

C405.10.1 Automatic receptacle control function. Automatic receptacle controls shall comply with the following:

1. Either split controlled receptacles shall be provided with the top receptacle controlled, or a controlled receptacle shall be located within 12 inches (304.8 mm) of each uncontrolled receptacle.

2. One of the following methods shall be used to provide control:

2.1. A scheduled basis using a time-of-day operated control device that turns receptacle power off at specific programmed times and can be programmed separately for each day of the week. The control device shall be configured to provide an independent schedule for each portion of the building of not more than 5,000 square feet (464.5 m^2) and not more than one floor. The occupant shall be able to manually override an area for not more than 2 hours. Any individual override switch shall control the receptacles of not more than 5,000 feet (1524 m).

2.2. An occupant sensor control that shall turn off receptacles within 20 minutes of all occupants leaving a space.

2.3. An automated signal from another control or alarm system that shall turn off receptacles within 20 minutes after determining that the local area is unoccupied.

3. All controlled receptacles shall be permanently marked in accordance with NFPA 70 and be uniformly distributed throughout the space.

4. Plug-in devices shall not comply.

EXCEPTION: Automatic receptacle controls are not required for the following:
1. Receptacles specifically designated for equipment requiring continuous operation (24 hours per day, 365 days per year).
2. Spaces where an automatic control would endanger the safety or security of the room or building occupants.
3. Within a single modular office workstation, noncontrolled receptacles are permitted to be located more than 12 inches (304.8 mm), but not more than 72 inches (1828 mm) from the controlled receptacles serving that workstation.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40510, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40510, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40510, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40511 Section C405.11—Voltage drop ((~~in feeders and branch circuits~~)).

C405.11 Voltage drop ((~~in feeders and branch circuits~~)). The total voltage drop across the combination of ((~~feeders and branch circuits~~)) customer-owned service conductors, feeder conductors and branch circuit conductors shall not exceed five percent.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40511, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and Chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40511, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40511, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40511, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40511, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40512 Section C405.12—((~~Electrical commissioning.~~)) Alternating current-output uninterruptible power supplies (AC-output UPS).

((**C405.12 Commissioning.** ~~Controlled receptacles and lighting systems shall be commissioned in accordance with Section C408.~~)) *AC-output UPS* systems serving a *computer room* shall meet or exceed the calculation and testing requirements identified in ENERGY STAR Program Requirements for Uninterruptible Power Supplies (UPSs) – Eligibility Criteria Version 2.0.

EXCEPTION: AC-output UPC that utilizes standardized NEMA-1-15P or NEMA 5-15P input plug, as specified in ANSI/NEMA WD 6.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40512, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40512, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40512, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40513 ((~~Reserved.~~)) Section C405.13—Electrical commissioning.

C405.13 Commissioning. Controlled receptacles and lighting systems shall be commissioned in accordance with Section C408.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40513, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40513, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40600 Section C406—Efficiency ((~~packages~~)) and load management measures.

C406.1 Additional energy efficiency and load management measures credit requirements. The project as defined in the building permit shall meet the following requirements as applicable:

1. New buildings ((~~and~~)), changes in *space conditioning category*, change of occupancy group, and building additions in accordance with Chapter 5 shall comply with sufficient ((~~packages~~)) measures from ((~~Table C406.1~~)) Section C406.2 so as to achieve ((~~a~~)) the minimum number of ((~~6~~)) required efficiency credits((~~. Each area shall be permitted to apply for different packages provided all areas in the building comply with the requirements for 6 credits. Areas included in the same permit within mixed use buildings shall be permitted to demonstrate compliance by an area weighted average number of credits by building occupancy achieving a minimum number of 6 credits~~)) shown in Table C406.1.

2. New buildings greater than 5000 gross square feet of floor area shall comply with sufficient measures from Section C406.3 so as to achieve the minimum number of required load management credits shown in Table C406.1.

3. Tenant spaces shall comply in accordance with Section C406.1.1.

4. Projects using discrete area credit weighting shall comply in accordance with Section C406.1.2.

EXCEPTIONS:
1. Low energy spaces in accordance with Section C402.1.1.1 ((~~and~~)), equipment buildings in accordance with Section C402.1.2 ((~~shall~~)), unconditioned spaces, open parking garages, and enclosed parking garages that comply with sufficient ((~~packages~~)) measures from Table ((~~C406.1~~)) C406.2 to achieve a minimum ((~~number of 3~~)) of 24 efficiency credits. Such projects shall be exempt from the load management requirements in Table C406.1.
2. Building additions that have less than 1,000 square feet of *conditioned floor area* ((~~shall~~)) that comply with sufficient ((~~packages~~)) measures from Table ((~~C406.1~~)) C406.2 to achieve a minimum ((~~number of 3~~)) of 24 efficiency credits.
3. Warehouses are exempt from the load management credit requirements in Table C406.1.

Table C406.1
((~~Efficiency Package Credits~~))
Energy Measure Credit Requirements

((~~Code Section~~	~~Commercial Building Occupancy~~					
	~~Group R-1~~	~~Group R-2~~	~~Group B~~	~~Group E~~	~~Group M~~	~~All Other~~
	~~Additional Efficiency Credits~~					
~~1. More efficient HVAC performance in accordance with Section C406.2~~	~~2.0~~	~~3.0~~	~~3.0~~	~~2.0~~	~~1.0~~	~~2.0~~
~~2. Reduced lighting power: Option 1 in accordance with Section C406.3.1~~	~~1.0~~	~~1.0~~	~~2.0~~	~~2.0~~	~~3.0~~	~~2.0~~
~~3. Reduced lighting power: Option 2 in accordance with Section C406.3.2[a]~~	~~2.0~~	~~3.0~~	~~4.0~~	~~4.0~~	~~6.0~~	~~4.0~~
~~4. Enhanced lighting controls in accordance with Section C406.4~~	~~NA~~	~~NA~~	~~1.0~~	~~1.0~~	~~1.0~~	~~1.0~~
~~5. On-site supply of renewable energy in accordance with C406.5~~	~~3.0~~	~~3.0~~	~~3.0~~	~~3.0~~	~~3.0~~	~~3.0~~

((~~Code Section~~	~~Commercial Building Occupancy~~					
	~~Group R-1~~	~~Group R-2~~	~~Group B~~	~~Group E~~	~~Group M~~	~~All Other~~
	~~Additional Efficiency Credits~~					
~~6. Dedicated outdoor air system in accordance with Section C406.6[b]~~	~~4.0~~	~~4.0~~	~~4.0~~	~~NA~~	~~NA~~	~~4.0~~
~~7. High performance dedicated outdoor air system in accordance with Section C406.7~~	~~4.0~~	~~4.0~~	~~4.0~~	~~4.0~~	~~4.0~~	~~4.0~~
~~8. High-efficiency service water heating in accordance with Sections C406.8.1 and C406.8.2~~	~~4.0~~	~~5.0~~	~~NA~~	~~NA~~	~~NA~~	~~8.0~~
~~9. High performance service water heating in multi-family buildings in accordance with Section C406.9~~	~~7.0~~	~~8.0~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~
~~10. Enhanced envelope performance in accordance with Section C406.10[c]~~	~~3.0~~	~~6.0~~	~~3.0~~	~~3.0~~	~~3.0~~	~~4.0~~
~~11. Reduced air infiltration in accordance with Section C406.11[c]~~	~~1.0~~	~~2.0~~	~~1.0~~	~~1.0~~	~~1.0~~	~~1.0~~
~~12. Enhanced commercial kitchen equipment in accordance with Section C406.12~~	~~5.0~~	~~NA~~	~~NA~~	~~NA~~	~~5.0~~	~~5.0 (Group A-2 only)~~

~~a Projects using this option may not use Item 2.~~

~~b This option is not available to buildings subject to the prescriptive requirements of Section C403.3.5.~~

~~c Buildings or building areas that are exempt from the thermal envelope requirements in accordance with Sections C402.1.1 and C402.1.2, do not qualify for this package.~~))

Required Credits for Projects	Section	Occupancy Group					
		Group R-1	Group R-2	Group B	Group E	Group M	All Other
New building energy efficiency credit requirement	C406.2	54	41	42	48	74	49
Building additions energy efficiency credit requirement	C406.2	27	20	21	23	36	21
If proposal 21-GP-136 is not included in the final adoption, then replace the two rows above with the following two rows:							
New building energy efficiency credit requirement	C406.2	68	80	48	55	84	49
Building additions energy efficiency credit requirement	C406.2	33	40	24	27	41	24
New building load management credit requirement	C406.3	12	15	27	15	13	26

C406.1.1 Tenant spaces. An initial tenant improvement shall comply with sufficient ((~~packages~~)) measures from Table ((~~C406.1~~)) C406.2 to achieve a minimum ((~~number of six~~)) of efficiency credits required in Table C406.1 and are not required to achieve any load management credits. In ((~~buildings~~)) projects with multiple tenant spaces, each tenant space is permitted to apply for different ((~~packages~~)) measures provided the weighted average of all areas in the ((~~building~~)) project comply with the overall efficiency credit requirement ((~~for six credits~~)) in Table C406.1. Whole building or addition energy credits shall be allocated to tenant spaces in accordance with Sections C406.1.1.1 and C406.1.1.2.

EXCEPTIONS: 1. An initial tenant improvement where the core and shell building complied via Section C407 in 2018 or later edition of the Washington State Energy Code.
2. Previously occupied tenant spaces in existing buildings that comply with this code in accordance with Section C501.

C406.1.1.1 Applicable envelope ((~~and~~)), on-site renewable and elevator energy credits. Where an entire building or building addition complies with Section ((~~C406.5, C406.10 or C406.11~~)) C406.2.4, C406.2.9, C406.2.10, or C406.2.14, under an initial tenant improvement permit, tenant spaces within the building qualify for the number of credits assigned to the occupancy ((~~type~~)) group of the tenant space in accordance with Table ((~~C406.1~~)) C406.2. Where prior energy credits were achieved under the 2018 Washington State Energy Code, they shall be multiplied by 6 for applicability to this code.

C406.1.1.2 Applicable HVAC and service water heating credits. Where HVAC and service water heating systems and services are installed and comply with Section ((~~C406.2 or C406.8~~)) C406.2.4, C406.2.9, C406.2.10, or C406.2.14 under an initial tenant improvement permit, those systems and services shall be considered a part of the tenant space. Tenant spaces qualify for the credits assigned to the occupancy ((~~type~~)) group of the tenant space in accordance with Table ((~~C406.1~~)) C406.2 if the tenant space includes the distribution system and equipment that the central HVAC systems or service water heating systems were designed to support.

((~~EXCEPTION: Previously occupied tenant spaces in existing buildings that comply with this code in accordance with Section C501.~~))

C406.1.2 Discrete area-weighted projects. Discrete building areas shall be permitted to achieve credits using different measures provided that the whole project complies with both the energy and load management credit requirements. Compliance shall be determined as follows:

1. Project credit requirement shall be the individual occupancy group requirements from Table C406.1 for each discrete area weighted by discrete area *conditioned floor area*.
2. Determine the energy and load management credits achieved for each discrete area based on its occupancy group.
3. Determine project credits achieved by weighting individual discrete area credits by discrete area *conditioned floor area*.
4. A project complies when both energy and load management credits are equal to or greater than the weighted project requirement.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40600, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40600, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40600, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40600, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40602 Section C406.2—((~~HVAC option.~~)) Additional energy efficiency credit measures.

C406.2 ((~~More efficient HVAC equipment and fan performance.~~ ~~No less than 90 percent of the total HVAC capacity serving the total conditioned floor area of the entire building, building addition or tenant space in accordance with Section C406.1.1 shall comply with Sections C406.2.1 through C406.2.3. For systems required to comply with Section C403.1.1, HVAC total system performance ratio, exceed the minimum requirement by 10 percent.~~

~~EXCEPTION: In low energy spaces complying with Section C402.1.1 and semi-heated spaces complying with Section C402.1.1.2, no less than 90 percent of the installed heating capacity is provided by electric infrared or gas-fired radiant heating equipment for localized heating applications. Stand-alone supply, return and exhaust fans shall comply with Section C406.2.3.~~

~~C406.2.1 HVAC system selection.~~ ~~Equipment installed shall be types that are listed in Tables C403.3.2(1) through C403.3.2(12) or a combination thereof. Electric resistance heating does not meet this requirement.~~

~~EXCEPTION: Allowed equipment not listed in Tables C403.3.2(1) through C403.3.2(12):~~
~~1. Air-to-water heat pumps.~~
~~2. Heat recovery chillers.~~

~~C406.2.2 Minimum equipment efficiency.~~ ~~Equipment shall exceed the minimum efficiency requirements listed in Tables C403.3.2(1) through C403.3.2(12) by 15 percent, in addition to the requirements of Section C403. Where multiple performance requirements are provided, the equipment shall exceed all requirements by 15 percent.~~

~~EXCEPTIONS: 1. Equipment that is larger than the maximum capacity range indicated in Tables C403.3.2(1) through C403.3.2(12) shall utilize the values listed for the largest capacity equipment for the associated equipment type shown in the table.~~
~~2. Equipment that complies with the exception to Section C406.2.1 is not required to comply with the minimum equipment efficiency requirement.~~
~~3. Compliance may be demonstrated by calculating a total weighted average percentage for all heating and cooling equipment combined. All equipment shall have efficiency that is no less than 5 percent better than the minimum required efficiency in Table C403.3.2(1) through C403.3.2(12), and the resulting weighted average percentage for all equipment performance requirements shall exceed 15 percent. Calculation shall include heating and cooling capacities for all equipment, percentage better or worse than minimum required efficiency per Tables C403.3.2(1) through C403.3.2(12) for each performance requirement (SEER, EER/IEER, COP, HSPF, E_t, E_c, and AFUE), and the total weighted average efficiency percentage.~~
~~4. Hot water boilers with input capacity greater than 2,500,000 Btu/h shall be considered to comply with this section with a minimum thermal efficiency of 95 percent E_t in accordance with the test procedure in 10 C.F.R. Part 431.~~

~~C406.2.3 Minimum fan efficiency.~~ ~~Stand-alone supply, return and exhaust fans designed for operating with motors over 750 watts (1 hp) shall have a fan efficiency grade of not less than FEG 71 as defined in AMCA 205. The total efficiency of the fan at the design point of operation shall be within 10 percentage points of either the maximum total efficiency of the fan or the static efficiency of the fan.~~)) **Additional energy efficiency credit measures.** Each energy efficiency credit measure used to meet credit requirements for the project shall include efficiency that is greater than the energy efficiency required for the building type and configuration requirements in Sections C402 through C405. Measures installed in the project that meet the requirements in Sections C406.2.1 through C406.2.14 shall achieve the credits listed for the measure and occupancy group in Table C406.2 or where calculations required by Sections C406.2.1 through C406.2.14 create or modify the table credits, the credits achieved shall be based upon the section calculations.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40602, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40602, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-13-089, § 51-11C-40602, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025,

19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40602, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40603 ((~~Section C406.3 LPA option.~~)) Reserved.

((~~**C406.3 Reduced lighting power.** Interior lighting within the whole building, building addition or tenant space shall comply with Section C406.3.1 or Section C406.3.2. Dwelling units and sleeping units within the building shall comply with Section C406.3.3.~~

~~**C406.3.1 Reduced lighting power Option 1.** The total connected interior lighting power calculated in accordance with Section C405.4.1 shall be 90 percent or less of the lighting power values specified in Table C405.4.2(1) times the floor area for the building types, or 90 percent or less of the total interior lighting power allowance calculated in accordance with Section C405.4.2.~~

~~**C406.3.2 Reduced lighting power Option 2.** The total connected interior lighting power calculated in accordance with Section C405.4.1 shall be 80 percent or less of the lighting power values specified in Table C405.4.2(1) times the floor area of the building types, or 80 percent or less of the total interior lighting power allowance calculated in accordance with Section C405.4.2.~~

~~**C406.3.3 Lamp fraction.** No less than 95 percent of the permanently installed light fixtures in dwelling units and sleeping units shall be provided by lamps with a minimum efficacy of 65 lumens per watt.~~))

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40603, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40603, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40603, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40604 ((~~Section C406.4 Lighting controls option.~~)) Reserved.

((~~**C406.4 Enhanced digital lighting controls.** No less than 90 percent of the total installed interior lighting power within the whole building, building addition or tenant space shall comply with Section C406.4.1.~~

~~**C406.4.1 Lighting controls function.** Interior lighting shall be located, scheduled and operated in accordance with Section C405.2, and shall be configured with the following enhanced control functions:~~

~~1. Luminaires shall be configured for continuous dimming.~~

~~2. Each luminaire shall be individually addressed.~~

~~EXCEPTIONS TO ITEM 2:~~ ~~1. Multiple luminaires mounted on no more than 12 linear feet of a single lighting track and addressed as a single luminaire.~~

~~2. Multiple linear luminaires that are ganged together to create the appearance of a single longer fixture and addressed as a single luminaire, where the total length of the combined luminaires is not more than 12 feet.~~

~~3. No more than eight luminaires within a *daylight zone* are permitted to be controlled by a single *daylight responsive control*.~~

~~4. Luminaires shall be controlled by a digital control system configured with the following capabilities:~~

~~4.1. Scheduling and illumination levels of individual luminaires and groups of luminaires are capable of being reconfigured through the system.~~

~~4.2. Load shedding.~~

~~4.3. In open and enclosed offices, the illumination level of overhead general illumination luminaires are configured to be individually adjusted by occupants.~~

~~4.4. Occupancy sensors and daylight responsive controls are capable of being reconfigured through the system.~~

~~5. Construction documents shall include submittal of a Sequence of Operations, including a specification outlining each of the functions required by this section.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40604, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40604, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40605 ((~~Section C406.5 On-site renewable energy option.~~)) Reserved.

((~~**C406.5 On-site renewable energy.** A whole building, building addition or tenant space shall be provided with on-site renewable energy systems with an annual energy production per square foot of no less than the value specified in Table C406.5 based on the total conditioned floor area of the whole building. The on-site renewable used in this option shall be separate from on-site renewables used as part of Section C406.8 or used to qualify for any exception in this code.~~

~~Table C406.5~~
~~On-Site Renewable Energy System Rating~~
~~(per square foot)~~

~~Building Area Type~~	~~kBtu/year~~	~~kWh/year~~
~~Assembly~~	~~1.8~~	~~0.53~~
~~Dining~~	~~10.7~~	~~3.14~~
~~Hospital~~	~~3.6~~	~~1.06~~
~~Hotel/Motel~~	~~2.0~~	~~0.59~~
~~Multifamily residential~~	~~0.50~~	~~0.15~~
~~Office~~	~~0.82~~	~~0.24~~
~~Other~~	~~2.02~~	~~0.59~~
~~Retail~~	~~1.31~~	~~0.38~~

~~Building Area Type~~	~~kBtu/year~~	~~kWh/year~~
~~School/University~~	~~1.17~~	~~0.34~~
~~Supermarket~~	~~5.0~~	~~1.47~~
~~Warehouse~~	~~0.43~~	~~0.13~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40605, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40605, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40605, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40606 ((~~Section C406.6 DOAS option.~~)) Reserved.

((**~~C406.6 Dedicated outdoor air system (DOAS).~~** ~~No less than 90 percent of the total conditioned floor area of the whole building, building addition or tenant space, excluding floor area of unoccupied spaces that do not require ventilation per the *International Mechanical Code*, shall be served by DOAS installed in accordance with Section C403.3.5. This option is not available to buildings subject to the prescriptive requirements of Section C403.3.5.~~))

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40606, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40606, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40606, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40607 ((~~Section C406.7 High performance dedicated outdoor air system option.~~)) Reserved.

((**~~C406.7 High performance dedicated outdoor air system (DOAS).~~** ~~A whole building, building addition or tenant space which includes a DOAS complying with Section C406.6 shall also provide minimum sensible effectiveness of heat recovery of 80 percent and DOAS total combined fan power less than 0.5 W/cfm of outdoor air. For the purpose of this section, total combined fan power includes all supply, exhaust, recirculation and other fans utilized for the purpose of ventilation.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40607, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40607, filed

12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40607, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40608 ((~~Section C406.8 Service water heating option.~~)) Reserved.

((**~~C406.8 Reduced energy use in service water heating.~~** ~~Buildings with service hot water heating equipment shall comply with Sections C406.8.1 and C406.8.2.~~

~~C406.8.1 Building or area type.~~ ~~Not less than 90 percent of the conditioned floor area of the whole building, building addition or tenant space shall be of the following types:~~

~~1. Group R-1: Boarding houses, hotels, or motels.~~

~~2. Group I-2: Hospitals, psychiatric hospitals, and nursing homes.~~

~~3. Group A-2: Restaurants and banquet halls or buildings containing food preparation areas.~~

~~4. Group F: Laundries.~~

~~5. Group R-2.~~

~~6. Group A-3: Health clubs and spas.~~

~~7. Buildings with a service hot water load of 10 percent or more of total building energy loads, as shown with an energy analysis as described in Section C407 or as shown through alternate service hot water load calculations showing a minimum service water energy use of 15 k/Btu per square foot per year, as approved by the building official.~~

~~C406.8.2 Load fraction.~~ ~~Not less than 60 percent of the annual service hot water heating energy use, or not less than 100 percent of the annual service hot water heating energy use with water-cooled systems subject to the requirements of Section C403.9.5 or qualifying for one of its exceptions, shall be provided by one or more of the following:~~

~~1. Service hot water system delivering heating requirements using heat pump technology with a minimum COP of 3.0. For air-source equipment, the COP rating will be reported at the design leaving heat pump water temperature with an entering air temperature of 60°F (15.6°C) or lower. For water-source equipment, the COP rating will be reported at the design leaving load water temperature with an entering water temperature of 74°F (23.3°C) or lower.~~

~~2. Waste heat recovery from service hot water, heat recovery chillers, building equipment, process equipment, or other *approved* system. Qualifying heat recovery must be above and beyond heat recovery required by other sections of this code.~~

~~3. On-site renewable energy water-heating systems.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40608, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27A and 19.27 RCW. WSR 19-02-089, § 51-11C-40608, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-13-089, § 51-11C-40608,

filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40608, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40609 ((~~Section C406.9 High performance service water heating in multifamily option.~~)) Reserved.

((**~~C406.9 High performance service water heating in multifamily buildings.~~** ~~For a whole building, building addition or tenant space with not less than 90 percent of the conditioned floor area being Group R-2 occupancy, not less than 90 percent of the annual building service hot water energy use shall be provided by a heat pump system with a minimum COP of 3.0. This efficiency package is allowed to be taken in addition to Section C406.8.2.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40609, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40609, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40610 ((~~Section C406.10 Envelope option.~~)) Reserved.

((**~~C406.10 Enhanced envelope performance.~~** ~~The Proposed Total UA of the thermal envelope of the whole building or building addition shall be 15 percent lower than the Allowable Total UA for an area of identical configuration and fenestration area in accordance with Section C402.1.5 and Equation 4-2.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40610, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40611 ((~~Section C406.11—Air infiltration option.~~)) Reserved.

((**~~C406.11 Reduced air infiltration.~~** ~~Measured air infiltration of the total conditioned floor area of the whole building, fully isolated building addition or tenant space shall comply with Section C406.11.1.~~

~~C406.11.1 Air leakage testing and verification.~~ ~~Air infiltration shall be verified by whole building pressurization testing conducted in accordance with ASTM E779 or ASTM E1827 by an independent third party.~~

~~The measured air leakage rate of the *building envelope* shall not exceed 0.17 cfm/ft^2 under a pressure differential of 0.3 in. water (75 Pa), with the calculated surface area being the sum of the above and below grade *building envelope*. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the code official and the building owner.~~

~~EXCEPTION: Where the *conditioned floor area* of the building is not less than 250,000 ft^2 (25,000 m^2), air leakage testing shall be permitted to be conducted on representative above grade sections of the building provided the *conditioned floor area* of tested areas is no less than 25 percent of the *conditioned floor area* of the building and are tested in accordance with this section.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40611, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40612 ((~~Section C406.12 Commercial kitchen option.~~)) Reserved.

((~~**C406.12 Enhanced commercial kitchen equipment.** For buildings or areas designated as Group A-2, or facilities whose primary business type involves the use of a commercial kitchen with at least one gas or electric fryer, all fryers, dishwashers, steam cookers and ovens shall comply with all of the following:~~

~~1. Achieve the ENERGY STAR label in accordance with the specifications current as of January 1, 2018.~~

~~2. Be installed prior to the issuance of the certificate of occupancy.~~

~~3. Have the ENERGY STAR qualified model number listed on the construction documents submitted for permitting.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40612, filed 11/26/19, effective 7/1/20.]

NEW SECTION

WAC 51-11C-40620 Section C406.2—Additional energy efficiency credit measures.

C406.2 Additional energy efficiency credit measures. Each energy efficiency credit measure used to meet credit requirements for the project shall include efficiency that is greater than the energy efficiency required for the building type and configuration requirements in Sections C402 through C405. Measures installed in the project that meet the requirements in Sections C406.2.1 through C406.2.14 shall achieve the credits listed for the measure and occupancy group in Table C406.2 or where calculations required by Sections C406.2.1 through C406.2.14 create or modify the table credits, the credits achieved shall be based upon the section calculations.

Table C406.2
Efficiency Measure Credits

Measure Title	Applicable Section	Occupancy Group					
		Group R-1	Group R-2	Group B	Group E	Group M	All Other
1. Dwelling unit HVAC control	C406.2.1	NA	7	NA	NA	NA	NA
2. Improved HVAC TSPR[a]	C406.2.2.1	NA	8	11	17	22	NA
3. Improve cooling and fan efficiency	C406.2.2.2	2	1	2	2	3	2
4. Improve heating efficiency	C406.2.2.3	2	3	3	10	16	7
5. Low-carbon district energy system (45% annual district-system-net-load-met)	C406.2.2.4	3	3	4	11	17	8
6. Improved low-carbon district energy system (50% annual district-system-net-load-met)[b]	C406.2.2.5	9	10	12	33	52	24
7. High performance DOAS	C406.2.2.6	31	31	21	39	40	21/ (A) 40[c]
8. Fault detection & diagnostics (FDD)	C406.2.2.7	2	2	2	6	9	4
9. 10% reduced lighting power	C406.2.3.1	7	4	18	16	20	15
10. 20% reduced lighting power[d]	C406.2.3.2	13	8	36	32	40	29
11. Lamp efficacy improvement	C406.2.3.3	5	6	NA	NA	NA	NA
12. Residential lighting control	C406.2.4.1	NA	8	NA	NA	NA	NA
13. Enhanced lighting control	C406.2.4.2	1	1	6	6	11	6
14. Renewable energy	C406.2.5	7	12	13	13	10	11
15. Shower drain heat recovery	C406.2.6.1	9	30	NA	3	NA	NA
16. Service water heat recovery	C406.2.6.2	35	111	13	14	(Grocery) 41[e]	NA
17. Heat pump water heating	C406.2.6.3	NA	NA	17	33	(Grocery) 95[e]	(A-2) 95[f]
Note: If proposal 21-GP1-136 is not included in the final WSEC, then replace the row above with the following:							
17. Heat pump water heating	C406.2.6.3	81	261	17	33	(Grocery) 95[e]	(A-2) 95[f]
18. Heat trace system	C406.2.7.1	6	13	4	1	NA	6
19. Point of use water heater	C406.2.7.2	NA	NA	19	5	NA	NA
20. Service hot water distribution right sizing	C406.2.8	13	42	NA	NA	NA	NA
21. High performance service hot water temperature maintenance system	C406.2.9	TBD	TBD	TBD	TBD	TBD	TBD
22. High efficiency service hot water circulation system	C406.2.10	3	6	2	1	NA	4
23. Low flow residential showerheads	C406.2.11	3	3	NA	NA	NA	NA
24. Enhanced envelope performance[g]	C406.2.12	24	20	13	5	19	14
25. Base reduced air infiltration[g]	C406.2.13.2	29	24	6	3	9	11
26. Enhanced reduced air infiltration[g]	C406.2.13.3	53	44	11	5	16	20
27. Enhanced commercial kitchen equipment	C406.2.14	30[h]	18[h]	18[h]	30[h]	30[h]	31[h]
28. Enhanced residential kitchen equipment	C406.2.15	12	19	NA	NA	NA	NA
29. Enhanced residential laundry equipment	C406.2.16	NA	6	NA	NA	NA	NA
30. Heat pump clothes dryers	C406.2.17	6	6	NA	NA	NA	NA
31. Efficient elevator equipment	C406.2.18	3	5	5	5	4	4

[a] Projects using Item 2 shall not use Items 3 through 5.
[b] Projects using C406.2.2.5 shall not use C406.2.2.4.
[c] For C406.2.2.6, occupancy Group A achieves 40 credits while other occupancy groups within the "all other" category achieve 21 credits.
[d] Projects using C406.2.3.2 shall not use C406.2.3.1.
[e] Service water heat recovery and heat pump water heating are available in Group M only for grocery stores larger than 10,000 ft^2. Large mixed retail with full grocery and butcher sections shall achieve half the credits.
[f] Heat pump water heating efficiency credits are available in the "all other" category only for Group A-2.
[g] Buildings or building areas that are exempt from the thermal envelope requirements in accordance with Sections C402.1.1 and C402.1.2, do not qualify for this package.
[h] Additional energy efficiency credits, up to the maximum shown in Table C406.2, shall be calculated according to Section C406.2.11.

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NEW SECTION

WAC 51-11C-40621 Section C406.2.1—Dwelling unit HVAC measures.

C406.2.1 Dwelling unit HVAC controls. HVAC systems serving *dwelling units* or *sleeping units* shall be controlled with a programmable *thermostat* that is configured to automatically activate a setback condition of at least 5°F (3°C) for both heating and cooling. The programmable *thermostat* shall be configured to provide setback during occupied sleep periods. The unoccupied setback mode shall be configured to operate in conjunction with one of the following:

1. A manual main control device by each *dwelling unit* main entrance that initiates setback for all HVAC units in the *dwelling unit* and is clearly identified as "Heating/Cooling Master Setback."
2. Occupancy sensors in each room of the *dwelling unit* combined with a door switch to initiate setback for all HVAC units in the dwelling within 20 minutes of all spaces being vacant immediately following a door switch operation. Where separate room HVAC units are used, an individual occupancy sensor on each unit that is configured to provide setback shall meet this requirement.
3. An advanced learning thermostat that senses occupant presence and automatically creates a schedule for occupancy and provides a dynamic setback schedule based on when the spaces are generally unoccupied.
4. An automated control and sensing system that uses geographic sensing connected to the *dwelling unit* occupants' cell phones and initiates the setback condition when all occupants are away from the building.

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NEW SECTION

WAC 51-11C-40622 Section C406.2.2—HVAC measures. C406.2.2 More efficient HVAC system performance. All heating and cooling systems shall meet the minimum requirements of Section C403 and efficiency improvements shall be referenced to the minimum efficiency requirements listed in the tables in Section C403.3.2. Where multiple efficiency requirements are listed, equipment shall meet the seasonal efficiencies including SEER, EER/IEER, IPLV or AFUE. Equipment that is larger than the maximum capacity range indicated in the tables in Section C403.3.2 shall utilize the values listed for the largest capacity

equipment for the associated equipment type shown in the table. Where multiple individual heating or cooling systems serve the project, the improvement shall be the weighted average improvement based on individual system capacity.

For occupancies and systems required to comply with Section C403.1.1, credits are permitted to be achieved by meeting the requirements of Section C406.2.2.1. Other systems are permitted to achieve credits by meeting the requirements of either:

1. Section C406.2.2.2, More efficient HVAC equipment cooling and fan performance.
2. Section C406.2.2.3, More efficient HVAC equipment heating performance.
3. Section C406.2.2.4, High performance dedicated outdoor air system (DOAS).
4. Any combination of Sections C406.2.2.2, C406.2.2.3, and C406.2.2.4.

In addition, energy credits are permitted to be achieved for Section C406.2.2.5, Fault detection and diagnostics, where not otherwise required by Section C403.2.3 or C403.6.10(15).

C406.2.2.1 Improved HVAC TSPR. For systems required to comply with Section C403.1.1, the *HVAC TSPR* shall exceed the minimum requirement by five percent. If improvement is greater, the credits in Table C406.2 are permitted to be prorated up to a 20 percent improvement.

C406.2.2.2 More efficient HVAC equipment cooling and fan performance. No less than 90 percent of the total HVAC capacity serving the total *conditioned floor area* of the entire building, building addition or tenant space in accordance with Section C406.1.1 shall comply with Sections C406.2.2.2.1 through C406.2.2.2.3. Where individual equipment efficiencies vary, weigh them based on capacity.

C406.2.2.2.1 HVAC system selection. Equipment installed shall be types that are listed in the tables in Section C403.3.2.

C406.2.2.2.2 Cooling equipment efficiency. Equipment shall exceed the minimum cooling efficiency requirements listed in the tables in Section C403.3.2 by at least 5 percent. Where equipment exceeds the minimum annual cooling efficiency and heat rejection efficiency requirements by more than 5 percent, energy efficiency credits for cooling shall be determined using Equation 4-15, rounded to the nearest whole number.

(Equation 4-15)

$$EEC_{HEC} = EEC_5 \times \left[1 + \frac{CEI - 5\ \text{percent}}{5\ \text{percent}}\right]$$

Where:

EEC_{HEC}	=	Energy efficiency credits for cooling efficiency improvement.
EEC_5	=	Section C406.2.2.2 credits from Table C406.2.

CEI	=	The lesser of the improvement above minimum cooling efficiency requirements, minimum heat rejection efficiency requirements, or 20 percent. Where cooling efficiency varies by system, use the capacity weighted average efficiency improvement for all cooling equipment combined. Where cooling rating reduces as efficiency increases, base the efficiency improvement on the inverse of the rating.

C406.2.2.2.3 Minimum fan efficiency. Where fan energy is not included in packaged equipment rating or it is and the fan size has been increased from the as-rated equipment condition, fan power or horsepower shall be less than 95 percent of the allowed fan power in Section C403.8.1.

C406.2.2.3 More efficient HVAC equipment heating performance. No less than 90 percent of the total HVAC capacity serving the total *conditioned floor area* of the entire building, building addition or tenant space in accordance with Section C406.1.1 shall comply with Sections C406.2.2.3.1 through C406.2.2.3.2.

C406.2.2.3.1 HVAC system selection. Equipment installed shall be types that are listed in the tables in Section C403.3.2. Electric resistance heating shall be limited to 20 percent of system capacity, with the exception of heat pump supplemental heating.

C406.2.2.3.2 Heating equipment efficiency. Equipment shall exceed the minimum heating efficiency requirements of the tables in Section C403.3.2 by at least 5 percent. Where equipment exceeds the minimum annual heating efficiency requirements by more than 5 percent, energy efficiency credits for heating shall be determined using Equation 4-16, rounded to the nearest whole number.

(Equation 4-16)

$$EEC_{HEH} = EEC_5 \times \left[1 + \frac{CEI - 5\ \text{percent}}{5\ \text{percent}}\right]$$

Where:

EEC_{HEH}	=	Energy efficiency credits for heating efficiency improvement.
EEC_5	=	Section C406.2.2.2 credits from Table C406.2.
CEI	=	The lesser of the improvement above minimum heating efficiency requirements or 20 percent. Where heating efficiency varies by system, use the capacity weighted average percentage for all heating equipment combined.

EXCEPTION: In low energy spaces complying with Section C402.1.1 and *semi-heated spaces* complying with Section C402.1.1.2, no less than 90 percent of the installed heating capacity is provided by electric infrared or gas-fired radiant heating equipment for localized heating applications. Such spaces shall achieve credits for EEC_5.

C406.2.2.4 Low-carbon district energy systems. Not less than 90 percent of the annual service hot water and space heating load, or not

less than 90 percent of the annual service hot water, space heating, and space cooling load shall meet the criteria of Section C406.2.2.4.1 or C406.2.2.4.2.

Documentation for the low-carbon district system that is operational prior to the final inspection shall be provided to demonstrate that the definition of *low-carbon district energy exchange system* is satisfied.

C406.2.2.4.1 Low-carbon district energy exchange systems. Low-carbon district energy exchange systems must demonstrate the following:

1. Forty-five percent of the annual district-system-net-load-met (sum of heating and cooling energy provided to attached buildings) comes from heat recovery between connected buildings, waste heat, or renewable energy resources and no more than 25 percent of the annual heat input to the system comes from fossil fuel or electric-resistance sources.

C406.2.2.4.2 Low-carbon district energy heating and cooling or heating only systems. Distribution losses must be accounted for and may not exceed 5 percent of the annual load delivered to buildings served by the system. *Low-carbon district energy heating and cooling or heating only systems* must demonstrate one of the following:

1. Forty-five percent of the annual district-system-net-load-met (sum of heating and cooling energy provided to attached buildings) comes from heat recovery between connected buildings, waste heat, or renewable energy resources and no more than 25 percent of the annual heat input to the system comes from fossil fuel or electric-resistance sources.

2. No more than 10 percent of the system annual heat input to the system comes from fossil fuels or electric-resistance sources. The remaining annual heat input must be provided using heat pump technology with a minimum annual operating COP of 3.0.

C406.2.2.5 Improved low-carbon district energy systems. Not less than 90 percent of the annual service hot water and space heating load, or not less than 90 percent of the annual service hot water, space heating, and space cooling load shall meet the criteria of Section C406.2.2.5.1 or C406.2.2.5.2.

Documentation for the low-carbon district system that is operational prior to the final inspection shall be provided to demonstrate that the definition of *low-carbon district energy exchange system* is satisfied.

C406.2.2.5.1 Low-carbon district energy exchange systems. Low-carbon district energy exchange systems must demonstrate the following:

1. Fifty percent of the annual district-system-net-load-met (sum of heating and cooling energy provided to attached buildings) comes from heat recovery between connected buildings, waste heat, or renewable energy resources and no more than 10 percent of the annual heat input to the system comes from fossil fuel or electric-resistance sources.

C406.2.2.5.2 Low-carbon district energy heating and cooling or heating only systems. Distribution losses must be accounted for and may not exceed 5 percent of the annual load delivered to buildings served by the system. *Low-carbon district energy heating and cooling or heating only systems* must demonstrate one of the following:

1. Fifty percent of the annual district-system-net-load-met (sum of heating and cooling energy provided to attached buildings) comes

from heat recovery between connected buildings, waste heat, or renewable energy resources and no more than 10 percent of the annual heat input to the system comes from fossil fuel or electric-resistance sources.

2. No more than 10 percent of the system annual heat input to the system comes from fossil fuels or electric-resistance sources. The remaining annual heat input must be provided using heat pump technology with a minimum annual operating COP of 4.0.

C406.2.2.6 High performance dedicated outdoor air system (DOAS). No less than 90 percent of the total conditioned floor area of the whole project, excluding floor area of unoccupied spaces that do not require ventilation as specified by the *International Mechanical Code*, shall be served by DOAS installed in accordance with Section C403.3.5 with the following adjustments:

1. Minimum heat recovery sensible effectiveness of 80 percent, calculated in accordance with Section C403.3.5.1.

2. Where design outdoor airflow is greater than 500 cfm (250 L/s), the DOAS shall be equipped with an economizer bypass, damper control, or wheel speed control that is active between 55°F (13°C) and 75°F (24°C) and minimizes energy recovery or maintains an appropriate DOAS leaving air temperature when the building is generally in cooling, based either on outdoor air temperature or a DDC zone-based cooling system reset.

3. DOAS total combined fan power shall be less than either:

3.1. 0.769 W/cfm (1.55 W/L/s) when calculated in accordance with Section C403.3.5.2.

3.2. Eighty percent of fan power allowance for a constant volume system when calculated in accordance with Section C406.8.1.

This option is not available to areas served by systems utilizing Section C403.2.2.1 exception 5.

C406.2.2.7 Fault detection and diagnostics system. A project not required to comply with Section C403.2.3 or C403.6.10(15) shall achieve energy credits for installing a fault detection and diagnostics system to monitor the HVAC system's performance and automatically identify faults. The installed system shall comply with items 1 through 6 in Section C403.2.3.

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Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-11C-40623 Section C406.2.3—Lighting measures.

C406.2.3 Reduced lighting power. Interior lighting within the whole project shall achieve credits by complying with Section C406.2.3.1 or C406.2.3.2. In Group R-1 and Group R-2 occupancies, lighting power reduction applies to the entire R-1 or R-2 occupancy group area. *Dwelling units* and *sleeping units* within the building shall achieve credits by complying with Section C406.2.3.3.

C406.2.3.1 Reduced lighting power option 1. The total connected interior lighting power calculated in accordance with Section C405.4.1 shall be 90 percent or less of the lighting power values specified in

Table C405.4.2(1) times the floor area for the building types, or 90 percent or less of the total interior lighting power allowance calculated in accordance with Section C405.4.2.

C406.2.3.2 Reduced lighting power option 2. The total connected interior lighting power calculated in accordance with Section C405.4.1 shall be 80 percent or less of the lighting power values specified in Table C405.4.2(1) times the floor area of the building types, or 80 percent or less of the total interior lighting power allowance calculated in accordance with Section C405.4.2.

C406.3.3 Lamp efficacy. No less than 95 percent of the permanently installed light fixtures in dwelling units and sleeping units shall be provided by lamps with a minimum efficacy of 90 lumens per watt.

C406.2.4 Lighting controls. For buildings with nontransient *dwelling units* and *sleeping units*, energy credits shall be achieved by installation of systems that comply with the requirements of Section C406.2.4.1. All other buildings shall achieve energy credits by complying with Section C406.2.4.2. For buildings with mixed occupancies, credits shall be prorated based on floor area.

C406.2.4.1 Residential building lighting control. In buildings with nontransient dwelling units and sleeping units, lighting controls shall be configured to meet the following:

1. Each *dwelling unit* or *sleeping unit* shall have a main control by the main entrance that turns off all the lights and switched receptacles in the unit. The main control shall be permitted to have two controls, one for permanently wired lighting and one for switched receptacles. The main controls shall be clearly identified as "lights master off" and "outlet master off."
2. Switched receptacles shall be clearly identified and all switched receptacles shall be located within 12 inches of an unswitched receptacle.

C406.2.4.2 Enhanced digital lighting controls. Measure credits shall be achieved where no less than 50 percent of the gross floor area within the project has luminaires and lighting controls that include high end trim in compliance with Section C405.2.3 and either *luminaire-level lighting controls* in compliance with Section C405.2.8.1 or networked lighting controls in accordance with Section C405.2.8.2. Where *general lighting* in more than 50 percent of the gross floor area complies, the base credits from Table C406.2 shall be prorated as follows:

[Tuned lighted floor area, %] x [Base energy credits for C406.2.4.2] / 50%

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Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-11C-40624 Section C406.2.5—Renewable energy measures.

C406.2.4 On-site and off-site renewable energy. Projects installing on-site or off-site renewable energy systems with a capacity of at least 0.1 watts per gross square foot (1.08 W/m^2) of building area in

addition to the renewable energy capacity required elsewhere in this code shall achieve energy credits for this measure. Renewable energy systems achieving energy credits shall not be used to satisfy other requirements of this code. Off-site renewable energy systems shall comply with Sections C411.2.2 and C411.2.3. Credits shall be prorated from the table value in accordance with Equation 4-17.

(Equation 4-17)

$$\mathrm{AEC_{RRa}} = \mathrm{AEC_{0.1}} \times \left[\frac{\mathrm{RR}_t - RR_r}{0.1 \times \mathrm{PGFA}}\right] \times \mathrm{REF}$$

Where:

$\mathrm{AEC_{RRa}}$	=	Section C406.2.5 achieved energy credits for this project as calculated in accordance with Equation 4-17, limited to 50 percent of the required credits in Section C406.1.
$\mathrm{RR_t}$	=	Actual total rating of on-site renewable energy systems (W).
$\mathrm{RR_r}$	=	Rating of on-site renewable energy systems required by other sections in this code or used to qualify for exceptions in this code (W).
PGFA	=	The lesser of the improvement above minimum heating efficiency requirements or 20 percent. Where heating efficiency varies by system, use the capacity weighted average percentage for all heating equipment combined.
$\mathrm{AEC_{0.1}}$	=	Section C406.2.5 base credits from Table C406.2.
REF	=	Renewable Energy Factor from Table C411.3.1.

Informative Note: On-site renewable energy may include thermal service water heating or pool water heating, in which case ratings in Btu/h can be converted to W where W = Btu/h / 3.413.

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Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-11C-40625 Section C406.2.6—Service water measures.

C406.2.6 Reduced energy use in service water heating. Buildings with service hot water heating equipment that serves the whole building, building addition or tenant space shall achieve credits through compliance with either:

1. Section C406.2.6.1, C406.2.6.2, or C406.2.6.3.
2. Section C406.2.6.1 and Section C406.2.6.2 or C406.2.6.3.

C406.2.6.1 Shower drain heat recovery. Shower drain heat recovery units shall comply with Section C404.10 and preheat cold water supply to the showers. Portable waterside pressure loss shall be less than 10

psi (69 kPa) at maximum design flow. The efficiency of drain water heat recovery units shall be 54 percent in accordance with CSA B55.1. Full credits are applicable to the following building use types: Multi-family, hotel, motel, dormitory, and schools with locker room showers. Where not all showers in the project have drain heat recovery, the credit is adjusted based on the following:

[Section C406.2.6.1 table credits] x [Showers with drain recovery] / [Total number of showers]

C406.2.6.2 Service water heating energy recovery. Not less than 30 percent of the annual service hot water heating energy use, or not less than 70 percent of the annual service hot water heating energy use in buildings with water-cooled chiller systems subject to the requirements of Section C403.9.2.1 or qualifying for one of its exceptions, shall be provided by one or more of the following:

1. Waste heat recovery from service hot water, heat recovery chillers, building equipment, process equipment, or other *approved* system. Qualifying heat recovery must be above and beyond heat recovery required by other sections of this code.

2. On-site renewable energy water-heating systems where not used to meet other requirements or to obtain other energy credits.

OPTION 1 for Section C406.2.6.3 (if 136/HP water heating is not adopted)

C406.2.6.3 Heat pump service water heating. Projects shall achieve credits through compliance with Section C406.2.6.3.1 or C406.2.6.3.2.

C406.2.6.3.1 Heat pump water heater. Credit shall be achieved where service hot water system capacity is 82,000 Btu/h (24kW) or less and is served using air-source heat pump technology with no more than 4.5 kW of resistance supplemental heating and meets one of the following:

1. The COP rating will be with a minimum COP of 3.0 and reported at the design leaving heat pump water temperature with an entering air temperature of 60°F (16°C) or lower. For water-source equipment, the COP rating will be reported at the design leaving loadwater temperature with an entering water temperature of 74°F (23°C) or lower.

2. The uniform energy factor (UEF) shall be a minimum of 3.40 rated based on U.S. Department of Energy requirements.

C406.2.6.3.2 Central heat pump service water heating. Energy credits shall be achieved where service hot water shall be provided by an electric air-source heat pump water heating (HPWH) system meeting the requirements of Sections C406.2.6.3.1 through C406.2.6.3.2.5. Supplemental service water heating equipment is permitted to use electric resistance in compliance with Section C404.2.1.4.

C406.2.6.3.2.1 Primary heat pump system sizing. The system shall include a primary service output of 100 percent load at 40°F (4°C) dry bulb or wet bulb outdoor air temperature for air-source heat pumps, or 44°F (7°C) ground temperature for ground-source heat pumps that provides sufficient hot water as calculated using the equipment manufacturer's selection criteria or another *approved* methodology. Electric air source heat pumps shall be sized to deliver no less than 50 percent of the calculated demand for hot water production during the peak demand period when entering dry bulb or wet bulb outdoor air temperature of 24°F (-4°C).

C406.2.6.3.2.2 Primary hot water storage sizing. The system shall provide sufficient hot water to satisfy peak demand period requirements.

C406.2.6.3.2.3 System design. The service water heating system shall be configured to conform to one of the following provisions:

1. For *single-pass* HPWHs, *temperature maintenance* heating provided for reheating return water from the building's heated water circulation system shall be physically decoupled from the primary service water heating system storage tank(s) in a manner that prevents destratification of the primary system storage tanks. *Temperature maintenance* heating is permitted to be provided by electric resistance or a separate dedicated heat pump system.

2. For *multi-pass* HPWHs, *recirculated temperature* maintenance water is permitted to be returned to the primary water storage tanks for reheating.

3. Unitary HPWHs located in conditioned space are permitted, where they are sized to meet all calculated service water heating demand using the heat pump compressor, and not supplementary heat.

C404.2.6.3.2.3.1 Mixing valve. A thermostatic mixing valve capable of supplying hot water to the building at the user temperature setpoint shall be provided, in compliance with requirements of the *Uniform Plumbing Code* and the HPWH manufacturer's installation guidelines. The mixing valve shall be sized and rated to deliver tempered water in a range from the minimum flow of the *temperature maintenance* recirculation system up to the maximum demand for the fixtures served.

C406.2.6.3.2.4 Supplemental water heating. Total supplemental electric resistance water heating equipment shall not have an output capacity greater than the primary water heating equipment at 40°F (4°C) entering dry bulb or wet bulb outdoor air temperature for air-source heat pumps or 44°F(7°C) ground temperature for ground-source heat pumps. Supplemental electric resistance heating is permitted for the following uses:

1. *Temperature maintenance* of heated-water circulation systems, physically separate from the primary service water heating system. *Temperature maintenance* heating capacity shall be no greater than the primary water heating capacity at 40°F (4°C) dry bulb or wet bulb outdoor air temperature for air-source heat pumps or 44°F (7°C) ground temperature for ground-source heat pumps.

2. Defrost of compressor coils.

3. Heat tracing of piping for freeze protection or for *temperature maintenance* in lieu of recirculation of hot water.

4. Backup or low ambient temperature conditions, where all of the following are true:

4.1. The supplemental heating capacity is no greater than the primary service water heating capacity at 40°F (4°C) dry bulb or wet bulb outdoor air temperature for air-source heat pumps or 44°F (7°C) ground temperature for ground-source heat pumps.

4.2. During normal operations the supplemental heating is controlled to operate only when the entering air temperature at the air-source HPWH is below 40°F (4°C), and the primary HPWH compressor continues to operate together with the supplemental heating when the entering air temperature is between 17°F (-8°C) and 40°F (4°C).

4.3. The primary water heating equipment cannot satisfy the system load due to equipment failure or entering air temperature below 40°F (4°C).

C406.2.6.3.2.5 Alarms. The control system shall be capable of and configured to send automatic error alarms to building or maintenance personnel upon detection of equipment faults, low leaving water tempera-

ture from primary storage tanks, or low hot water supply delivery temperature to building distribution system.

OPTION 2 for Section C406.2.6.3 (if 136/HP water heating is adopted)

C406.2.6.3 Heat pump service water heating. Projects shall achieve credits through compliance with Section C406.2.6.3.1.

C406.2.6.3.1 Heat pump water heater. Credit shall be achieved where service hot water system capacity is 82,000 Btu/h (24kW) or less and is served using air-source heat pump technology with no more than 4.5 kW of resistance supplemental heating and meets one of the following:

1. The COP rating will be with a minimum COP of 3.0 and reported at the design leaving heat pump water temperature with an entering air temperature of 60°F (16°C) or lower. For water-source equipment, the COP rating will be reported at the design leaving load water temperature with an entering water temperature of 74°F (23°C) or lower.
2. The uniform energy factor (UEF) shall be a minimum of 3.40 rated based on U.S. Department of Energy requirements.

C406.2.6.7 Improved service hot water temperature maintenance. For buildings with gross floor area greater than 10,000 square feet, credit shall be achieved when hot water temperature maintenance is installed in accordance with Section C406.2.7.1 or C406.2.7.2.

C406.2.7.1 Self-regulated heat trace system. The credit achieved shall be from Table C406.2. This system shall include self-regulating electric heat cables, connection kits and electronic controls. The cable shall be installed directly on the hot water supply pipes underneath the insulation to replace standby losses.

C406.2.7.2. Point of use water heater. The credit achieved shall be from Table C406.2 where any fixtures requiring hot water shall be supplied from a localized electric source of hot water with no recirculation or heat trace and limited to 2 kW and 6 gallons of storage. The supply pipe length from the point of use water heater to the termination of the fixture supply pipe shall be no more than 20 feet.

C406.2.8 Service hot water distribution right sizing. To achieve this credit, where Group R-1 and R-2 occupancies are served by a central service hot water system, the distribution system serving *dwelling units*, *sleeping units* and guestrooms shall be sized using Appendix M of the *Uniform Plumbing Code*.

C406.2.9 High performance service hot water temperature maintenance system. Systems with multiple riser service hot water circulation systems shall use only heat pump technology for temperature maintenance. Service hot water system delivering heating requirements shall use heat pump technology with a minimum COP of 3.0 or UEF of 3.4. For air-source equipment, the COP rating will be reported at the design leaving heat pump water temperature with an entering dry bulb air temperature of 60°F (16°C) or lower and a relative humidity of 50 percent or lower. For water-source equipment, the COP rating will be reported at the design leaving load water temperature with an entering water temperature of 74°F (23°C) or lower. The system shall comply with the requirements of Section C404.7.1.

C406.2.10 High efficiency service hot water circulation system. Multiple riser service hot water circulation systems shall use a variable volume circulation pump controlled to vary the pump speed based on

system demand and shall include self-actuated thermostatic balancing valves to control the system flow at each riser.

C406.2.11 Low flow showerheads for Group R-1 and R-2 occupancies. All showerheads installed in Group R-1 and R-2 *dwelling units* or *sleeping units* shall have a maximum listed flowrate of 1.25 gallons per minute or less at 80 psi operating pressure for fixed showerheads and a maximum listed flowrate of 1.50 gallons per minute or less at 80 psi operating pressure for handheld showerheads. When a shower is served by more than one showerhead, including handheld showerheads, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.25 gallons per minute or less for fixed or 1.5 gallons per minute or less for handheld, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

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NEW SECTION

WAC 51-11C-40626 Section C406.2—Envelope measures.

C406.2.12 Enhanced envelope performance. The Proposal Total UA of the thermal envelope of the project shall be 15 percent lower than the Allowable Total UA for an area of identical configuration and fenestration area in accordance with Section C402.1.5 and Equation 4-2.

C406.2.13 Reduced air infiltration. Energy credits shall be achieved where measured air infiltration of the total *conditioned floor area* of the whole building, fully isolated building addition or tenant space is determined in accordance with Section C406.13.1 and complies with the maximum leakage in either Section C406.2.13.2 or C406.2.13.3.

C406.2.13.1 Air leakage testing and verification. Air infiltration shall be verified by whole building pressurization testing conducted in accordance with ASTM E779 or ASTM E1827 by an independent third party. The measured air leakage rate of the building thermal envelope shall not exceed the specified maximum air leakage in cfm/ft^2 (L/s per m^2) under a pressure differential of 0.3 in. water gauge (75 Pa), with the calculated surface area being the sum of the above and below grade *building thermal envelope*. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the code official and the building owner.

EXCEPTION: Where the *conditioned floor area* of the building is not less than 250,000 ft^2 (25,000 m^2), air leakage testing shall be permitted to be conducted on representative above grade sections of the building provided the *conditioned floor area* of tested areas is no less than 25 percent of the *conditioned floor area* of the building and are tested in accordance with this section.

C406.2.13.2 Base reduced air infiltration. Measured air infiltration determined in accordance with Section C406.13.1 shall not exceed 0.17 cfm/ft^2 (0.86 L/s per m^2).

C406.2.13.3 Enhanced reduced air infiltration. Measured air infiltration determined in accordance with Section C406.13.1 shall not exceed 0.8 cfm/ft^2 (0.41 L/s per m^2).

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NEW SECTION

WAC 51-11C-40627 Section C406.2—Other measures.

C406.2.14 Enhanced commercial kitchen equipment. For buildings or areas designated as Group A-2, or facilities whose primary business type involves the use of a commercial kitchen with at least one gas or electric fryer, all fryers, dishwashers, steam cookers and ovens shall comply with all of the following:

1. Achieve the ENERGY STAR label in accordance with the specifications current as of January 1, 2022.

2. Be installed prior to the issuance of the certificate of occupancy.

3. Have the ENERGY STAR qualified model number listed on the construction documents submitted for permitting.

Energy efficiency credits for efficient commercial kitchen equipment shall be determined based on Equation 4-19, rounded to the nearest whole number.

(Equation 4-19)

$$\mathrm{AEEC}_K = 20 \times \frac{\mathrm{Area}_K}{\mathrm{Area}_B}$$

Where:

AEEC_K	=	Section C406.2.14 table credits, to a maximum of those allowed in Table C406.2 for this option.
Area_K	=	Floor area of full-service kitchen (ft^2 or m^2).
Area_B	=	Gross floor area of building (ft^2 or m^2).

C406.2.15 Residential kitchen equipment. For projects with Group R-1 and R-2 occupancies, energy credits shall be achieved where all dishwashers, refrigerators and freezers comply with all of the following:

1. Achieve the ENERGY Most Efficient 2021 label in accordance with the specifications current as of:

1.1. Refrigerators and freezers: 5.0, 9/15/2014.

1.2. Dishwashers: 6.0, 1/29/2016.

2. Be installed prior to the issuance of the certificate of occupancy.

For Group R-1 where only some guestrooms are equipped with both refrigerators and dishwashers, the table credits shall be prorated as follows:

[Section C406.2.15 table credits] x [Floor area of guestrooms with kitchens] / [Total guestroom floor area]

C406.2.16 Residential laundry appliances. For projects with Group R-2 occupancies, energy credits shall be achieved where all clothes washers and dryers in the project meet the following requirements:

1. Each dwelling unit contains in-unit washing washer and dryer equipment that meets the following requirements:

1.1. Achieve the ENERGY STAR Most Efficient label in accordance with the 2021 specifications.

1.2. Be installed prior to the issuance of the certificate of occupancy.

2. Where only some dwelling units are equipped with both washers and dryers, the table credits shall be prorated as follows:

[Section C406.2.16 table credits] x [Floor area of dwelling units with laundry] / [Total dwelling unit floor area]

C406.2.17 Heat pump clothes dryers. All domestic clothes dryers located in Group R-1 and R-2 of the whole project are ENERGY STAR rated heat pump dryers. Credit applies only to buildings where heat pump dryers are within each residential dwelling or sleeping units or grouped together in central multi-family use laundry rooms.

To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the appliance type and provide documentation of ENERGY STAR compliance. At the time of inspection, all appliances shall be installed and connected to utilities.

C406.2.18 Efficient elevator equipment. Qualifying elevators in the building shall be Energy Efficient Class A in accordance with ISO 25745-2, Table 7. Only buildings three or more floors above grade shall be permitted to use this credit. Credits shall be prorated based on Equation 4-18, rounded to the nearest whole credit. Projects with a compliance ratio below 0.5 do not qualify for this credit.

(Equation 4-18)

$$EC_e = EC_t \times CR_e$$

Where:

EC_e = Elevator energy credit achieved for building.

EC_t = Section C406.2.18 table energy credit.

$CR_e = \frac{F_A}{F_B}$

F_A = Sum of floors served by Class A elevators.

F_B = Sum of floors served by all building elevators and escalators.

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Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-11C-40630 Section C406.3—Load management credits.

C406.3 Load management credits. Load management measures installed in the building that meet the requirements in Sections C406.3.1 through C406.3.7 shall achieve the credits listed for the occupancy group in Table C406.3 or where calculations required by Sections C406.3.1 through C406.3.7 create or modify the table credits the credits achieved will be based upon the section calculations.

Each load management measure required automatic controls activated by either utility demand response, utility price response signal,

peak price period time control, or local building demand monitoring to be capable of performing the described load management practices. Controls shall be capable of and configured to provide the required load management sequences. The following additional control systems apply to these measures:

1. Where credit is taken for C406.3.6, service water heating energy storage, the equipment shall be provided with controls that comply with ANSI/CTA 2045-B.

2. For other load management measures:

2.1. Where the serving utility has a real-time demand response or pricing program, an interface compliant with serving utility requirements shall be installed.

2.2. Where the serving utility does not have a real-time demand response or pricing program, a digital input to the system to support future utility programs shall be installed and building demand monitoring shall be installed and integrated into the load management sequence.

2.3. All equipment involved in the required load management sequence shall have controls connected to a central DDC system.

Table C406.3
Load Management Measure Credits

Measure Title	Applicable Section	Occupancy Group					
		Group R-1	Group R-2	Group B	Group E	Group M	All Other
1. Lighting load management	C406.3.1	12	15	27	15	NA	NA
2. HVAC load management	C406.3.2	29	24	42	23	13	26
3. Automated shading	C406.3.3	NA	7	12	16	NA	NA
4. Electric energy storage	C406.3.4	41	50	126	72	37	65
5. Cooling energy storage	C406.3.5	13	10	14	19	NA	14
6. Service hot water energy storage	C406.3.6	31	248	59	8	5	70
7. Building thermal mass	C406.3.7	NA	NA	50	95	96	80

C406.3.1 Lighting load management. Automatic controls shall be capable of gradually reducing general lighting power with continuous dimming in 75 percent of the building area by at least 20 percent during peak demand periods. Where less than 75 percent, but at least 50 percent, of the building area lighting is controlled, the credits from Table C406.3 shall be prorated as follows:

$$\frac{[\textit{Area of building with lighting load management}, \%] \times [\textit{Table credits for } \text{C406.3.1}]}{75\%}$$

EXCEPTION: Warehouse or retail storage building areas shall be permitted to achieve this credit by switching off at least 25 percent of lighting power in 75 percent of the building area without dimming.

C406.3.2 HVAC load management. Automatic controls shall:

1. Where electric cooling is used, be configured to gradually increase, over a minimum of three hours, the cooling setpoint by at least 3°F over the course of the coincident summer peak building load and peak price or demand periods.

2. Where electric heating is used, be configured to gradually reduce, over a minimum of three hours, the heating setpoint by at least 3°F during winter peak pricing or building peak demand periods.

C406.3.3 Automated shading load management. Where fenestration on south and west exposures exceeds 20 percent of the wall area, automat-

ic controls shall be configured to operate movable exterior shading devices or dynamic glazing to reduce solar gain through sunlit fenestration on southern and western exposures by at least 50 percent during electrical summer peak periods.

Informative Note: This credit can be met by exterior roller, movable blind or movable shutter shading devices; however, fixed overhang, screen or shutter shading will not meet the requirement. Roller shades that reject solar gain but still allow a view are allowed as long as they provide an effective 50 percent reduction in net solar gain (e.g., have a shading coefficient of less than 0.5 for the shading material itself). Interior shading devices will not meet the requirement. Electrochromatic windows that achieve 50 percent of SHGC would qualify.

C406.3.4 Electric energy storage. Automatic controls shall store electricity in electric storage devices during nonpeak periods and use stored energy during peak periods to reduce building demand. Electric storage devices shall have a minimum capacity of 5 Wh/ft^2 (58 Wh/m^2) of gross building area. For greater storage capacity up to 15 Wh/ft^2 (160 Wh/m^2), credits shall be prorated as follows:

$$\frac{\text{[Installed electric storage capacity, Wh/ft}^2\text{]}}{\text{5 (58)}\times\text{[C406.3.4 credits from Table C406.3]}}$$

C406.3.5 Cooling energy storage. Automatic controls shall be capable of activating ice or chilled water storage to reduce electric demand during the hours of summer peak electric prices. Credits shown in Table C406.3 are based on storage capacity of 2 ton-hours per design day ton of colling load with a 1.15 sizing factor. Credits shall be prorated for installed storage systems sized between 0.5 and 3.5 ton-hours per design day ton of cooling load rounded to the nearest whole credit. The storage tank shall have no more than 1.5 percent of storage capacity standby loss per day.

C406.3.6 Service hot water energy storage. To achieve this credit, where service hot water is heated by electricity, automatic controls activated by utility demand response signal, peak price period time control, or local building demand monitoring shall preheat stored service hot water before the peak price period and suspend electric water heating during the period of peak prices coincident with peak building load. Storage capacity shall be provided by either:

1. Preheating water above 140°F (60°C) delivery temperature with at least 1.34 kWh of energy storage per kW of water heating capacity. Tempering valves shall be provided at the water heater delivery location.

2. Providing additional heated water tank storage capacity above peak service hot water demand with equivalent peak storage capacity to item 1.

C406.3.7 Building thermal mass. To achieve this credit, the building shall have both additional passive interior mass and a night-flush control of the HVAC system.

1. Interior to the *building thermal envelope* insulation, provide 15 pounds of passive thermal mass per square foot of building floor area. Mass construction shall be in the building interior and the indoor facing portion of the exterior wall, and interior floor construction. Mass construction shall have mass surfaces in direct contact with the air in conditioned spaces with directly attached wall board or hard surface flooring allowed. Mass with carpet or furred wallboard shall not be counted toward the building mass required. For integral insulated concrete block walls complying with ASTM C90, only the mass of the interior face shall be counted toward the building mass required.

2. When summer mode is active and indoor average temperature is 5˚F (3˚C) or more above outdoor temperature and between 10:00 p.m. and 6:00 a.m., *automatic* night flush controls shall operate outdoor air economizers at low fan speed less than 66 percent during the unoccupied period until the average indoor air temperature falls to the occupied heating setpoint. Summer mode shall be activated when outdoor air exceeds 70˚F (21˚C) and continues until deactivated when outdoor air falls below 45˚F (7˚C). Another night flush strategy shall be permitted where demonstrated to be effective, avoids added morning heating and is *approved* by the *code official*.

Informative Note: The simplified night flush sequence described will operate in "summer mode" below the 70°F outdoor air trigger temperature down until outdoor air of 45°F is hit when the "summer mode" is deactivated until the outdoor air temperature rises above 70°F again. Other strategies may be implemented that cool the space below the heating setpoint and adjust the morning heating setpoint to avoid morning reheating.

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Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40702 Section C407.2—Mandatory requirements.

C407.2 Mandatory requirements. Compliance with ((~~this~~)) Section C407 also requires compliance with those sections shown in Table C407.2.

The building permit application for projects utilizing this method shall include in one submittal all building and mechanical drawings and all information necessary to verify that the building envelope and mechanical design for the project corresponds with the annual energy analysis. If credit is proposed to be taken for lighting energy savings, then an electrical permit application shall also be submitted and approved prior to the issuance of the building permit. If credit is proposed to be taken for energy savings from other components, then the corresponding permit application (e.g., plumbing, boiler, etc.) shall also be submitted and approved prior to the building permit application. Otherwise, components of the project that would not be approved as part of a building permit application shall be modeled ((~~the same in both the proposed building and the *standard reference design* and shall comply with the requirements of this~~)) in the baseline in accordance with ANSI/ASHRAE/IESNA 90.1 Appendix G and in the proposed model in accordance with the requirements of the Washington State Energy Code.

Table C407.2
Mandatory Compliance Measures for Total Building Performance Method

Section[a]	Title	Comments
Envelope		
C401	Thermal envelope certificate	
C402.2.7	Airspaces	
C402.5	Air leakage	
Mechanical		

Section[a]	Title	Comments
C403.1.2	Calculation of heating and cooling loads	
C403.1.3	Data centers	
C403.2	System design	
C403.3.1	Equipment and system sizing	
C403.3.2	HVAC equipment performance requirements	
C403.3.3	Hot gas bypass limitation	
C403.3.4	Boiler turndown	
C403.3.6	Ventilation for Group R occupancy	
((~~C403.4~~	~~HVAC system controls~~))	
C403.4.1	Thermostatic controls	((~~Except for C403.4.1.4~~))
C403.4.2	Off-hour controls	((~~Except for Group R~~))
C403.4.7	Combustion heating equipment controls	
C403.4.8	Group R-1 hotel/ motel guestrooms	See Section C403.7.4
C403.4.9	Group R-2 and R-3 dwelling units	
C403.4.10	Group R-2 sleeping units	
C403.4.11	Direct digital control systems	
C403.5.5	Economizer fault detection and diagnostics (FDD)	
C403.7	Ventilation and exhaust systems	Except for C403.7.6
C403.8	Fan and fan controls	
C403.9.1.1	Variable flow controls	For cooling tower fans ≥ 7.5 hp
C403.9.1.2	Limitation on centrifugal fan cooling towers	For open cooling towers
C403.10	Construction of HVAC elements	
C403.11	Mechanical systems located outside of the building thermal envelope	
C403.13	Commissioning	
Service Water Heating		
C404	Service water heating	
Lighting and Electrical		
((~~C405.1~~	~~General~~	

Section[a]	Title	Comments
~~C405.2~~	~~Lighting controls~~	
~~C405.3~~	~~Exit signs~~	
~~C405.4~~	~~Interior lighting power~~	
~~C405.5~~	~~Exterior building lighting power~~	
~~C405.6~~	~~Electrical transformers~~	
~~C405.7~~	~~Dwelling unit energy consumption~~	
~~C405.8~~	~~Electric motor efficiency~~	
~~C405.9~~	~~Vertical and horizontal transportation~~	
~~C405.10~~	~~Controlled receptacles~~	
~~C405.11~~	~~Voltage drop in feeders~~))	
C405	Electrical power and lighting systems	
Other Requirements		
C407	Total building performance	
C408	System commissioning	
C409	Energy metering	
C410	Refrigeration requirements	
C411	Solar readiness	

[a] Reference to a code section includes all the relative subsections except as indicated in the table.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40702, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40702, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40702, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40702, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40703 Section C407.3—Performance-based compliance.

C407.3 Performance-based compliance. Compliance with this section requires compliance with ASHRAE Standard 90.1 Appendix G, Performance Rating Method, in accordance with Standard 90.1 Section 4.2.1 with the following modifications:

1. The mandatory requirements of the Washington State Energy Code are required to be met, instead of those of Section G1.2.1a of ((~~Standard~~)) ANSI/ASHRAE/IESNA 90.1 ((~~are not required to be met~~)).

2. ((~~The reduction in annual carbon emissions of the proposed building design associated with on-site renewable energy shall not be more than 3 percent of the total carbon emissions of the baseline building design.~~

~~3. References to energy cost in Section 4.2.1.1 and Appendix G shall be replaced by carbon emissions calculated by multiplying site energy consumption by the carbon emission factor from Table C407.3(1).~~

~~4. The building performance factors in Table C4.2.1.1 shall be replaced with those in Table C407.3(2).~~)) Compliance with Section C407 requires meeting both an emissions and site energy reduction target in accordance with the following:

2.1. Carbon emissions target. The carbon emissions target is focused on regulated load energy efficiency, thus shall be met only via regulated load savings without consideration of the contribution of on-site or off-site renewable energy or unregulated load savings. Adjustments to the PCI, to account for the contribution of renewable energy found in ANSI/ASHRAE/IESNA 90.1 Section 4.2.1.1 shall not be used. References to energy cost in Section 4.2.1.1 and Appendix G shall be replaced by carbon emissions calculated by multiplying site energy consumption by the carbon emission factor from Table C407.3(1). The building performance factors in Table 4.2.1.1 of ANSI/ASHRAE/IESNA 90.1 shall be replaced with those in Table C407.3(2).

2.2. Site energy target. The site energy performance target shall be met including the contributions of on-site or off-site renewable energy as described in Section C411.3 as well as the contributions of improvements in unregulated loads as allowed by Section C407.3.2. Compliance with the site energy performance target requires that the proposed building site energy use/baseline building site energy use is less than or equal to the site energy performance target from Table C407.3(2).

3. Documentation requirements in Section G1.3.2.d shall be replaced by a list showing compliance with the mandatory provisions of Table C407.2.

4. Forms demonstrating compliance with Appendix G developed by the U.S. Department of Energy shall be completed and submitted to the *code official*. The forms are available at energycodes.gov/ashrae-standard-901-performance-based-compliance-form.

5. References to yet-to-be-designed future building components in the Proposed Building Performance column of Table G3.1 shall be modified to reference the corresponding sections of the Washington State Energy Code in lieu of the requirements of ANSI/ASHRAE/IESNA 90.1 in the following sections of the table:

5.1. No. 1, Design Model, subclause c.

5.2. No. 6, Lighting, subclause c.

5.3. No. 11, Service Water Heating System, subclause c.

5.4. No. 12, Receptacle and Other Loads, subclause b.

6. HVAC systems, subclauses c and d of Table G3.1, shall meet the following requirements:

6.1. For yet-to-be-designed systems in office, retail, library, education, and multifamily buildings and occupancies subject to the TSPR requirements of Section C403.1.1, the system type and efficiency parameters shall meet but not exceed those shown in Table D602.11 Standard Reference Design HVAC Systems.

6.2. For all other buildings and occupancies, the system type shall be the same as the system modeled in the baseline design and shall comply with but not exceed the requirements of Section C403 in lieu of ANSI/ASHRAE/IESNA 90.1.

6.3. For HVAC systems serving future tenant spaces, where the current building permit applies to only a portion of an HVAC system, and future components will receive HVAC services from systems included in the current building permit, those future components shall be modeled as the type required to complete the HVAC system portions under the current permit and shall meet but not exceed the requirements found in Section C403.

7. The requirements for proposed and baseline building lighting system shall be modified in accordance with Addendum af to ANSI/ASHRAE/IESNA 90.1.

8. Energy modeler qualifications. The energy analyst in responsible charge of the Section C407 submittal shall meet at least one of the following:

8.1. ASHRAE Building Energy Modeling Professional (BEMP) certification.

8.2. Association of Energy Engineer's Building Energy Simulation Analyst (BESA) certification.

8.3. Successful completion of at least five projects modeled following any version of ANSI/ASHRAE/IESNA 90.1 Appendix G within the last three years that were reviewed and approved by a *code official* or rating authority.

C407.3.1 Limits on nonmandatory measures. The Proposed Total UA of the proposed building shall be no more than 20 percent higher than the Allowed Total UA as defined in Section C402.1.5.

C407.3.2 On-site and off-site renewable energy accounting for use with Appendix G. Qualifying on-site and off-site renewable energy delivered or credited to the building project to comply with Section C407.3 item 2.2 shall meet the requirements of Section C411.2.

C407.3.3 Low-carbon district energy use with Appendix G. Qualifying *low-carbon district heating and cooling or heating only systems* and *low-carbon district energy exchange systems* shall meet the requirements of Section C407.3.3.1 or C407.3.3.2, as applicable.

C407.3.3.1 Utilization of low-carbon district heating and cooling or heating only systems. Applicable if heating and cooling or heating only is provided to the *proposed building* from a *low-carbon district heating and cooling or heating only system* that is fully operational prior to the final inspection. Proposed model shall account for all on-site HVAC and service hot water related equipment, such as circulation pump energy and heat-exchanger efficiency.

1. The following modifications shall be applied to Appendix G of ANSI/ASHRAE/IESNA 90.1 in addition to what is described in Section C407.3:

1.1. For low-carbon district heating and cooling systems, strike the text of Sections G3.1.1.1, G3.1.1.2, G3.1.1.3.1, and G3.1.1.3.4. Baseline system shall be selected based on unmodified versions of Tables G3.1.1-3 and G3.1.1-4, with carbon emission factors from Table C407.3(1).

1.2. For low-carbon district heating only systems, strike the text of Sections G3.1.1.1, G3.1.1.3.1, and G3.1.1.3.4. Baseline system shall be selected based on unmodified versions of Tables G3.1.1-3 and G3.1.1-4, with carbon emission factors from Table C407.3(1).

2. Any heating or cooling energy provided by the *low-carbon district heating and cooling or heating only system* shall utilize footnote a of Table C407.3(1) for the district system carbon emission factor in the proposed model.

3. Waste energy exported from the building to the low-carbon district heating and cooling or heating only system shall not be considered purchased energy. Carbon emissions from the waste heat exported shall be accounted for in the proposed design carbon emissions at the seasonal factors below. The exported energy emissions credit shall be calculated based on footnote a of Table C407.3(1):

3.1. Fifty percent of the waste heat exported during the months of October through December and January through March shall be subtracted from the proposed design carbon emissions.

3.2. Twenty-five percent of the waste heat exported during the months of April through September shall be subtracted from the proposed design carbon emissions.

EXCEPTION: Waste heat exported from the building to the *low-carbon district heating and cooling or heating only system* shall not be subtracted from the proposed design carbon emissions if they are already accounted for in the calculation of emissions from the district heating or cooling plant.

Documentation for the low-carbon district system that is operational prior to the final inspection shall be provided to demonstrate the following:

1. Distribution losses must be accounted for and may not exceed 10 percent of the annual load delivered to buildings served by the system.

2. Twenty-five percent of the annual district-system-net-load-met (sum of heating and cooling energy provided to attached buildings) comes from heat recovery between connected buildings, waste heat or renewable energy resources and no more than 25 percent of the annual heat input to the system comes from fossil fuel or electric-resistance sources, or not more than 10 percent of the system annual heat input to the system comes from fossil fuel or electric-resistance sources.

C407.3.3.2 Utilization of low-carbon district energy exchange systems. Applicable if heating or cooling is provided to the *proposed building* from a *low-carbon district energy exchange system* that is fully operational prior to the final inspection. Proposed model shall account for all on-site HVAC and service hot water related equipment, such as circulation pump energy and heat-exchanger efficiency.

1. The following modifications shall be applied to Appendix G of ANSI/ASHRAE/IESNA 90.1 in addition to what is described in Section C407.3:

1.1. Strike the text of Sections G3.1.1.1, G3.1.1.2, G3.1.1.3, G3.1.1.3.1, G3.1.1.3.2, G3.1.1.3.3, and G3.1.1.3.4. Baseline system shall be selected based on unmodified versions of Tables G3.1.1-3 and G3.1.1-4, with carbon emission factors from Table C407.3(1).

2. Any heating or cooling energy provided by a low-carbon district energy exchange system shall utilize footnote a of Table C407.3(1) for the district system carbon emission factor in the proposed model.

3. Waste energy exported from the building to the *low-carbon district energy exchange system* shall not be considered purchased energy and shall be accounted for in the proposed design carbon emissions based on footnote a of Table C407.3(1) at the factors below:

3.1. Fifty percent of the waste heat exported to the *low-carbon district energy exchange system* during the months of October through

December and January through March shall be subtracted from the proposed design carbon emissions.

3.2. Twenty-five percent of the waste heat exported to the *low-carbon district energy exchange system* during the months of April through September shall be subtracted from the proposed design carbon emissions.

EXCEPTION: Waste heat exported from the building to the *low-carbon district heating and cooling or heating only system* shall not be subtracted from the proposed design carbon emissions if they are already accounted for in the calculation of emissions from the district heating or cooling plant.

Documentation for the low-carbon district system that is operational prior to the final inspection shall be provided to demonstrate that the definition of *low-carbon district energy exchange system* is satisfied.

C407.3.4 Credit for improvements in unregulated loads when using Appendix G. When calculating savings for site energy targets in accordance with Section C407.3 item 2.2, but not when calculating savings for emissions targets in accordance with Section C407.3 item 2.1, differences in the simulation of unregulated loads and equipment modeled in the baseline building design from those in the *proposed design* shall be approved by the *code official* based on documentation that the equipment installed in the *proposed design* represents a significant verifiable departure from documented current conventional practice. All unregulated equipment for which savings is claimed must be installed by the time of final inspection. The burden of this documentation is to demonstrate that accepted conventional practice would result in baseline building equipment different from that installed in the *proposed design*. Occupancy and occupancy schedules shall not be changed.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40703, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40703, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40703, filed 2/1/13, effective 7/1/13.]

NEW SECTION

WAC 51-11C-407031 Tables for Section C407.3.

Table C407.3(1)
Carbon Emissions Factors

Type	CO2e (lb/unit)	Unit
Electricity	0.44	kWh
Natural gas	11.7	Therm
Oil	19.2	Gallon
Propane	10.5	Gallon
Other[a]	195.00	mmBtu
On-site renewable energy	0.00	

[a] District energy systems may use alternative emissions factors supported by calculations approved by the *code official*.

Table C407.3(2)
Building Performance Factors (BPF) to be used for Compliance with Section C407.3

Building Area Type	Building Performance Factor
Multifamily	0.52
Health care/hospital	0.49
Hotel/motel	0.57
Office	0.50
Restaurant	0.63
Retail	0.43
School	0.33
Warehouse	0.43
All others	0.49

Table C407.3(3)
Site Energy Performance Targets to be used for Compliance with Section C407.3

Building Area Type	Building Performance Factor
Multifamily	0.58
Health care/hospital	0.57
Hotel/motel	0.62
Office	0.56
Restaurant	0.70
Retail	0.45
School	0.44
Warehouse	0.49
All others	0.55

[]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-407051 ((~~Tables for Section C407.5—Carbon emissions factors and building performance factors.~~)) Reserved.

((~~**Table C407.3(1)**~~
~~**Carbon Emissions Factors**~~

~~Type~~	~~CO2e (lb/unit)~~	~~Unit~~
~~Electricity~~	~~0.70~~	~~kWh~~
~~Natural Gas~~	~~11.7~~	~~Therm~~
~~Oil~~	~~19.2~~	~~Gallon~~
~~Propane~~	~~10.5~~	~~Gallon~~
~~Other[a]~~	~~195.00~~	~~mmBtu~~

~~Type~~	~~CO2e (lb/unit)~~	~~Unit~~
~~On-site renewable energy~~	~~0.00~~	

~~a District energy systems may use alternative emissions factors supported by calculations approved by the *code official*.~~

~~Table C407.3(2)~~
~~Building Performance Factors (BPF) to be used for Compliance with Section C407.3~~

~~Building Area Type~~	~~Building Performance Factor~~
~~Multifamily~~	~~0.58~~
~~Healthcare/hospital~~	~~0.54~~
~~Hotel/motel~~	~~0.64~~
~~Office~~	~~0.56~~
~~Restaurant~~	~~0.70~~
~~Retail~~	~~0.47~~
~~School~~	~~0.36~~
~~Warehouse~~	~~0.48~~
~~All others~~	~~0.54~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-407051, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-407051, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-407051, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-407051, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-407051, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40801 Section C408.1—General.

C408.1 General. A building commissioning process led by a *certified commissioning professional* and functional testing requirements shall be completed for mechanical systems in Section C403; service water heating systems in Section C404; controlled receptacle and lighting control systems in Section C405; equipment, appliances and systems installed to comply with Sections C406 or C407; energy metering in Section C409; and refrigeration systems in Section C410.

EXCEPTION: Buildings, or portions thereof, which are exempt from Sections C408.2 through C408.7 may be excluded from the commissioning process.

1. Mechanical systems that are not required to comply with Section C403.3.5 are exempt from the commissioning process where the installed total mechanical equipment capacity is less than ((~~240,000~~)) 180,000 Btu/h (15 tons) cooling capacity and less than ((~~300,000~~)) 240,000 Btu/h (20 tons) heating capacity and energy recovery ventilation (ERV) equipment is less than 300 cfm capacity.
2. Service water heating systems are exempt from the commissioning process in buildings where the largest service water heating system capacity is less than 200,000 Btu/h and where there are ((~~no pools or permanent spas.~~)) any of the following:
2.1. No pools or permanent spas.
2.2. No solar thermal water heating.
2.3. No recirculation pumps.

2.4. No heat pump water heaters, except fully-packaged for individual residential dwelling unit use.
3. Lighting control systems are exempt from the commissioning process in buildings where both the total installed lighting load is less than ((20)) 10 kW and the lighting load controlled by occupancy sensors or automatic daylighting controls is less than ((10)) 5 kW.
4. Refrigeration systems are exempt from the commissioning process in buildings if they are limited to self-contained units.

C408.1.1 Commissioning in construction documents. Construction documents shall clearly indicate provisions for commissioning process. The construction documents shall minimally include the following:

1. A narrative description of the activities that will be accomplished during the commissioning process. At a minimum, the commissioning process is required to include:

1.1. Development and execution of the commissioning plan, including all subsections of Section C408.1.2;

1.2. The *certified commissioning professional's* review of the building documentation and close out submittals in accordance with Section C103.6; and

1.3. The commissioning report in accordance with Section C408.1.3.

2. Roles, responsibilities, and required qualifications of the *certified commissioning professional*.

3. A listing of the specific equipment, appliances, or systems to be tested.

C408.1.2 Commissioning plan. A commissioning plan shall be developed by the project's *certified commissioning professional* and shall outline the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities, systems testing and balancing, functional performance testing, and verification of the building documentation requirements in Section C103.6.

2. Roles and responsibilities of the commissioning team, including the name and statement of qualifications of the *certified commissioning professional*.

3. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.

C408.1.2.1 In-house commissioning disclosure and conflict management plan. Where the *certified commissioning professional's* contract or employment is other than directly with the building owner, an in-house commissioning disclosure and conflict management plan shall be a part of the commissioning process. A copy shall be included in the commissioning plan. This plan shall disclose the *certified commissioning professional's* contractual relationship with other team members and provide a conflict management plan demonstrating that the *certified commissioning professional* is free to identify any issues discovered and report directly to the owner.

C408.1.2.2 Functional performance testing. Functional performance testing shall be conducted for mechanical systems in Sections C403; service water heating systems in Section C404; controlled receptacles and lighting control systems in Section C405; equipment, appliances, systems installed to comply with Section C406 or C407; energy metering in Section C409; and refrigeration systems in Section C410. Written procedures which clearly describe the individual systematic test procedures, the expected system response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion shall be followed. This testing shall include control systems which will be tested to document that control devices, components,

equipment, and systems are calibrated and adjusted to operate in accordance with approved construction documents. Testing shall affirm the conditions required within Sections C408.2 through C408.7 under system testing.

C408.1.2.3 Functional performance testing - Sampling. For projects with 7 or fewer similar systems, each system shall be tested. For projects with more than 7 systems, testing shall be done for each unique combination of control types. Where multiples of each unique combination of control types exist, no fewer than 20 percent of each combination shall be tested unless the code official or design professional requires a higher percentage to be tested. Where 30 percent or more of the tested system fail, all remaining identical combinations shall be tested.

C408.1.2.4 Deficiencies. Deficiencies found during testing shall be resolved including corrections and retesting.

C408.1.3 Commissioning report. A commissioning report shall be completed and certified by the *certified commissioning professional* and delivered to the building owner or owner's authorized agent. The report shall be organized with mechanical, service water heating, controlled receptacle and lighting control systems, energy metering, and refrigeration findings in separate sections to allow independent review. The report shall record the activities and results of the commissioning process and be developed from the final commissioning plan with all of its attached appendices. The report shall include:

1. Results of functional performance tests.
2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.
3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.
4. Commissioning plan.
5. Testing, adjusting and balancing report.

EXCEPTION: Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.

C408.1.4. Commissioning process completion requirements. Prior to the final mechanical, plumbing and electrical inspections or obtaining a certificate of occupancy, the *certified commissioning professional* shall provide evidence of *building commissioning* in accordance with the provisions of this section.

C408.1.4.1 Commissioning compliance. Buildings, or portions thereof, shall not be considered acceptable for a final inspection pursuant to Section C104.2.6 until the *code official* has received a letter of transmittal from the building owner acknowledging that the building owner or owner's authorized agent has received the Commissioning Report. Completion of Commissioning Compliance Checklist (Figure C408.1.4.1) is deemed to satisfy this requirement. Phased acceptance of Commissioning Compliance Checklist for portions of the work specific to the trade that is being inspected is permissible where accepted by the *code official* and where the *certified commissioning professional* remains responsible for completion of the commissioning process. If there are unresolved deficiencies when the final inspection is scheduled, the Commissioning Report shall be submitted and shall describe the unresolved deficiencies.

C408.1.4.2 Copy of report. The *code official* shall be permitted to require that a copy of the Commissioning Report be made available for review by the *code official*.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40801, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40801, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40801, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-40801, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40801, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40801, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-40901 Section C409.1—General.

C409.1 General. All new buildings and additions shall have the capability of metering all source energy usage in accordance with Section C409.2 in addition to the source energy for on-site renewable energy production in accordance with Section C409.2.4 and the end-use energy usage for electric vehicle charging in accordance with Section C409.3.4. New buildings and additions with a gross conditioned floor area over ((~~50,000~~)) 25,000 square feet shall comply with Sections((~~ C409. Buildings~~)) C409.2, C409.3, and C409.4. New buildings and additions shall be equipped to measure, monitor, record and display energy consumption data for each energy source and end use category per the provisions of this section, to enable effective energy management. Existing buildings shall comply with the energy metering provisions of Section C506.1.

EXCEPTIONS:
1. Tenant spaces smaller than ((~~50,000~~)) 25,000 square feet within buildings if the tenant space has its own utility service and utility meters shall comply with Section C409.2 and are exempt from the end-use metering, measurement devices, data acquisition system and energy display requirements of Sections C409.3 and C409.4.
2. Buildings in which there is no gross conditioned floor area over 25,000 square feet, including building common area, that is served by its own utility services and meters shall comply with Section C409.2 and are exempt from the end-use metering, measurement devices, data acquisition system and energy display requirements of Sections C409.3 and C409.4.

C409.1.1 Alternate metering methods. Where approved by the building official, energy use metering systems may differ from those required by this section, provided that they are permanently installed and that the source energy measurement, end use category energy measurement, data storage and data display have similar accuracy to and are at least as effective in communicating actionable energy use information to the building management and users, as those required by this section.

C409.1.2 Conversion factor. Any threshold stated in kW shall include the equivalent BTU/h heating and cooling capacity of installed equipment at a conversion factor of 3,412 Btu per kW ((~~at 50 percent demand~~)) or 2,730 Btu per kVA.

C409.1.3 Dwelling units. See Sections C404.9 and C405.7 for additional metering requirements for Group R-2 dwelling units.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40901, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40901, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40901, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-40904 Section C409.4—Measurement devices, data acquisition system and energy display.

C409.4 Measurement devices, data acquisition system and energy display.

C409.4.1 Meters. Meters and other measurement devices required by this section shall ((~~have local displays or~~)) be configured to automatically communicate energy data to a data acquisition system and energy display. Source meters may be any digital-type meters. Current sensors or flow meters are allowed for end use metering, provided that they have an accuracy of +/- 5%. All required metering systems and equipment shall provide ((~~at least hourly~~)) data that is fully integrated into the data acquisition and display system per the requirements of Section C409. Electrical meters shall be configured to communicate data to the data acquisition system and energy display for both consumption (e.g., kWh) and consumption rate (e.g., kW). Other meters and measurement devices shall be configured to communicate data to the data acquisition system for consumption.

C409.4.2 Data acquisition system. The data acquisition system shall store the data from the required meters and other sensing devices in a single database for a minimum of 36 months. For each energy supply and end use category required by C409.2 and C409.3, it shall provide ((~~real-time energy consumption data and logged data for any hour, day, month or year~~)) energy consumption logged in one-hour or less intervals and energy consumption rate logged in 10-minute or less intervals. Data from the data acquisition system shall be viewable via the energy display in accordance with the requirements of Section C409.4.3.

C409.4.3 Energy display. For each building subject to Section C409.2 and C409.3, either a single visible display in a location with *ready access*, or a single web page or other electronic document available for access to building operation and management personnel or to a third-party energy data analysis service shall be provided in the building ((~~available for access by~~)); for metering data acquisition systems and energy displays monitored by a third-party energy data analysis service, building operation and management personnel shall retain access to the metering data acquisition system and energy display. The display shall ((~~graphically~~)) numerically provide the current energy consumption rate and energy consumption total for each

whole building energy source((~~, plus~~)) and each end use category((~~, as well as the total and peak values for any day, week, month, and year~~)). The energy display shall also graphically and numerically display logged data from the data acquisition system for energy consumption and energy consumption rate for each whole building energy source and each end use category for any selected day, week, month, or year.

C409.4.4 Commissioning. Energy metering and energy consumption management systems shall be commissioned in accordance with Section ((~~C408~~)) C408.6.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-40904, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40904, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-13-089, § 51-11C-40904, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40904, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40905 ((~~Section C409.5 Metering for existing buildings.~~)) Reserved.

((~~**C409.5 Metering for existing buildings.**~~

~~**C409.5.1 Existing buildings that were constructed subject to the requirements of this section.** Where new or replacement systems or equipment are installed in an existing building that was constructed subject to the requirements of this section, metering shall be provided for such new or replacement systems or equipment so that their energy use is included in the corresponding end-use category defined in Section C409.2. This includes systems or equipment added in conjunction with additions or alterations to existing buildings.~~

~~**C409.5.1.1 Small existing buildings.** Metering and data acquisition systems shall be provided for additions over 25,000 square feet to buildings that were constructed subject to the requirement of this section, in accordance with the requirements of sections C409.2 and C409.3.~~))

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40905, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40905, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-41000 Section C410—Refrigeration system requirements.

C410.1 General. Walk-in coolers, walk-in freezers, refrigerated warehouse coolers, refrigerated warehouse freezers, and refrigerated display cases shall comply with this Section.

((~~Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with Section C402. Section C402.1.5 Component performance alternative, may be used if granted prior approval by the jurisdiction.~~

~~C410.1.1 Refrigeration equipment performance.~~ ~~Refrigeration equipment shall have an energy use in kWh/day not greater than the values of Tables C410.1(1) and C410.1(2) when tested and rated in accordance with AHRI Standard 1200. The energy use shall be verified through certification under an approved certification program or, where a certification program does not exist, the energy use shall be supported by data furnished by the equipment manufacturer.~~

~~Table C410.1.1(1)~~
~~Minimum Efficiency Requirements: Commercial Refrigeration~~

~~EQUIPMENT TYPE~~	~~APPLICATION~~	~~ENERGY USE LIMITS (kWh per day)[a]~~	~~TEST PROCEDURE~~
~~Refrigerator with solid doors~~	~~Holding Temperature~~	~~0.10 x V + 2.04~~	~~AHRI 1200~~
~~Refrigerator with transparent doors~~		~~0.12 x V + 3.34~~	
~~Freezers with solid doors~~		~~0.40 x V + 1.38~~	
~~Freezers with transparent doors~~		~~0.75 x V + 4.10~~	
~~Refrigerator/freezers with solid doors~~		~~The greater of 0.12 x V + 3.34 or 0.70~~	
~~Commercial refrigerators~~	~~Pulldown~~	~~0.126 x V + 3.51~~	

~~[a] V = Volume of the chiller for frozen compartment as defined in AHAM-HRF-1.~~

~~Table C410.1.1(2)~~
~~Minimum Efficiency Requirements: Commercial Refrigerators and Freezers~~

~~EQUIPMENT TYPE~~				~~ENERGY USE LIMITS (kWh per day)[a,b]~~	~~TEST PROCEDURE~~
~~Equipment Class[c]~~	~~Family Code~~	~~Operating Mode~~	~~Rating Temperature~~		
~~VOP.RC.M~~	~~Vertical open~~	~~Remote condensing~~	~~Medium~~	~~0.82 x TDA + 4.07~~	~~AHRI 1200~~
~~SVO.RC.M~~	~~Semivertical open~~	~~Remote condensing~~	~~Medium~~	~~0.83 x TDA + 3.18~~	
~~HZO.RC.M~~	~~Horizontal open~~	~~Remote condensing~~	~~Medium~~	~~0.35 x TDA + 2.88~~	
~~VOP.RC.L~~	~~Vertical open~~	~~Remote condensing~~	~~Low~~	~~2.27 x TDA + 6.85~~	
~~HZO.RC.L~~	~~Horizontal open~~	~~Remote condensing~~	~~Low~~	~~0.57 x TDA + 6.88~~	
~~VCT.RC.M~~	~~Vertical transparent door~~	~~Remote condensing~~	~~Medium~~	~~0.22 x TDA + 1.95~~	
~~VCT.RC.L~~	~~Vertical transparent door~~	~~Remote condensing~~	~~Low~~	~~0.56 x TDA + 2.61~~	
~~SOC.RC.M~~	~~Service over counter~~	~~Remote condensing~~	~~Medium~~	~~0.51 x TDA + 0.11~~	
~~VOP.SC.M~~	~~Vertical open~~	~~Self-contained~~	~~Medium~~	~~1.74 x TDA + 4.71~~	
~~SVO.SC.M~~	~~Semivertical open~~	~~Self-contained~~	~~Medium~~	~~1.73 x TDA + 4.59~~	

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
HZO.SC.M	Horizontal open	Self-contained	Medium	0.77 x TDA + 5.55	
HZO.SC.L	Horizontal open	Self-contained	Low	1.92 x TDA + 7.08	
VCT.SC.I	Vertical transparent door	Self-contained	Ice cream	0.67 x TDA + 3.29	
VCS.SC.I	Vertical solid door	Self-contained	Ice cream	0.38 x V + 0.88	
HCT.SC.I	Horizontal transparent door	Self-contained	Ice cream	0.56 x TDA + 0.43	
SVO.RC.L	Semivertical open	Remote condensing	Low	2.27 x TDA + 6.85	
VOP.RC.I	Vertical open	Remote condensing	Ice cream	2.89 x TDA + 8.7	
SVO.RC.I	Semivertical open	Remote condensing	Ice cream	2.89 x TDA + 8.7	
HZO.RC.I	Horizontal open	Remote condensing	Ice cream	0.72 x TDA + 8.74	
VCT.RC.I	Vertical transparent door	Remote condensing	Ice cream	0.66 x TDA + 3.05	
HCT.RC.M	Horizontal transparent door	Remote condensing	Medium	0.16 x TDA + 0.13	
HCT.RC.L	Horizontal transparent door	Remote condensing	Low	0.34 x TDA + 0.26	
HCT.RC.I	Horizontal transparent door	Remote condensing	Ice cream	0.4 x TDA + 0.31	
VCS.RC.M	Vertical solid door	Remote condensing	Medium	0.11 x V + 0.26	
VCS.RC.L	Vertical solid door	Remote condensing	Low	0.23 x V + 0.54	
VCS.RC.I	Vertical solid door	Remote condensing	Ice cream	0.27 x V + 0.63	
HCS.RC.M	Horizontal solid door	Remote condensing	Medium	0.11 x V + 0.26	
HCS.RC.L	Horizontal solid door	Remote condensing	Low	0.23 x V + 0.54	
HCS.RC.I	Horizontal solid door	Remote condensing	Ice cream	0.27 x V + 0.63	
SOC.RC.L	Service over counter	Remote condensing	Low	1.08 x TDA + 0.22	
SOC.RC.I	Service over counter	Remote condensing	Ice cream	1.26 x TDA + 0.26	
VOP.SC.L	Vertical open	Self-contained	Low	4.37 x TDA + 11.82	
VOP.SC.I	Vertical open	Self-contained	Ice cream	5.55 x TDA + 15.02	
SVO.SC.L	Semivertical open	Self-contained	Low	4.34 x TDA + 11.51	

~~EQUIPMENT TYPE~~				~~ENERGY USE LIMITS (kWh per day)[a,b]~~	~~TEST PROCEDURE~~
~~Equipment Class[c]~~	~~Family Code~~	~~Operating Mode~~	~~Rating Temperature~~		
~~SVO.SC.I~~	~~Semivertical open~~	~~Self-contained~~	~~Ice cream~~	~~5.52 x TDA + 14.63~~	
~~HZO.SC.I~~	~~Horizontal open~~	~~Self-contained~~	~~Ice cream~~	~~2.44 x TDA + 9.0~~	
~~SOC.SC.I~~	~~Service over counter~~	~~Self-contained~~	~~Ice cream~~	~~1.76 x TDA + 0.36~~	
~~HCS.SC.I~~	~~Horizontal solid door~~	~~Self-contained~~	~~Ice cream~~	~~0.38 x V + 0.88~~	

~~a V = Volume of the case, as measured in accordance with Appendix C of AHRI 1200.~~

~~b TDA = Total display area of the case, as measured in accordance with Appendix D of AHRI 1200.~~

~~c Equipment class designations consist of a combination [(in sequential order separated by periods (AAA).(BB).(C))] of:~~

~~(AAA) An equipment family code where:~~

~~VOP = Vertical open~~
~~SVO = Semi-vertical open~~
~~HZO = Horizontal open~~
~~VCT = Vertical transparent doors~~
~~VCS = Vertical solid doors~~
~~HCT = Horizontal transparent doors~~
~~HCS = Horizontal solid doors~~
~~SOC = Service over counter~~

~~(BB) An operating mode code:~~

~~RC = Remote condensing~~
~~SC = Self-contained~~

~~(C) A rating temperature code:~~

~~M = Medium temperature (38°F)~~
~~L = Low temperature (0°F)~~
~~I = Ice cream temperature (15°F)~~

~~For example, "VOP.RC.M" refers to the "vertical-open, remote-condensing, medium-temperature" equipment class.~~))

Table C410.2
Minimum Efficiency Requirements: Commercial Refrigerators and Freezers and Refrigeration

Equipment Category	Condensing Unit Configuration	Equipment Family	Rating Temp. °F	Operating Temp. °F	Equipment Classification[c]	Maximum Daily Energy Consumption kWh/day[d,e]	Test Standard
Remote condensing commercial refrigerators and commercial freezers	Remote (RC)	Vertical open (VOP)	38 (M)	≥32	VOP.RC.M	0.64 × TDA + 4.07	AHRI 1200
			0 (L)	<32	VOP.RC.L	2.20 × TDA + 6.85	
		Semivertical open (SVO)	38 (M)	≥32	SVO.RC.M	0.66 × TDA + 3.18	
			0 (L)	<32	SVO.RC.L	2.20 × TDA + 6.85	
		Horizontal open (HZO)	38 (M)	≥32	HZO.RC.M	0.35 × TDA + 2.88	
			0 (L)	<32	HZO.RC.L	0.55 × TDA + 6.88	
		Vertical closed transparent (VCT)	38 (M)	≥32	VCT.RC.M	0.15 × TDA + 1.95	
			0 (L)	<32	VCT.RC.L	0.49 × TDA + 2.61	
		Horizontal closed transparent (HCT)	38 (M)	≥32	HCT.RC.M	0.16 × TDA + 0.13	
			0 (L)	<32	HCT.RC.L	0.34 × TDA + 0.26	
		Vertical closed solid (VCS)	38 (M)	≥32	VCS.RC.M	0.10 × V + 0.26	
			0 (L)	<32	VCS.RC.L	0.21 × V + 0.54	
		Horizontal closed solid (HCS)	38 (M)	≥32	HCS.RC.M	0.10 × V + 0.26	
			0 (L)	<32	HCS.RC.L	0.21 × V + 0.54	
		Service over counter (SOC)	38 (M)	≥32	SOC.RC.M	0.44 × TDA + 0.11	
			0 (L)	<32	SOC.RC.L	0.93 × TDA + 0.22	

Equipment Category	Condensing Unit Configuration	Equipment Family	Rating Temp. °F	Operating Temp. °F	Equipment Classification[c]	Maximum Daily Energy Consumption kWh/day[d,e]	Test Standard
Self-contained commercial refrigerators and commercial freezers with and without doors	Self-contained (SC)	Vertical open (VOP)	38 (M)	≥32	VOP.RC.M	1.69 × TDA + 4.71	AHRI 1200
			0 (L)	<32	VOP.RC.L	4.25 × TDA + 11.82	
		Semivertical open (SVO)	38 (M)	≥32	SVO.RC.M	1.70 × TDA + 4.59	
			0 (L)	<32	SVO.RC.L	4.26 × TDA + 11.51	
		Horizontal open (HZO)	38 (M)	≥32	HZO.RC.M	0.72 × TDA + 5.55	
			0 (L)	<32	HZO.RC.L	1.90 × TDA + 7.08	
		Vertical closed transparent (VCT)	38 (M)	≥32	VCT.RC.M	0.10 × V + 0.86	
			0 (L)	<32	VCT.RC.L	0.29 × V + 2.95	
		Vertical closed solid (VCS)	38 (M)	≥32	VCS.RC.M	0.05 × V + 1.36	
			0 (L)	<32	VCS.RC.L	0.22 × V + 1.38	
Self-contained commercial refrigerators and commercial freezers with and without doors	Self-contained (SC)	Horizontal closed transparent (HCT)	38 (M)	≥32	HCT.RC.M	0.06 × V + 0.37	AHRI 1200
			0 (L)	<32	HCT.RC.L	0.08 × V + 1.23	
		Horizontal closed solid (HCS)	38 (M)	≥32	HCS.RC.M	0.05 × V + 0.91	
			0 (L)	<32	HCS.RC.L	0.06 × V + 1.12	
		Service over counter (SOC)	38 (M)	≥32	SOC.RC.M	0.52 × TDA + 1.00	
			0 (L)	<32	SOC.RC.L	1.10 × TDA + 2.10	
Self-contained commercial refrigerators with transparent doors for pull-down temperature applications	Self-contained (SC)	Pull-down	38(M)	≥32	PD.SC.M	0.11 × V + 0.81	AHRI 1200
Commercial ice cream freezers	Remote (RC)	Vertical open (VOP)	-15 (I)	≤-5[b]	VOP.RC.I	2.79 × TDA + 8.70	AHRI 1200
		Semivertical open (SVO)			SVO.RC.I	2.79 × TDA + 8.70	
		Horizontal open (HZO)			HZO.RC.I	0.70 × TDA + 8.74	
		Vertical closed transparent (VCT)			VCT.RC.I	0.58 × TDA + 3.05	
		Horizontal closed transparent (HCT)			HCT.RC.I	0.40 × TDA + 0.31	
		Vertical closed solid (VCS)			VCS.RC.I	0.25 × V + 0.63	
		Horizontal closed solid (HCS)			HCS.RC.I	0.25 × V + 0.63	
		Service over counter (SOC)			SOC.RC.I	1.09 × TDA + 0.26	
	Self-contained (SC)	Vertical open (VOP)	-15 (I)	≤-5[b]	VOP.SC.I	× TDA +	AHRI 1200
		Semivertical open (SVO)			SVO.SC.I	× TDA +	
		Horizontal open (HZO)			HZO.SC.I	× TDA +	
		Vertical closed transparent (VCT)			VCT.SC.I	× TDA +	
		Horizontal closed transparent (HCT)			HCT.SC.I	× TDA +	
		Vertical closed solid (VCS)			VCS.SC.I	× V +	
		Horizontal closed solid (HCS)			HCS.SC.I	× V +	
		Service over counter (SOC)			SOC.SC.I	× TDA +	

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot = 0.02832 m^3, °C = (°F – 32)/1.8.

[a] The meaning of the letters in this column is indicated in the columns to the left.

[b] Ice cream freezer is defined in DOE 10 C.F.R. Part 431.62 as a commercial freezer that is designed to operate at or below -5°F and that the manufacturer designs, markets or intends for the storing, displaying, or dispensing of ice cream.

[c] Equipment class designations consist of a combination [(in sequential order separated by periods (AAA).(BB).(C))] of:

(AAA) An equipment family code where:

VOP = Vertical open

SVO = Semi-vertical open
HZO = Horizontal open
VCT = Vertical transparent doors
VCS = Vertical solid doors
HCT = Horizontal transparent doors
HCS = Horizontal solid doors
SOC = Service over counter
(BB) An operating mode code:
RC = Remote condensing
SC = Self-contained
(C) A rating temperature code:
M = Medium temperature (38°F)
L = Low temperature (0°F)
I = Ice cream temperature (15°F)
For example, "VOP.RC.M" refers to the "vertical-open, remote-condensing, medium-temperature" equipment class.

[d] V is the volume of the case (ft^3) as measured in AHRI 1200, Appendix C.

[e] TDA is the total display area of the case (ft^2) as measured in AHRI 1200, Appendix D.

C410.2 Commercial refrigerators, freezers and refrigerator-freezers. Refrigeration equipment, defined in DOE 10 C.F.R. Part 431.62, shall have an energy use in kWh/day not greater than the values of Table C410.2 when tested and rated in accordance with AHRI Standard 1200. The energy use shall be verified through certification under an approved certification program or, where a certification program does not exist, the energy use shall be supported by data furnished by the equipment manufacturer.

C410.2.1 Refrigerated display cases. Refrigerated display cases shall comply with the following:

1. Lighting in refrigerated display cases shall be controlled by one of the following:

1.1. Time switch controls to turn off lights during nonbusiness hours. Timed overrides for display cases shall turn the lights on for up to 1 hour and shall automatically time out to turn the lights off.

1.2. Motion sensor controls on each display case section that reduce lighting power by at least 50 percent within 3 minutes after the area within the sensor range is vacated.

2. Low-temperature display cases shall incorporate temperature-based defrost termination control with a time-limit default. The defrost cycle shall terminate first on an upper temperature limit breach and second upon a time limit breach.

3. Antisweat heater controls shall reduce the energy use of the antisweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.

C410.3 Walk-in coolers, walk-in freezers, refrigerated warehouse coolers and refrigerated warehouse freezers. ((~~*Refrigerated warehouse coolers, refrigerated warehouse freezers, and all walk-in coolers and walk-in freezers* including site assembled, *site constructed and prefabricated units*~~)) Site-assembled and site-constructed *walk-in coolers* and *walk-in freezers* and *refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall comply with the following:

1. Automatic door-closers shall be provided that fully close walk-in doors that have been closed to within 1 inch (25 mm) of full closure.

EXCEPTION: Automatic closers are not required for doors more than 45 inches (1143 mm) in width or more than 7 feet (2134 mm) in height.

2. Doorways shall be provided with strip doors, curtains, spring-hinged doors or other method of minimizing infiltration when doors are open.

3. *Walk-in coolers* and *refrigerated warehouse coolers* shall be provided with wall, ceiling, and door insulation of not less than R-25 or have wall, ceiling and door assembly *U*-factors no greater than *U*-0.039. *Walk-in freezers* and *refrigerated warehouse freezers* shall be

provided with wall, ceiling and door insulation of not less than R-32 or have wall, ceiling and door assembly *U*-factors no greater than *U*-0.030.

EXCEPTION: Insulation is not required for glazed portions of doors or at structural members associated with the walls, ceiling or door frame.

4. The floor of *walk-in coolers* shall be provided with floor insulation of not less than R-25 or have a floor assembly *U*-factor no greater than *U*-0.40. The floor of *walk-in freezers* shall be provided with floor insulation of not less than R-28 or have a floor assembly *U*-factor no greater than *U*-0.035.

EXCEPTION: Insulation is not required in the floor of a *walk-in cooler* that is mounted directly on a slab on grade.

5. Transparent fixed window and reach-in doors for *walk-in freezers* and windows in *walk-in freezer* doors shall be provided with triple-pane glass, with the interstitial spaces filled with inert gas or be provided with heat-reflective treated glass.

6. Transparent fixed window and reach-in doors for *walk-in coolers* and windows for *walk-in coolers* doors shall be provided with double-pane or triple-pane glass, with interstitial space filled with inert gas, or be provided with heat-reflective treated glass.

7. Evaporator fan motors that are less than 1 hp (0.746 kW) and less than 460 volts shall be provided with electronically commutated motors, brushless direct-current motors, or 3-phase motors.

8. Condenser fan motors that are less than 1 hp (0.746 kW) shall use electronically commutated motors, permanent split capacitor-type motors or 3-phase motors.

9. Antisweat heaters that are not provided with antisweat heater controls shall have a total door rail, glass and frame heater power draw of not greater than 7.1 W/ft^2 (76 W/m^2) of door opening for *walk-in freezers* and not greater than 3.0 W/ft^2 (32 W/m^2) of door opening for *walk-in coolers*.

10. Where antisweat heater controls are provided, they shall be capable of reducing the energy use of the antisweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.

11. Lights in *walk-in coolers*, *walk-in freezers*, *refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall either be provided with light sources with an efficacy of not less than 40 lumens per watt, including ballast losses, or shall be provided with a device that automatically turns off the lights within 15 minutes of when the *walk-in cooler* or *walk-in freezer* space is not occupied.

((~~C410.2.1~~)) C410.3.1 Performance standards. Site-assembled and site-constructed *walk-in coolers* and *walk-in freezers* shall meet the requirements of Tables ((~~C410.2.1.1(1), C410.2.1.1(2), and C410.2.1.1(3)~~)) C410.3.1(1), C410.3.1(2), and C410.2.1(3).

Table ((~~C410.2.1.1(1)~~)) C410.3.1(1)
Walk-in Cooler and Freezer Display Doors Efficiency Requirements

Class Description	Class	Maximum Energy Consumption (kWh/day)[a]
Display door, medium temperature	DD, M	$0.04 \times A_{dd} + 0.41$
Display door, low temperature	DD, L	$0.15 \times A_{dd} + 0.29$

[a] A_{dd} is the surface area of the display door.

Table ((~~C410.2.1.1(2)~~)) C410.3.1(2) Walk-in Cooler and Freezer Nondisplay Doors Efficiency Requirements

Class Description	Class	Maximum Energy Consumption (kWh/day)[a]
Passage door, medium temperature	PD, M	$0.05 \times A_{nd} + 1.7$
Passage door, low temperature	PD, L	$0.14 \times A_{nd} + 4.8$
Freight door, medium temperature	FD, M	$0.04 \times A_{nd} + 1.9$
Freight door, low temperature	FD, L	$0.12 \times A_{nd} + 5.6$

[a] A_{nd} is the surface area of the display door.

Table ((~~C410.2.1.1(3)~~)) C410.3.1(3) Walk-in Cooler and Freezer Refrigeration Systems Efficiency Requirements

((~~Class Description~~	~~Class~~	~~Minimum Annual Walk-in Energy Factor AWEF (Btu/hW-h)~~
~~Dedicated condensing, medium temperature, indoor system~~	~~DC.M.I~~	~~5.61~~
~~Dedicated condensing, medium temperature, indoor system, >9,000 Btu/h capacity~~	~~DC.M.I, >9,000~~	~~5.61~~
~~Dedicated condensing, medium temperature, outdoor system~~	~~DC.MI~~	~~7.60~~
~~Dedicated condensing, medium temperature, outdoor system, >9,000 Btu/h capacity~~	~~DC.M.I, >9,000~~	~~7.60~~))

Class Description	Class	Minimum Annual Walk-in Energy Factor AWEF (Btu/hW-h)	Test Procedure
Dedicated condensing, medium temperature, indoor system	DC.M.I	5.61	AHRI 1250
Dedicated condensing, medium temperature, outdoor system	DC.M.O	7.60	
Dedicated condensing, low temperature, indoor system, net capacity (q_{net}) < 6,500 Btu/h	DC.L.I, < 6,500	$9.091 \times 10^{-5} \times q_{net} + 1.81$	
Dedicated condensing, low temperature, indoor system, net capacity (q_{net}) ≥ 6,500 Btu/h	DC.L.I, ≥ 6,500	2.40	
Dedicated condensing, low temperature, outdoor system, net capacity (q_{net}) < 6,500 Btu/h	DC.L.O, < 6,500	$9.091 \times 10^{-5} \times q_{net} + 2.73$	
Dedicated condensing, low temperature, outdoor system, net capacity (q_{net}) ≥ 6,500 Btu/h	DC.L.O, ≥ 6,500	3.15	
Unit cooler, medium	UC.M	9.00	

Class Description	Class	Minimum Annual Walk-in Energy Factor AWEF (Btu/hW-h)	Test Procedure
Unit cooler, low temperature, net capacity (q_{net}) < 15,500 Btu/h	UC.L, < 15,500	$9.091 \times 10^{-5} \times q_{net} + 2.73$	
Unit cooler, low temperature, net capacity (q_{net}) ≥ 15,500 Btu/h	UC.L, ≥ 15,500	4.15	

((~~C410.2.2~~)) C410.4 Refrigerated ((~~display~~)) case((s)) and walk-on display doors. ((~~Site-assembled or site-constructed refrigerated display cases~~)) Lighting in glass doors in all *walk-in coolers* and *walk-in freezers* and all *refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall comply with the following:

1. ((~~Lighting and glass doors in refrigerated display cases shall be controlled by one of the following:~~

~~1.1.~~)) Time switch controls to turn off lights during nonbusiness hours. Timed overrides for display cases shall turn the lights on for up to 1 hour and shall automatically time out to turn the lights off.

((~~1.2.~~)) 2. Motion sensor controls on each display case section that reduce lighting power by at least 50 percent within 3 minutes after the area within the sensor range is vacated.

((~~2. Low-temperature display cases shall incorporate temperature-based defrost termination control with a time-limit default. The defrost cycle shall terminate first on an upper temperature limit breach and second upon a time limit breach.~~

~~3. Antisweat heater controls shall reduce the energy use of the antisweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.~~

~~C410.3~~)) **C410.5 Refrigeration systems.** Refrigerated display cases, *walk-in coolers* or *walk-in freezers* that are served by remote compressor and remote condensers not located in a *condensing unit*, shall comply with Sections ((~~C410.4.1, C410.4.2~~)) C410.5.1, C410.5.2, and C403.9.2.3.

EXCEPTION: Systems where the working fluid in the refrigeration cycle goes through both subcritical and supercritical states (transcritical) or that use ammonia refrigerant are exempt.

((~~C410.3.1~~)) C410.5.1 Condensers serving refrigeration systems. Fan-powered condensers shall comply with the following:

1. The design *saturated condensing temperatures* for air-cooled condensers shall not exceed the design dry-bulb temperature plus 10°F (5.6°C) for low-*temperature refrigeration systems*, and the design dry-bulb temperature plus 15°F (8°C) for *medium temperature refrigeration systems* where the *saturated condensing temperature* for blend refrigerants shall be determined using the average of liquid and vapor temperatures as converted from the condenser drain pressure.

2. Condenser fan motors that are less than 1 hp (0.75 kW) shall use electronically commutated motors, permanent split-capacitor-type motors or 3-phase motors.

3. Condenser fans for air-cooled condensers, evaporatively cooled condensers, air- or water-cooled fluid coolers or cooling towers shall reduce fan motor demand to not more than 30 percent of design wattage at 50 percent of design air volume, and incorporate one of the following continuous variable speed fan control approaches:

3.1. Refrigeration system condenser control for air-cooled condensers shall use variable setpoint control logic to reset the condensing temperature setpoint in response to ambient dry-bulb temperature.

3.2. Refrigeration system condenser control for evaporatively cooled condensers shall use variable setpoint control logic to reset the condensing temperature setpoint in response to ambient wet-bulb temperature.

4. Multiple fan condensers shall be controlled in unison.

5. The minimum condensing temperature setpoint shall be not greater than 70°F (21°C).

((~~C410.3.2~~)) C410.5.2 Compressor systems. Refrigeration compressor systems shall comply with the following:

1. Compressors and multiple-compressor system suction groups shall include control systems that use floating suction pressure control logic to reset the target suction pressure temperature based on the temperature requirements of the attached refrigeration display cases or walk-ins.

EXCEPTION: Controls are not required for the following:
1. Single-compressor systems that do not have variable capacity capability.
2. Suction groups that have a design saturated suction temperature of 30°F (-1.1°C) or higher, suction groups that comprise the high stage of a two-stage or cascade system, or suction groups that primarily serve chillers for secondary cooling fluids.

2. Liquid subcooling shall be provided for all low-temperature compressor systems with a design cooling capacity equal to or greater than 100,000 Btu/hr (29.3 kW) with a design-saturated suction temperature of -10°F (-23°C) or lower. The subcooled liquid temperature shall be controlled at a maximum temperature setpoint of 50°F (10°C) at the exit of the subcooler using either compressor economizer (interstage) ports or a separate compressor suction group operating at a saturated suction temperature of 18°F (-7.8°C) or higher.

2.1. Insulation for liquid lines with a fluid operating temperature less than 60°F (15.6°C) shall comply with Table C403.2.10.

3. Compressors that incorporate internal or external crankcase heaters shall provide a means to cycle the heaters off during compressor operation.

((~~C410.4~~)) C410.6 Commissioning. Refrigeration systems shall be commissioned in accordance with Section C408.

EXCEPTION: Self-contained units.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-41000, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-41000, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-41000, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-41000, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-41000, filed 1/19/16, effective 7/1/16.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-41100 Section C411—((~~Solar readiness.~~)) Renewable energy.

C411.1 ((~~General.~~)) On-site renewable energy. Each new building, or addition larger than 10,000 square feet of gross *conditioned floor area*, shall include a renewable energy generation system consisting of not less than 0.5 W/ft^2 or 1.7 Btu/ft^2 multiplied by the sum of the gross *conditioned floor area*.

EXCEPTIONS:
1. Any building where more than 50 percent of the roof area is shaded from direct beam sunlight by natural objects or by structures that are not part of the building for more than 2500 annual hours between 8:00 a.m. and 4:00 p.m.
2. Any building where more than 80 percent of the roof area is covered by any combination of equipment other than for on-site renewable energy systems, planters, vegetated space, skylights or occupied roof deck.
3. Alterations that do not include additions.

C411.1.1 Additional efficiency credits.

C411.1.1.1 On-site renewable energy reduced. Buildings which qualify for one of the exceptions in Section C411.1 to omit installation of on-site renewable energy must achieve an additional 18 efficiency package credits from Table C406.2.

C411.1.1.2 On-site renewable energy capacity increased. Buildings which install PV systems which exceed the capacity requirements of Section C411.1 may achieve additional efficiency package credits as described in Section C406.2.5.

C411.1.1.3 Partial capacity. On-site renewable energy installations of lower than required capacity can be counted proportionally toward achievement of required or additional efficiency credits in Section C411.1.1 based on the capacity of renewable energy installed compared to the requirements of Section C411.1.

C411.2 On-site and off-site renewable energy accounting for use with Appendix G. Qualifying on-site and off-site renewable energy delivered or credited to the building project to comply with Section C407.3 item 2.2 shall meet the requirements of this section. Renewable energy certificates for an on-site or off-site renewable energy system shall be retired on behalf of the building owner for a period of not less than 15 years and tracked in accordance with Section C407.3.2.3 and submitted to the code official as part of the permit application.

C411.2.1 Qualifying types of off-site renewable energy systems. The following are considered qualifying off-site renewable energy systems:

1. Systems connected to the Western Interconnection.
2. Self-generation (an off-site renewable energy system owned by the building project owner) systems complying with Section C407.3.2.2.
3. Community renewable energy facility systems complying with Section C407.3.2.2.
4. Purchase contracts complying with Section C407.3.2.3.
5. Each source of renewable energy delivered to or credited to the building project shall be multiplied by the factors in Table C407.3.2.1 and subtracted from the proposed building site energy use.

Table C411.3.1
Multipliers for Renewable Energy Procurement Methods

Location	Renewable Energy Source	Renewable Energy Factor		
		In the state of Washington	Western Interconnected	In the states of Oregon or Idaho
On-site	On-site renewable energy system	1	NA	NA
Off-site	Directly owned off-site renewable energy system that begins operation after submission of the initial permit application	0.95	0.75	0.85
Off-site	Community renewable energy facility that begins operation after submission of the initial permit application	0.95	0.75	0.85
Off-site	Directly owned off-site renewable energy system that begins operation before submission of the initial permit application	0.75	0.55	0.65
Off-site	Community renewable energy facility that begins operation before submission of the initial permit application	0.75	0.55	0.65
Off-site	Renewable Power Purchase Agreement (PPA)	0.75	0.55	0.65

C411.2.2 Documentation requirements for off-site renewable energy systems. Off-site renewable energy delivered or credited to the building project to comply with Section C407.3 item 2.2 shall be subject to a legally binding contract to procure qualifying off-site renewable energy. Qualifying off-site renewable energy shall meet the following requirements:

1. Documentation of off-site renewable energy procurement shall be submitted to the *code official*.

2. The purchase contract shall have a duration of not less than 15 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.

3. Records on renewable power purchased by the building owner from the off-site renewable energy generator that specifically assign the RECs to the building owner shall be retained or retired by the building owner on behalf of the entity demonstrating financial or operational control over the building seeking compliance to this standard and made available for inspection by the *code official* upon request.

4. Where multiple buildings in a building project are allocated energy procured by a contract subject to this section, the owner shall allocate for not less than 15 years the energy procured by the contract to the buildings in the building project. A plan on operation shall be developed which shall indicate how renewable energy produced from on-site or off-site systems that is not allocated before issuance of the certificate of occupancy will be allocated to new or existing buildings included in the building project.

C411.2.3 Renewable energy certificate (REC) tracking. For multitenant buildings where RECs are transferred to tenants, the plan for operation shall include procedures for tracking the quantity and vintage of RECs that are required to be retained and retired. The plan shall include provisions to transfer the RECs to building tenants, or to retire RECs on their behalf, in proportion to the gross conditioned and semi-heated floor area leased or rented. The plan shall include provisions to use a REC tracking system that meets the requirements of Section V.B of the Green-e Framework for Renewable Energy Certification.

The plan shall describe how the building owner will procure alternative qualifying renewable energy in the case that the renewable energy producer ceases.

C411.3 Solar readiness. A solar zone shall be provided on nonresidential buildings that are 20 stories or less in height above grade plan. The solar zone shall be located on the roof of the building or on another structure elsewhere on the site. The solar zone shall be in accordance with Sections C411.2 through C411.8 and the *International Fire Code*.

EXCEPTION: A solar zone is not required ((~~where the solar exposure of the building's roof area is less than 75 percent of that of an unshaded area, as defined in Section C411.5, in the same location, as measured by one of~~)) under the following conditions:
1. Where the solar exposure of the building's roof area is less than 75 percent of that of an unshaded area, as defined in Section C411.5, in the same location, as measured by one of the following:
1.1. Incident solar radiation expressed in kWh/ft^2-yr using typical meteorological year (TMY) data.
((~~2.~~)) 1.2. Annual sunlight exposure expressed in cumulative hours per year using TMY data.
((~~3.~~)) 1.3. Shadow studies indicating that the roof area is more than 25 percent in shadow, on September 21st at 10 a.m., 11 a.m., 12 p.m., 1 p.m., and 2 p.m. solar time.
2. Buildings, building additions, changes in space conditioning or occupancy where the total floor area is equal to or less than 500 square feet.

((~~C411.2~~)) C411.3.1 Minimum area. The minimum area of the solar zone shall be determined by one of the following methods, whichever results in the smaller area:

1. 40 percent of roof area. The roof area shall be calculated as the horizontally projected gross roof area less the area covered by skylights, occupied roof decks, mechanical equipment, and planted areas.

2. 20 percent of electrical service size. The electrical service size is the rated capacity of the total of all electrical services to the building, and the required solar zone size shall be based upon 10 peak watts of photovoltaic per square foot.

EXCEPTION: Subject to the approval of the code official, buildings with extensive rooftop equipment that would make full compliance with this section impractical shall be permitted to reduce the size of the solar zone required by Section C411.2 to the maximum practicable area.

((~~C411.3~~)) C411.3.2 Contiguous area. The solar zone is permitted to be comprised of separated subzones. Each subzone shall be at least 5 feet wide in the narrowest dimension.

((~~C411.4~~)) C411.3.3 Obstructions. The solar zone shall be free of pipes, vents, ducts, HVAC equipment, skylights and other obstructions, except those serving photovoltaic systems within the solar zone. The solar zone is permitted to be located above any such obstructions, provided that the racking for support of the future system is installed at the time of construction, the elevated solar zone does not shade other portions of the solar zone, and its height is permitted by the *International Building Code*. Photovoltaic or solar water heating systems are permitted to be installed within the solar zone.

((~~C411.5~~)) C411.3.4 Shading. The solar zone shall be set back from any existing or new object on the building or site that is located south, east or west of the solar zone a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees, and roof plantings. No portion of the solar zone shall be located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

((~~C411.6~~)) C411.3.5 Access. Areas contiguous to the solar zone shall provide access pathways and provisions for emergency smoke ventilation as required by the *International Fire Code*.

((~~C411.7~~)) C411.3.6 Structural integrity. The as-designed dead load and live load for the solar zone shall be clearly marked on the record drawings and shall accommodate future photovoltaic system arrays at an assumed dead load of 4 pounds per square foot in addition to other required live and dead loads. A location for future inverters shall be designated either within or adjacent to the solar zone, with a minimum area of 2 square feet for each 1000 square feet of solar zone area, and shall accommodate an assume dead load of 175 pounds per square foot. Where photovoltaic systems are installed in the solar zone, structural analysis shall be based upon calculated loads, not upon these assumed loads.

((~~C411.8~~)) C411.3.7 Photovoltaic interconnection. Interconnection of the future photovoltaic system shall be provided for at the main service panel, either ahead of the service disconnecting means or at the end of the bus opposite the service disconnecting means, in one of the following forms:

1. A space for the mounting of a future overcurrent device, sized to accommodate the largest standard rated overcurrent device that is less than 20 percent of the bus rating.
2. Lugs sized to accommodate conductors with an ampacity of at least 20 percent of the bus rating, to enable the mounting of an external overcurrent device for interconnection.

The electrical construction documents shall indicate all of the following:

1. Solar zone boundaries and access pathways.
2. Location for future inverters and metering equipment.
3. Route for future wiring between the photovoltaic panels and the inverter, and between the inverter and the main service panel.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-41100, filed 11/26/19, effective 7/1/20.]

NEW SECTION

WAC 51-11C-41200 Section C412—Compressed air systems.

C412.1 General. All new *compressed air systems*, and all additions or alterations of *compressed air systems* where the total combined horsepower (hp) of the compressor(s) is 25 hp or more, shall meet the requirements of this section. These requirements apply to the compressors, related piping systems, and related controls that provide compressed air and do not apply to any equipment or controls that use or process the compressed air.

EXCEPTION: Medical gas compressed air systems in health care facilities.

C412.2 Trim compressor and storage. The compressed air system shall be equipped with an appropriately sized trim compressor and primary storage to provide acceptable performance across the range of the system and to avoid control gaps. The compressed air system shall comply with 1 or 2 below:

1. The *compressed air system* shall include one or more variable speed drive (VSD) compressors. For systems with more than one compressor, the total combined capacity of the VSD compressor(s) acting as

trim compressors must be at least 1.25 times the *largest net capacity increment* between combinations of compressors. The *compressed air systems* hall include *primary storage* of at least one gallon per actual cubic feet per minute (acfm) of the largest trim compressor; or

2. The *compressed air system* shall include a compressor or set of compressors with total effective trim capacity at least the size of the *largest net capacity increment* between combinations of compressors, or the size of the smallest compressor, whichever is larger. The total effective trim capacity of single compressor systems shall cover at least the range from 70 percent to 100 percent of rated capacity. The effective trim capacity of a compressor is the size of the continuous operational range where the specific power of the compressor (kW/100 acfm) is within 15 percent of the specific power at its most efficient operating point. The total effective trim capacity of the system is the sum of the effective trim capacity of the trim compressors. The system shall include *primary storage* of at least 2 gallons per acfm of the largest trim compressor.

EXCEPTIONS:
1. Alterations where the total combined added or replaced compressor horsepower is less than the average per-compressor horsepower of all compressors in the system.
2. Alterations where all added or replaced compressors are variable speed drive (VSD) compressors and *compressed air systems* includes *primary storage* of at least one gallon per acfm of the largest trim compressor.
3. *Compressed air systems* that have been pre*approved* as having demonstrated that the system serves loads for which typical air demand fluctuates less than 10 percent.
4. Alterations of existing *compressed air systems* that include one or more centrifugal compressors.

C412.3 Controls. *Compressed air systems* with three or more compressors and a combined horsepower rating of more than 100 hp, shall operate with controls that are able to choose the most energy efficient combination and loading of compressors within the system based on the current compressed air demand.

C412.4 Monitoring. *Compressed air systems* having a combined horsepower rating equal to or greater than 100 hp shall have an energy and air demand monitoring system with the following minimum requirements:

1. Measurement of system pressure.
2. Measurement of amps or power of each compressor.
3. Measurement or determination of total airflow from compressors in cfm.
4. Data logging of pressure, power in kW, airflow in cfm, and *compressed air system* specific efficiency in kW/100 cfm at intervals of five minutes or less.
5. Maintained data storage of at least the most recent 24 months.
6. Visual trending display of each recorded point, load and specific efficiency.

C412.5 Leak testing of compressed air piping. *Compressed air system* piping greater than 50 adjoining feet in length shall be pressure tested after being isolated from the compressed air supply and end-uses. The piping shall be pressurized to the design pressure and test pressures shall be held for a length of time at the discretion of the local jurisdiction, but in no case for less than 30 minutes, with no perceptible drop in pressure.

If dial gauges are used for conducting this test, for pressure tests less than or equal to 100 psi (689 kPa) gauges shall be incremented in units of 1 psi (7 kPa) less, for pressure tests greater than 100 psi (689 kPa) gauges shall be incremented in units less than 2 percent of the test pressure. Test gauges shall have a pressure range not exceeding twice the test pressure.

Piping less than or equal to 50 adjoining feet in length shall be pressurized and inspected. Connections shall be tested with a noncor-

rosive leak-detecting fluid or other leak-detecting methods as pre*approved* by the local jurisdiction.

C412.6 Pipe sizing. Compressed air piping greater than 50 adjoining feet in length shall be designed and installed to minimize frictional losses in the distribution network. These piping installations shall meet the requirements of Section C412.6.1 and either Section C412.6.2 or C412.6.3.

C412.6.1 Service line piping. Service line piping shall have inner diameters greater than or equal to 3/4 inch. Service line piping are pipes that deliver compressed air from distribution piping to end uses.

C412.6.2 Piping section average velocity. Compressor room interconnection and main header piping shall be sized so that at coincident peak flow conditions, the average velocity in the segment of pipe is no greater than 20 ft/sec. Compressor room interconnection and main header piping are the pipes that deliver compressed air from the compressor outlets to the inlet to the distribution piping. Each segment of distribution and service piping shall be sized so that at coincident peak flow conditions, the average velocity in the segment of pipe is no greater than 30 ft/sec. Distribution piping are pipes that deliver compressed air from the compressor room interconnection piping or main header piping to the service line piping.

C412.6.3 Piping total pressure drop. Piping shall be designed such that piping frictional pressure loss at coincident peak loads are less than 5 percent of operating pressure between the compressor and end use or end use regulator.

C412.6 Compressed air system acceptance. Before an occupancy permit is granted for a *compressed air system*, a certificate of acceptance shall be submitted to the enforcement agency that certifies that the equipment and systems meet the requirements of this code.

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AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-50000 Chapter 5 [CE]—Existing buildings.

C501 General.

C501.1 Scope. The provisions of this chapter shall control the *alteration*, *repair*, *addition* and change of occupancy of existing buildings and structures.

((~~C501.2~~)) C501.1.1 Existing buildings. Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

C501.2 Compliance. *Additions*, *alterations*, *repairs*, changes in space conditioning and changes of occupancy to, or relocation of, existing buildings and structures shall comply with Section C502, C503, C504, or C505 of this code, and with all applicable provisions in the *Inter-*

national Building Code, *International Existing Building Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *Uniform Plumbing Code*, and NFPA 70.

C501.2.1 *U*-factor requirements for additions and alterations. For existing building projects where an *addition* or *building envelope alteration* area is combined with existing-to-remain building areas to demonstrate compliance with this code as a whole building, the *U*-factors applied to existing-to-remain envelope assemblies shall be in accordance with record documents.

EXCEPTION: If accurate record documents are not available, *U*-factors for the existing envelope assemblies may be in accordance with the edition of the Washington State Energy Code that was in effect at the time the building was permitted, or as approved by the *code official*.

C501.2.2 Calculations of mechanical heating and cooling loads for alterations. For the installation of new or replacement mechanical equipment that serves existing building areas, design loads associated with heating, cooling and ventilation of the existing building areas served shall be determined in accordance with Section C403.1.2.

R-values and *U*-factors used to determine existing thermal envelope performance for the purpose of calculating design loads shall be in accordance with record documents or existing conditions.

EXCEPTION: If accurate record documents are not available, *R*-values and *U*-factors used to determine existing building thermal envelope performance may be in accordance with the edition of the Washington State Energy Code that was in effect at the time the building was permitted, or as *approved* by the *code official*.

C501.3 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices and systems which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's authorized agent shall be responsible for the maintenance of buildings and structures. The requirements of this chapter shall not provide the basis for removal or abrogation of energy conservation, fire protection and safety systems and devices in existing structures.

((**C501.4 Compliance.** *Alterations*, *repairs*, *additions* and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for *alterations*, *repairs*, *additions* and changes of occupancy or relocation, respectively, in this code and in the *International Building Code*, *International Existing Building Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *Uniform Plumbing Code*, and NFPA 70.

C501.4.1 *U*-factor requirements for additions and alterations. For existing building projects where an *addition* or *building envelope alteration* area is combined with existing-to-remain building areas to demonstrate compliance with this code as a whole building, the *U*-factors applied to existing-to-remain envelope assemblies shall be in accordance with record documents.

EXCEPTION: If accurate record documents are not available, *U*-factors for the existing envelope assemblies may be in accordance with the edition of the Washington State Energy Code that was in effect at the time the building was permitted, or as approved by the *code official*.

C501.4.2 Calculations of mechanical heating and cooling loads for alterations. For the installation of new or replacement mechanical equipment that serves existing building areas, design loads associated with heating, cooling and ventilation of the existing building areas served shall be determined in accordance with Section C403.1.2.

R-values and *U*-factors used to determine existing thermal envelope performance for the purpose of calculating design loads shall be in accordance with record documents or existing conditions.

~~EXCEPTION: If accurate record documents are not available, *R*-values and *U*-factors used to determine existing building thermal envelope performance may be in accordance with the edition of the Washington State Energy Code that was in effect at the time the building was permitted, or as *approved* by the *code official*.~~

~~C501.5~~)) C501.4 **New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

((~~C501.6~~)) C501.5 Historic buildings. ((~~The building official may modify the specific requirements of this code for historic buildings and require alternate provisions which will result in a reasonable degree of energy efficiency. This modification may be allowed for those buildings or structures that are listed in the state or national register of historic places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a national register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the national or state registers of historic places either individually or as a contributing building to a historic district by the state historic preservation officer or the keeper of the national register of historic places.~~)) Provisions of this code relating to the construction, *repair*, *alteration*, restoration and movement of structures, and *change of occupancy* shall not be mandatory for historic buildings provided that a report has been submitted to the code official and signed by a registered design professional, or a representative of the state historic preservation office or the historic preservation authority having jurisdiction, demonstrating that compliance with that provision would threaten, degrade or destroy the historic form, fabric or function of the building.

((~~C501.7~~)) C501.6 Commissioning. Existing building systems shall be commissioned in accordance with Section C408. For the purposes of meeting the commissioning thresholds in Section C408.1, only the new and altered system capacities are considered when determining whether the project is exempt from some portion of the commissioning process.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-50000, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-50000, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-50000, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-50000, filed 2/1/13, effective 7/1/13.]

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AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-50200 Section C502—Additions.

C502.1 General. *Additions* to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. *Additions* shall not create an unsafe or hazardous condition or overload existing building systems. An *addition* shall be deemed to comply with this code if the *addition* alone complies or if the existing building and *addition* comply with this code as a single building. ((~~*Additions* shall comply with Sections C402, C403, C404, C405, C406, C409.5, C410 and C502.2.~~

~~**C502.2 Prescriptive compliance.** *Additions* shall comply with Sections C502.2.1 through C502.2.6.2.~~

~~**C502.2.1 Vertical fenestration.** Additions with *vertical fenestration* that results in a total building vertical fenestration area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. *Additions* with *vertical fenestration* that results in a total building vertical fenestration area greater than that specified in Section C402.4.1 shall comply with one of the following:~~

~~1. Component performance alternative with target area adjustment per Section C402.1.5 for the addition area of the building only.~~

~~2. Existing building and addition area are combined to demonstrate compliance with the component performance alternative for the whole building.~~

~~3. Total building performance in accordance with Section C407 for the addition area of the building only.~~

~~4. Total building performance for the whole building.~~

~~**C502.2.2 Skylight area.** *Additions* with *skylights* that result in a total building skylight area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. Additions with skylights that result in a total building skylight area greater than that specified in Section C402.4.1 shall comply with one of the following:~~

~~1. Vertical fenestration alternate per Section C402.4.1.1 or C402.4.1.3 for the *addition* area of the building only.~~

~~2. Component performance alternative with target area adjustment per Section C402.1.5 for the addition area of the building only.~~

~~3. Existing building and addition area are combined to demonstrate compliance with the component performance alternative for the whole building.~~

~~4. Total building performance in accordance with Section C407 for the addition area of the building only.~~

~~5. Total building performance for the whole building.~~

~~**C502.2.3 Building mechanical systems.** New mechanical systems and equipment serving the building heating, cooling or ventilation needs, that are part of the addition, shall comply with Section C403.~~

~~**C502.2.4 Service water heating systems.** New service water-heating equipment, controls and service water heating piping shall comply with Section C404.~~

~~**C502.2.5 Pools and permanent spas.** New pools and permanent spas shall comply with Section C404.11.~~

~~**C502.2.6 Lighting and power systems.** New lighting systems that are installed as part of the addition shall comply with Section C405.~~

~~**C502.2.6.1 Interior lighting power.** The total interior lighting power for the addition shall comply with Section C405.4.2 for the addition alone, or the existing building and the addition shall comply as a single building.~~

~~**C502.2.6.2 Exterior lighting power.** The total exterior lighting power for the addition shall comply with Section C405.5.1 for the addition alone, or the existing building and the addition shall comply as a single building.~~

~~**C502.2.7 Refrigeration systems.** New refrigerated spaces and refrigeration equipment shall comply with Section C410.~~)) This allowance applies to prescriptive compliance in accordance with Section C502.2 or total building performance in accordance with Section C407.

C502.1.1 Additional energy efficiency credits. Additions shall comply with Section C406.1. The addition shall be deemed to comply with this section if the addition alone complies or if the addition area is combined with existing building areas to demonstrate compliance with an additional efficiency credit.

C502.1.2 Renewable energy. Additions shall comply with Section C411. The addition shall be deemed to comply with this section if the addition alone complies or if the addition area is combined with existing building areas to demonstrate compliance with the requirements for on-site renewable energy or solar readiness, as applicable.

C502.2 Prescriptive compliance. *Additions* shall comply with Sections C502.3 through C502.8.

C502.2.2 Skylights. *Additions* with *skylights* shall comply with the following:

1. Where an *addition* with skylight area results in a total building skylight area less than or equal to the maximum allowed by Section C402.4.1, the *addition* shall comply with Section C402.4.

2. Where an *addition* with skylight area results in a total building skylight area greater than the maximum allowed by Section C402.4.1 (regardless of the ratio prior to the *addition*), the *addition* shall comply with one of the following:

2.1. Component performance alternative with target area adjustment per Section C402.1.5 for the addition area of the building only.

2.2. Existing building and addition area are combined to demonstrate compliance with the component performance alternative for the whole building. *U*-factors applied to existing envelope assemblies in the UA calculation shall comply with Section C501.2.1.

2.3. Total building performance in accordance with Section C407 for the addition area of the building only.

2.4. Total building performance for the whole building.

C502.2.4 Building mechanical systems. New mechanical systems and equipment serving the building heating, cooling or ventilation needs, that are installed as a part of the *addition* shall comply with Sections C403, C408.2, C409.5, and C501.6.

C502.2.5 Service water heating systems. New service water-heating systems and equipment that are installed as a part of the *addition* shall comply with Sections C404, C408.3, C409.5, and C501.6.

C502.2.6 Pools and permanent spas. Systems and equipment serving new pools and permanent spas that are installed as a part of the *addition* shall comply with Sections C404.11, C408.3, C409.5, and C501.6.

C502.2.7 Electrical power and lighting systems and motors. New electrical power and lighting systems and motors that are installed as a part of the *addition* shall comply with Sections C405, C408.4, C409.5, and C501.6.

C502.2.7.1 Interior lighting power. The total interior lighting power for the addition shall comply with Section C405.4.2 for the addition alone, or the existing building and the addition shall comply as a single building.

C502.2.7.2 Exterior lighting power. The total exterior lighting power for the addition shall comply with Section C405.5.2 for the addition alone, or the existing building and the addition shall comply as a single building.

C502.2.8 Refrigeration systems. New refrigerated spaces and refrigeration systems and equipment that are installed as a part of the *addition* shall comply with Sections C408.7, C409.5, C410, and C501.6.

C502.3 Building envelope. Additions shall comply with Sections C402.1 through C402.5, C502.3.1, and C502.3.2.

C502.3.1 Vertical fenestration. Additions with *vertical fenestration* shall comply with the following:

1. Where an *addition* with *vertical fenestration* area results in a total building *vertical fenestration* area less than or equal to the maximum allowed by Section C402.4.1, the addition shall comply with Section C402.4.

2. Where an *addition* with *vertical fenestration* area results in a total building vertical fenestration area greater than the maximum allowed by Section C402.4.1 (regardless of the ratio prior to the *addition*), the *addition* shall comply with one of the following:

2.1. Component performance alternative with target area adjustment per Section C402.1.5 for the addition area of the building only.

2.2. Existing building and addition area are combined to demonstrate compliance with the component performance alternative for the whole building. *U*-factors applied to existing envelope assemblies in the UA calculation shall comply with Section C501.2.1.

2.3. Total building performance in accordance with Section C407 for the addition area of the building only.

2.4. Total building performance for the whole building.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-50200, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-50200, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-50300 Section C503—Alterations.

C503.1 General. Alterations to any building or structure shall comply with the requirements of Section C503 and the code for new construction. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall be such that the existing building or structure is no less conforming with the provisions of this code than the existing building or structure was prior to the alteration. The additional energy efficiency credit requirements in Section C406.1 and the renewable energy requirements in Section C411 do not apply to alterations.

EXCEPTION: The following alterations need not comply with the requirements for new construction provided the energy use of the building is not increased:
1. Storm windows installed over existing fenestration.
2. Surface applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided the code does not require the glazing fenestration to be replaced.
3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are insulated to full depth with insulation having a minimum nominal value of R-3.0 per inch installed per Section C402.
4. Construction where the existing roof, wall or floor cavity is not exposed.
5. *Roof recover*.
6. *Air barriers* shall not be required for *roof recover* and roof replacement where the *alterations* or renovations to the building do not include *alterations*, renovations or *repairs* to the remainder of the building envelope.
7. Replacement of existing doors that separate conditioned space from the exterior shall not require the installation of a vestibule or revolving door, provided however that an existing vestibule that separates a conditioned space from the exterior shall not be removed.

C503.2 Change in space conditioning. Any low energy space in accordance with Section C402.1.1.1 that is altered to become *conditioned space* or *semi-heated* space shall be brought into full compliance with this code. Any semi-heated space in accordance with Section C402.1.1.2 that is altered to become conditioned space shall be brought into full compliance with this code.

For buildings with more than one space conditioning category, the interior partition walls, ceilings, floors and fenestration that separate space conditioning areas shall comply with the thermal envelope requirements per the area with the highest level of space conditioning.

A change in space conditioning project shall be deemed to comply with this code if the project area alone complies or if the existing building and the project area combined comply with this code as a whole building.

EXCEPTION: Buildings or spaces that were permitted prior to the 2009 Washington State Energy Code, or were originally permitted as unconditioned, may comply with this section as follows:
1. Where the component performance alternative in Section C402.1.5 is used to demonstrate compliance with this Section, the Proposed Total UA is allowed to be up to 110 percent of the Allowable Total UA. This exception may be applied to the project area alone, or to the existing building and project area combined as a whole building.
2. Where total building performance in accordance with Section C407 is used to demonstrate compliance with this Section, the total annual carbon emissions from energy consumption of the proposed design is allowed to be up to 110 percent of the annual carbon emissions from energy consumption allowed by Section C407.3. This exception may be applied to the project area alone, or to the existing building and project area combined as a whole building.

C503.3 Building envelope. New building envelope assemblies that are part of the alteration shall comply with Sections C402.1 through C402.5 ((~~as applicable~~)) and Sections C503.3.1 through C503.3.3.

EXCEPTION: Air leakage testing is not required for alterations and repairs, unless the project includes a change in space conditioning according to Section C503.2 or a change of occupancy or use according to Section C505.1.

C503.3.1 Roof replacement. *Roof replacements* shall comply with Table C402.1.3 or C402.1.4 where the existing roof assembly is part of the *building thermal envelope* and contains no insulation or the insulation is located entirely above the roof deck. In no case shall the *R*-value of the roof insulation be reduced or the *U*-factor of the roof assembly be increased as part of the *roof replacement*.

C503.3.2 Vertical fenestration. Alterations that include the addition of new vertical fenestration area shall comply with the following:

1. Where the addition of new *vertical fenestration* ((~~that~~)) area results in a total building vertical fenestration area less than or equal to ((~~that specified in~~)) the maximum allowed by Section C402.4.1, the alteration shall comply with Section C402.4.

2. Where the addition of new *vertical fenestration* ((~~that~~)) area result in a total building *vertical fenestration* area greater than ((~~specified in~~)) the maximum allowed by Section C402.4.1 (regardless of the ratio prior to the addition), the alteration shall comply with one of the following:

((~~1.~~)) 2.1. Vertical fenestration alternate in accordance with Section C402.1.3 for the new vertical fenestration added.

((~~2.~~)) 2.2. Vertical fenestration alternate in accordance with Section C402.4.1.1 for the area adjacent to the new vertical fenestration added.

((~~3.~~)) 2.3. Existing building and alteration areas are combined to demonstrate compliance with the component performance alternate in accordance with Section C402.1.5 for the whole building. *U*-factors applied to existing envelope assemblies in the UA calculation shall comply with Section C501.2.1. The Proposed Total UA is allowed to be up to 110 percent of the Allowed Total UA.

((~~4.~~)) 2.4. Total building performance in accordance with Section C407 for the whole building. The total annual carbon emissions from energy consumption of the proposed design is allowed to be up to 110 percent of the annual carbon emissions from energy consumption allowed in accordance with Section C407.3.

EXCEPTION: ((~~Additional envelope upgrades are included in the project so the addition of vertical fenestration does not cause a reduction in overall building energy efficiency, as approved by the *code official*.~~)) Where *approved* by the *code official*, additional *fenestration* is permitted where sufficient envelope upgrades beyond those required by other sections of this code are included in the project so that the addition of new *vertical fenestration* does not cause an increase in the overall energy use of the building.

C503.3.2.1 ((~~Application to~~)) Replacement fenestration products. Where some or all of an existing *fenestration* unit is replaced with a new *fenestration* product, including sash and glazing, the replacement *fenestration* unit shall meet the applicable requirements for *U*-factor and *SHGC* in Table C402.4.

EXCEPTION: An area-weighted average of the *U*-factor of replacement fenestration products being installed in the building for each fenestration product category listed in Table C402.4 shall be permitted to satisfy the *U*-factor requirements for each fenestration product category listed in Table C402.4. Individual fenestration products from different product categories listed in Table C402.4 shall not be combined in calculating the area-weighted average *U*-factor.

C503.3.3 Skylights ((~~area~~)). Alterations that include the addition of new skylight area shall comply with the following:

1. Where the addition of new *skylight((~~s that~~))* area results in a total building skylight area less than or equal to ((~~that specified in~~)) the maximum allowed by Section C402.4.1, the alteration shall comply with Section C402.4.

2. Where the addition of new *skylight((~~s that~~))* area results in a total building skylight area greater than ((~~that specified in~~)) the maximum allowed by Section C402.4.1 (regardless of the ratio prior to the addition), the alteration shall comply with one of the following:

((~~1.~~)) 2.1. Existing building and alteration area are combined to demonstrate compliance with the component performance alternative with target area adjustment in accordance with Section C402.1.5 for the whole building. *U*-factors applied to existing envelope assemblies in the UA calculation shall comply with Section C501.2.1. The Proposed Total UA is allowed to be up to 110 percent of the Allowed Total UA.

((~~2.~~)) 2.2. Total building performance in accordance with Section C407 for the whole building. The annual carbon emissions from energy consumption of the proposed design is allowed to be up to 110 percent

of the annual carbon emissions from energy consumption allowed in accordance with Section C407.3.

EXCEPTION: Additional envelope upgrades are included in the project so the addition of new skylights does not cause a reduction in overall building energy efficiency, as *approved* by the *code official*.

OPTION 1 for C503.4 through C503.4.6.1:

C503.4 Building mechanical systems. ((~~Those parts of~~)) Components of existing mechanical systems ((~~which~~)) that are altered or replaced shall comply with Sections C403, C408.2, C409.5, C501.2.2, C501.6 and C503.4.2 through C503.4.5. Additions or alterations shall not be made to an existing mechanical system that will cause the existing ((~~mechanical~~)) system to become out of compliance.

EXCEPTIONS:
1. Existing mechanical systems ((~~which~~)) that are altered or ((~~where~~)) parts of the systems that are replaced are not required to be modified to comply with Section C403.3.5 as long as mechanical cooling capacity is not added to a system that did not have cooling capacity prior to the alteration.
2. Alternate mechanical system designs that are not in full compliance with this code may be approved when the code official determines that existing building constraints including, but not limited to, available mechanical space, limitations of the existing structure, or proximity to adjacent air intakes or exhausts makes full compliance impractical. Alternate designs shall include additional energy saving strategies not prescriptively required by this code for the scope of the project including, but not limited to, demand control ventilation, energy recovery, or increased mechanical cooling or heating equipment efficiency above that required by Tables C403.3.2(1) through C403.3.2(((~~12~~))) (16).
3. Only those components of existing HVAC systems that are altered or replaced shall be required to ((~~meet the requirements of~~)) comply with Section C403.8.1((~~, Allowable fan motor horsepower. Components replaced or altered shall not exceed the fan power limitation pressure drop adjustment values in Table C403.8.1(2) at design conditions~~)). Section C403.8.1 does not require the removal and replacement of existing system ductwork. Additional fan power allowances are available when determining the fan power budget (Fan kW_{budget}) as specified in Table C503.4. These values can be added to the fan power allowance values in Tables C403.8.1.1(1) and C403.8.1.1(2) when calculating a new Fan kW_{budget} for the fan system being altered. The additional fan power allowance is not applicable to alterations that add or change passive components which do not increase the fan system static pressure.

Table C503.4
Additional Fan Power Allowances (W/CFM)

Airflow	Multi-Zone VAV Systems[a] ≤5,000 cfm	Multi-Zone VAV Systems[a] >5,000 and ≤10,000 cfm	Multi-Zone VAV Systems[a] >10,000 cfm	All Other Fan Systems ≤5,000 cfm	All Other Fan Systems >5,000 and ≤10,000 cfm	All Other Fan Systems >10,000 cfm
Supply *Fan System* additional allowance	0.135	0.114	0.105	0.139	0.120	0.107
Supply *Fan System* additional allowance in unit with adapter curb	0.033	0.033	0.043	0.000	0.000	0.000
Exhaust/ Relief/ Return/ Transfer *Fan System* additional allowance	0.070	0.061	0.054	0.070	0.062	0.055
Exhaust/ Relief/ Return/ Transfer *Fan System* additional allowance with adapter curb	0.016	0.017	0.220	0.000	0.000	0.000

[a] See definition of *FAN SYSTEM, MULTI-ZONE VARIABLE AIR VOLUME (VAV).*

C503.4.1 New building mechanical systems. All new mechanical systems and equipment in existing buildings, including packaged unitary equipment and packaged split systems, shall comply with Sections C403, C408.2, C409.5, and C501.6.

C503.4.2 Addition of cooling capacity. Where mechanical cooling is added to a space that was not previously cooled, the mechanical system shall comply with either Section C403.3.5 or C403.5.

EXCEPTIONS: 1. Qualifying small equipment: Economizers are not required for cooling units and split systems serving one zone with a total cooling capacity rated in accordance with Section C403.3.2 of less than 33,000 Btu/h (hereafter referred to as qualifying small systems) provided that these are high-efficiency cooling equipment with SEER and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.3.2 (1) ((~~through (3)~~)), (2), (4), (8), (9), and (14), in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. The total capacity of all qualifying small equipment without economizers shall not exceed 72,000 Btu/h per building, or 5 percent of the building total air economizer capacity, whichever is greater.
Notes and exclusions for Exception 1:
1.1. The portion of the equipment serving Group R occupancies is not included in determining the total capacity of all units without economizers in a building.
1.2. Redundant units are not counted in the capacity limitations.
1.3. This exception shall not be used for the initial tenant improvement of a shell-and-core building or space, or for Total Building Performance in accordance with Section C407.
1.4. This exception shall not be used for unitary cooling equipment installed outdoors or in a mechanical room adjacent to the outdoors.
2. Chilled water terminal units connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than minimum part load equipment efficiencies listed in Table C403.3.2(((~~7~~))) (3), in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. The total capacity of all systems without economizers shall not exceed 480,000 Btu/h per building, or 20 percent of the building total air economizer capacity, whichever is greater.
Notes and exclusions for Exception 2:
2.1. The portion of the equipment serving Group R occupancy is not included in determining the total capacity of all units without economizers in a building.
2.2. This exception shall not be used for the initial tenant improvement of a shell-and-core building or space, or for total building performance in accordance with Section C407.

C503.4.3 Alterations or replacement of existing cooling systems. Alterations to, or replacement of, existing mechanical cooling systems shall not decrease the building total economizer capacity unless the system complies with either Section C403.3.5 or C403.5. System alterations or replacement shall comply with Table ((~~C503.4~~)) C503.4.3 when either the individual cooling unit capacity ((~~and~~)) or the building total capacity of all cooling equipment without economizer ((~~do~~)) does not comply with Section C403.3.5 or C403.5.

C503.4.4 Controls for cooling equipment replacement. When space cooling equipment is replaced, controls shall comply with all requirements under Section C403.3.5 and related subsections, and Section C403.5.1 for integrated economizer control. Single-zone systems providing ventilation where the equipment containing the supply fan is replaced shall also comply with Section C403.7.1.

C503.4.5 Cooling equipment relocation. Existing equipment currently in use may be relocated within the same floor or same tenant space if removed and reinstalled within the same permit.

Table ((~~C503.4~~)) C503.4.3
Economizer Compliance Options for Mechanical Alterations

	Option A	Option B (alternate to A)	Option C (alternate to A)	Option D (alternate to A)
Unit Type	Any alteration with new or replacement equipment	Replacement unit of the same type with the same or smaller output capacity	Replacement unit of the same type with a larger output capacity	New equipment added to existing system or replacement unit of a different type
1. Packaged Units	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]
2. Split Systems	Efficiency: min. [a] Economizer: C403.5[b]	For units ≤ 60,000 Btuh, comply with two of two measures: 1. Efficiency: + 10%[e] 2. Economizer: shall not decrease existing economizer capability	For units ≤ 60,000 Btuh replacing unit installed prior to 1991 comply with at least one of two measures: 1. Efficiency: + 10%[e] 2. Economizer: 50% [f]	Efficiency: min. [a] Economizer: C403.5[b]
		For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	

	Option A	Option B (alternate to A)	Option C (alternate to A)	Option D (alternate to A)
Unit Type	**Any alteration with new or replacement equipment**	**Replacement unit of the same type with the same or smaller output capacity**	**Replacement unit of the same type with a larger output capacity**	**New equipment added to existing system or replacement unit of a different type**
3. Water Source Heat Pump	Efficiency: min. [a] Economizer: C403.5[b]	For units ≤ 72,000 Btuh, comply with at least two of three measures: 1. Efficiency: +10%[e] 2. Flow control valve [g] 3. Economizer: 50% [f]	For units ≤ 72,000 Btuh, comply with at least three of three measures: 1. Efficiency: +10%[e] 2. Flow control valve [g] 3. Economizer: 50% [f] (except for certain pre-1991 systems [q])	Efficiency: min. [a] Economizer: C403.5[b] (except for certain pre-1991 systems [q])
		For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	
4. Water Economizer using Air-Cooled Heat Rejection Equipment (Dry Cooler)	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: + 5%[d] Economizer: shall not decrease existing economizer capacity	Efficiency: min.[a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]
5. Air-Handling Unit (including fan coil units) where the system has an air-cooled chiller	Efficiency: min. [a] Economizer: C403.5[b]	Economizer: shall not decrease existing economizer capacity	Efficiency: min.[a] Economizer: C403.5[b] (except for certain pre-1991 systems [q])	Efficiency: min.[a] Economizer: C403.5[b] (except for certain pre-1991 systems [q])
6. Air-Handling Unit (including fan coil units) and Water-cooled Process Equipment, where the system has a water-cooled chiller[10]	Efficiency: min. [a] Economizer: C403.5[b]	Economizer: shall not decrease existing economizer capacity	Efficiency: min.[a] Economizer: C403.5[b] (except for certain pre-1991 systems [q] and certain 1991-2016 systems [i])	Efficiency: min. [a] Economizer: C403.5[b] (except for certain pre-1991 systems [q] and certain 1991-2016 systems [i])
7. Cooling Tower	Efficiency: min. [a] Economizer: C403.5[b]	No requirements	Efficiency: min.[a] Economizer: C403.5[b]	Efficiency: min.[a] Economizer: C403.5[b]
8. Air-Cooled Chiller	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: + 10%[k] Economizer: shall not decrease existing economizer capacity	Efficiency: Comply with two of two measures: 1. + 10% [k,l] and 2. Multistage compressor(s) Economizer: shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]
9. Water-Cooled Chiller	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: Comply with at least one of two measures: 1. Part load IPLV + 15%[n] or 2. Plate frame heat exchanger [o] Economizer: shall not decrease existing economizer capacity	Efficiency: Comply with two of two measures: 1. Part load IPLV + 15% [n] 2. Plate-frame heat exchanger [o] Economizer: shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]
10. Package Terminal Air Conditioner	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: + 5%[a] Economizer: shall not decrease existing economizer capacity	Efficiency: + 5%[a] Economizer: shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]
11. Package Terminal Heat Pump	Efficiency: min. [a] Economizer: C403.5[b]	Cooling efficiency: + 5%[d] Heating efficiency: + 10%[e] Shall not decrease existing economizer capacity	Cooling efficiency: + 5%[d] Heating efficiency: + 10%[e] Shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]

[a] Minimum equipment efficiency shall comply with Section C403.3.2 and ((~~Tables C403.3.2(1) through C403.3.3.2(12)~~)) the tables in Section C403.3.2.

[b] All separate new equipment and replacement equipment shall have air economizer complying with Section C403.5 including both the individual unit size limits and the total building capacity limits on units without economizer. It is acceptable to comply using one of the exceptions to Section C403.5.

[c] Reserved.

[d] Equipment shall have a capacity-weighted average cooling system efficiency that is 5% better than the requirements in ((~~Tables C403.3.2(1) and C403.3.2(2)~~)) the tables in Section C403.3.2 (1.05 × values in ((~~Tables C403.3.2(1) and C403.3.2(2)~~)) the tables).

[e] Equipment shall have a capacity-weighted average cooling system efficiency that is 10% better than the requirements in ((~~Tables C403.3.2(1)A and C403.3.2(2)~~)) the tables in Section C403.3.2 (1.10 × values in ((~~Tables C403.3.2(1)A and C403.3.2(2)~~)) the tables).

f Minimum of 50% air economizer that is ducted in a fully enclosed path directly to every heat pump unit in each zone, except that ducts may terminate within 12 inches of the intake to an HVAC unit provided that they are physically fastened so that the outside air duct is directed into the unit intake. If this is an increase in the amount of outside air supplied to this unit, the outside air supply system shall be configured to provide this additional outside air and be equipped with economizer control.

g Water-source heat pump systems shall have a flow control valve to eliminate flow through the heat pumps that are not in operation and variable speed pumping control complying with Section C403.4.3 for that heat pump.

- When the total capacity of all units with flow control valves exceeds 15% of the total system capacity, a variable frequency drive shall be installed on the main loop pump.

- As an alternate to this requirement, the capacity-weighted average cooling system efficiency shall be 5% better than the requirements in footnote [e] for water-source heat pumps (i.e., a minimum of 15% greater than the requirements in Table C403.3.2((~~(2)~~)) (14)).

h Water economizer equipment shall have a capacity-weighted average cooling system efficiency that is 10% better than the requirements in Tables C403.3.2((~~(8)~~)) (7), C403.3.2(10), and C403.3.2((~~(9)~~)) (16) (1.10 × values in Tables C403.3.2((~~(8)~~)) (7), C403.3.2(10), and C403.3.2((~~(9)~~)) (16)).

i Air economizer is not required for systems installed with water economizer plate and frame heat exchanger complying with previous codes between 1991 and June 2016, provided that the total fan coil load does not exceed the existing or added capacity of the heat exchangers.

j For water-cooled process equipment where the manufacturers specifications require colder temperatures than available with waterside economizer, that portion of the load is exempt from the economizer requirements.

k The air-cooled chiller shall have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in EER in Table C403.3.2((~~(7)~~)) (3) (1.10 × IPLV values in EER in Table C403.3.2((~~(7)~~)) (3)).

l The air-cooled chiller shall be multistage with a minimum of two compressors.

m The water-cooled chiller shall have full load and part load IPLV efficiency that is a minimum of 5% greater than the IPLV requirements in Table ((~~C403.2.3(7)~~)) C403.3.2(3).

n The water-cooled chiller shall have an IPLV value that is a minimum of 15% lower than the IPLV requirements in Table ((~~C403.2.3(7)~~)) C403.3.2(3) (1.15 × IPLV values in Table C403.3.2((~~(7)~~)) (3)). Water-cooled centrifugal chillers designed for nonstandard conditions shall have an NPLV value that is at least 15% lower than the adjusted maximum NPLV rating in kW per ton defined in Section ((~~C403.3.2.1~~)) C403.3.2.3 (1.15 × NPLV).

o Economizer cooling shall be provided by adding a plate-frame heat exchanger on the waterside with a capacity that is a minimum of 20% of the chiller capacity at standard AHRI rating conditions.

p Reserved.

q Systems installed prior to 1991 without fully utilized capacity are allowed to comply with Option B, provided that the individual unit cooling capacity does not exceed 90,000 Btuh.

OPTION 2 for Section C503.4 thourgh C503.4.6.1

C503.4 Building mechanical systems. ((~~Those parts of~~)) Components of existing mechanical systems ((~~which~~)) that are altered or replaced shall comply with Section C403, unless specifically exempted in this section, and Sections C408.2, C409.5, C501.2.2, C501.6, and C503.4.2 through C503.4.5. Additions or alterations shall not be made to an existing mechanical system that will cause the existing ((~~mechanical~~)) system to become out of compliance.

EXCEPTIONS: 1. Existing mechanical systems ((~~which are altered or parts of the systems are replaced are not required to be modified to comply with Section C403.3.5 as long as~~)) are not required to be modified to comply with Section C403.3.5 where mechanical cooling capacity is not added to a system that did not have cooling capacity prior to the alteration.

2. Compliance with Section C403.1.4 is not required where the alteration does not include replacement of a heating appliance.

3. Alternate mechanical system designs that are not in full compliance with this code may be approved when the code official determines that existing building constraints including, but not limited to, available mechanical space, limitations of the existing structure, or proximity to adjacent air intakes or exhausts makes full compliance impractical. Alternate designs shall include additional energy saving strategies not prescriptively required by this code for the scope of the project including, but not limited to, demand control ventilation, energy recovery, or increased mechanical cooling or heating equipment efficiency above that required by Tables C403.3.2(1) through C403.3.2((~~(12)~~)) (16).

((~~3.~~)) 4. Only those components of existing HVAC systems that are altered or replaced shall be required to ((~~meet the requirements of~~)) comply with Section C403.8.1((~~, Allowable fan motor horsepower. Components replaced or altered shall not exceed the fan power limitation pressure drop adjustment values in Table C403.8.1(2) at design conditions~~)). Section C403.8.1 does not require the removal and replacement of existing system ductwork. Additional fan power allowances are available when determining the fan power budget (Fan kW_{budget}) as specified in Table C503.4. These values can be added to the fan power allowance values in Tables C403.8.1.1(1) and C403.8.1.1(2) when calculating a new Fan kW_{budget} for the fan system being altered. The additional fan power allowance is not applicable to alterations that add or change passive components which do not increase the fan system static pressure.

Table C503.4
Additional Fan Power Allowances (W/CFM)

Airflow	Multi-Zone VAV Systems[a] ≤5,000 cfm	Multi-Zone VAV Systems[a] >5,000 and ≤10,000 cfm	Multi-Zone VAV Systems[a] >10,000 cfm	All Other Fan Systems ≤5,000 cfm	All Other Fan Systems >5,000 and ≤10,000 cfm	All Other Fan Systems >10,000 cfm
Supply *Fan System* additional allowance	0.135	0.114	0.105	0.139	0.120	0.107

Airflow	Multi-Zone VAV Systems[a] ≤5,000 cfm	Multi-Zone VAV Systems[a] >5,000 and ≤10,000 cfm	Multi-Zone VAV Systems[a] >10,000 cfm	All Other Fan Systems ≤5,000 cfm	All Other Fan Systems >5,000 and ≤10,000 cfm	All Other Fan Systems >10,000 cfm
Supply *Fan System* additional allowance in unit with adapter curb	0.033	0.033	0.043	0.000	0.000	0.000
Exhaust/ Relief/ Return/ Transfer *Fan System* additional allowance	0.070	0.061	0.054	0.070	0.062	0.055
Exhaust/ Relief/ Return/ Transfer *Fan System* additional allowance with adapter curb	0.016	0.017	0.220	0.000	0.000	0.000

[a] See definition of *FAN SYSTEM, MULTI-ZONE VARIABLE AIR VOLUME (VAV).*

C503.4.1 New building mechanical systems. All new mechanical systems and equipment in existing buildings((~~, including packaged unitary equipment and packaged split systems,~~)) shall comply with Sections C403, C408.2, C409.5, and C501.6.

C503.4.2 Addition of cooling capacity. Where mechanical cooling is added to a space that was not previously cooled, the mechanical system shall comply with either Section C403.3.5 or C403.5.

EXCEPTIONS: 1. Qualifying small equipment: Economizers are not required for cooling units and split systems serving one zone with a total cooling capacity rated in accordance with Section C403.3.2 of less than 33,000 Btu/h (hereafter referred to as qualifying small systems) provided that these are high-efficiency cooling equipment with SEER and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.3.2 (1) ((~~through (3)~~)), (2), (4), (8), (9), and (14), in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. The total capacity of all qualifying small equipment without economizers shall not exceed 72,000 Btu/h per building, or 5 percent of the building total air economizer capacity, whichever is greater.
Notes and exclusions for Exception 1:
1.1. The portion of the equipment serving Group R occupancies is not included in determining the total capacity of all units without economizers in a building.
1.2. Redundant units are not counted in the capacity limitations.
1.3. This exception shall not be used for the initial tenant improvement of a shell-and-core building or space, or for Total Building Performance in accordance with Section C407.
1.4. This exception shall not be used for unitary cooling equipment installed outdoors or in a mechanical room adjacent to the outdoors.
2. Chilled water terminal units connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than minimum part load equipment efficiencies listed in Table C403.3.2(((~~7~~))) (3), in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. The total capacity of all systems without economizers shall not exceed 480,000 Btu/h per building, or 20 percent of the building total air economizer capacity, whichever is greater.
Notes and exclusions for Exception 2:
2.1. The portion of the equipment serving Group R occupancy is not included in determining the total capacity of all units without economizers in a building.
2.2. This exception shall not be used for the initial tenant improvement of a shell-and-core building or space, or for total building performance in accordance with Section C407.

C503.4.3 Alterations or replacement of existing cooling systems. Alterations to, or replacement of, existing mechanical cooling systems shall not decrease the building total economizer capacity unless the system complies with either Section C403.3.5 or C403.5. System alterations or replacement shall comply with Table ((~~C503.4~~)) C503.4.3 when either the individual cooling unit capacity ((~~and~~)) or the building total capacity of all cooling equipment without economizer ((~~do~~)) does not comply with Section C403.3.5 or C403.5. Equipment replacements that include space heating shall also comply with Section C503.4.3.

((~~**C503.4.4 Controls for cooling equipment replacement.** When space cooling equipment is replaced, controls shall comply with all requirements under Section C403.3.5 and related subsections, and Section C403.5.1 for integrated economizer control.~~

~~**C503.4.5 Cooling equipment relocation.** Existing equipment currently in use may be relocated within the same floor or same tenant space if removed and reinstalled within the same permit.~~))

Table ((~~C503.4~~)) C503.4.3
Economizer Compliance Options for Mechanical Alterations

	Option A	Option B (alternate to A)	Option C (alternate to A)	Option D (alternate to A)
Unit Type	**Any alteration with new or replacement equipment**	**Replacement unit of the same type with the same or smaller output capacity**	**Replacement unit of the same type with a larger output capacity**	**New equipment added to existing system or replacement unit of a different type**
1. Packaged Units	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]
2. Split Systems	Efficiency: min. [a] Economizer: C403.5[b]	For units ≤ 60,000 Btuh, comply with two of two measures: 1. Efficiency: + 10%[e] 2. Economizer: shall not decrease existing economizer capability	For units ≤ 60,000 Btuh replacing unit installed prior to 1991 comply with at least one of two measures: 1. Efficiency: + 10%[e] 2. Economizer: 50% [f]	Efficiency: min. [a] Economizer: C403.5[b]
		For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	
3. Water Source Heat Pump	Efficiency: min. [a] Economizer: C403.5[b]	For units ≤ 72,000 Btuh, comply with at least two of three measures: 1. Efficiency: +10%[e] 2. Flow control valve [g] 3. Economizer: 50% [f]	For units ≤ 72,000 Btuh, comply with at least three of three measures: 1. Efficiency: +10%[e] 2. Flow control valve [g] 3. Economizer: 50% [f] (except for certain pre-1991 systems [q])	Efficiency: min. [a] Economizer: C403.5[b] (except for certain pre-1991 systems [q])
		For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	For all other capacities: Efficiency: min.[a] Economizer: C403.5[b]	
4. Water Economizer using Air-Cooled Heat Rejection Equipment (Dry Cooler)	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: + 5%[d] Economizer: shall not decrease existing economizer capacity	Efficiency: min.[a] Economizer: C403.5[b]	Efficiency: min. [a] Economizer: C403.5[b]
5. Air-Handling Unit (including fan coil units) where the system has an air-cooled chiller	Efficiency: min. [a] Economizer: C403.5[b]	Economizer: shall not decrease existing economizer capacity	Efficiency: min.[a] Economizer: C403.5[b] (except for certain pre-1991 systems [q])	Efficiency: min.[a] Economizer: C403.5[b] (except for certain pre-1991 systems [q])
6. Air-Handling Unit (including fan coil units) and Water-cooled Process Equipment, where the system has a water-cooled chiller[10]	Efficiency: min. [a] Economizer: C403.5[b]	Economizer: shall not decrease existing economizer capacity	Efficiency: min.[a] Economizer: C403.5[b] (except for certain pre-1991 systems [q] and certain 1991-2016 systems [i])	Efficiency: min. [a] Economizer: C403.5[b] (except for certain pre-1991 systems [q] and certain 1991-2016 systems [i])
7. Cooling Tower	Efficiency: min. [a] Economizer: C403.5[b]	No requirements	Efficiency: min.[a] Economizer: C403.5[b]	Efficiency: min.[a] Economizer: C403.5[b]
8. Air-Cooled Chiller	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: + 10%[k] Economizer: shall not decrease existing economizer capacity	Efficiency: Comply with two of two measures: 1. + 10% [k,l] and 2. Multistage compressor(s) Economizer: shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]
9. Water-Cooled Chiller	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: Comply with at least one of two measures: 1. Part load IPLV + 15%[n] or 2. Plate frame heat exchanger [o] Economizer: shall not decrease existing economizer capacity	Efficiency: Comply with two of two measures: 1. Part load IPLV + 15% [n] 2. Plate-frame heat exchanger [o] Economizer: shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]

Unit Type	Option A Any alteration with new or replacement equipment	Option B (alternate to A) Replacement unit of the same type with the same or smaller output capacity	Option C (alternate to A) Replacement unit of the same type with a larger output capacity	Option D (alternate to A) New equipment added to existing system or replacement unit of a different type
10. Package Terminal Air Conditioner	Efficiency: min. [a] Economizer: C403.5[b]	Efficiency: + 5%[a] Economizer: shall not decrease existing economizer capacity	Efficiency: + 5%[a] Economizer: shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]
11. Package Terminal Heat Pump	Efficiency: min. [a] Economizer: C403.5[b]	Cooling efficiency: + 5%[d] Heating efficiency: + 10%[e] Shall not decrease existing economizer capacity	Cooling efficiency: + 5%[d] Heating efficiency: + 10%[e] Shall not decrease existing economizer capacity	Efficiency: min. [a] Economizer: C403.5[b]

a Minimum equipment efficiency shall comply with Section C403.3.2 and ((~~Tables C403.3.2(1) through C403.3.3.2(12)~~)) the tables in Section C403.3.2.

b All separate new equipment and replacement equipment shall have air economizer complying with Section C403.5 including both the individual unit size limits and the total building capacity limits on units without economizer. It is acceptable to comply using one of the exceptions to Section C403.5.

c Reserved.

d Equipment shall have a capacity-weighted average cooling system efficiency that is 5% better than the requirements in ((~~Tables C403.3.2(1) and C403.3.2(2)~~)) the tables in Section C403.3.2 (1.05 × values in ((~~Tables C403.3.2(1) and C403.3.2(2)~~)) the tables).

e Equipment shall have a capacity-weighted average cooling system efficiency that is 10% better than the requirements in ((~~Tables C403.3.2(1)A and C403.3.2(2)~~)) the tables in Section C403.3.2 (1.10 × values in ((~~Tables C403.3.2(1)A and C403.3.2(2)~~)) the tables).

f Minimum of 50% air economizer that is ducted in a fully enclosed path directly to every heat pump unit in each zone, except that ducts may terminate within 12 inches of the intake to an HVAC unit provided that they are physically fastened so that the outside air duct is directed into the unit intake. If this is an increase in the amount of outside air supplied to this unit, the outside air supply system shall be configured to provide this additional outside air and be equipped with economizer control.

g Water-source heat pump systems shall have a flow control valve to eliminate flow through the heat pumps that are not in operation and variable speed pumping control complying with Section C403.4.3 for that heat pump.

- When the total capacity of all units with flow control valves exceeds 15% of the total system capacity, a variable frequency drive shall be installed on the main loop pump.

- As an alternate to this requirement, the capacity-weighted average cooling system efficiency shall be 5% better than the requirements in footnote [e] for water-source heat pumps (i.e., a minimum of 15% greater than the requirements in Table C403.3.2(((~~2~~))) (14)).

h Water economizer equipment shall have a capacity-weighted average cooling system efficiency that is 10% better than the requirements in Tables C403.3.2(((~~8~~))) (7), C403.3.2(10), and C403.3.2(((~~9~~))) (16) (1.10 × values in Tables C403.3.2(((~~8~~))) (7), C403.3.2(10), and C403.3.2(((~~9~~))) (16)).

i Air economizer is not required for systems installed with water economizer plate and frame heat exchanger complying with previous codes between 1991 and June 2016, provided that the total fan coil load does not exceed the existing or added capacity of the heat exchangers.

j For water-cooled process equipment where the manufacturers specifications require colder temperatures than available with waterside economizer, that portion of the load is exempt from the economizer requirements.

k The air-cooled chiller shall have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in EER in Table C403.3.2(((~~7~~))) (3) (1.10 × IPLV values in EER in Table C403.3.2(((~~7~~))) (3)).

l The air-cooled chiller shall be multistage with a minimum of two compressors.

m The water-cooled chiller shall have full load and part load IPLV efficiency that is a minimum of 5% greater than the IPLV requirements in Table ((~~C403.2.3(7)~~)) C403.3.2(3).

n The water-cooled chiller shall have an IPLV value that is a minimum of 15% lower than the IPLV requirements in Table ((~~C403.2.3(7)~~)) C403.3.2(3) (1.15 × IPLV values in Table C403.3.2(((~~7~~))) (3)). Water-cooled centrifugal chillers designed for nonstandard conditions shall have an NPLV value that is at least 15% lower than the adjusted maximum NPLV rating in kW per ton defined in Section ((~~C403.3.2.1~~)) C403.3.2.3 (1.15 × NPLV).

o Economizer cooling shall be provided by adding a plate-frame heat exchanger on the waterside with a capacity that is a minimum of 20% of the chiller capacity at standard AHRI rating conditions.

p Reserved.

q Systems installed prior to 1991 without fully utilized capacity are allowed to comply with Option B, provided that the individual unit cooling capacity does not exceed 90,000 Btuh.

C503.4.4 Controls for cooling equipment replacement. When space cooling equipment is replaced, controls shall comply with all requirements under Section C403.3.5 and related subsections, and Section C403.5.1 for integrated economizer control.

C503.4.5 Mechanical equipment relocation. Existing equipment currently in use may be relocated within the same floor or same tenant space if removed and reinstalled within the same permit.

C503.4.6 Addition or replacement of heating appliances. Where a mechanical heating appliance is added or replaced, the added or replaced

appliance shall comply with Section C403.1.4 or with an alternate compliance option in Table C503.4.6.

EXCEPTIONS:
1. Terminal unit equipment including, but not limited to, hydronic VAV boxes, electric resistance VAV boxes, electric duct heaters, water source heat pumps, fan coils, or VRF indoor units that are served by an unaltered central system.
2. Air handling equipment with hydronic coils.
3. Air handling equipment designed for 100 percent outdoor air that is not subject to the requirements in Section C403.3.5 or that qualifies for an exception to Section C403.3.5.
4. Replacement of existing oil-fired boilers.
5. Replacement of existing steam boilers with steam distribution to terminal units and the associated boiler feed equipment.
6. Where compliance with Section C403.1.4 would trigger an unplanned utility electrical service upgrade based on the NEC 220.87 method for determining existing loads.
7. Like-for-like replacement of a single heating appliance is permitted where that appliance is failing, requires immediate replacement, and where no other HVAC work is planned.

Table C503.4.6
Compliance Options for Mechanical Heating Equipment Alterations

	Proposed Heating Equipment Type[a]	Heating Efficiency Table Reference	Alternate Compliance Options to Section C403.1.4
1	Air-Cooled Unitary Heat Pumps	Table C403.3.2(2)	1. Compliance with C403.1.4, except heat pump rated capacity in accordance with Section C403.1.4 exception 5d is permitted to be sized equal to the supplemental internal resistance heating capacity in Climate Zone 4 or 5[c] 2. Compliance with C403.1.4, except electric resistance mixed air preheat is permissible[c]
2	Packaged terminal, single-package vertical, and room air-conditioner heat pumps	Table C403.3.2(4)	1. Compliance with C403.1.4, except heat pump rated capacity in accordance with Section C403.1.4 Exception 5d is permitted to be sized equal to the supplemental internal resistance heating capacity in Climate Zone 4 or 5
3	Furnaces, duct furnaces, and unit heaters	Table C403.3.2(5)	1. Efficiency: +10%[b]
4	Gas-fired hot water boilers with fewer than 80% of coils replaced	Table C403.3.2(6)	1. Efficiency: +10%[b]
5	Variable refrigerant flow air-to-air and applied heat pumps	Table C403.3.2(9)	No alternate compliance option
6	DX-DOAS equipment	Table C403.3.2(12) and Table C403.3.2(13)	1. DX-DOAS is provided with heat recovery if not required by C403.3.5.1.
7	Water-source heat pumps	Table C403.3.2(14)	No alternate compliance option

[a] Includes replacement of equipment with a unit that is the same type or higher efficiency and the same or lower capacity, or a replacement of one equipment type with a different equipment type.
[b] Equipment shall have a capacity-weighted average heating system efficiency that is 10 percent better than that shown in the reference table (1.10 x values in reference table).
[c] Option 1 and Option 2 can be combined.

C503.4.6.1 Hydronic system alteration supply water temperature. Hydronic heating coils and appliances subject to Section C503.4.5 or Section C503.4.6 shall comply with Section C403.3.7.2.

OPTION 1 for Section C503.5:

C503.5 Service ((~~hot~~)) water heating systems. All new service ((~~hot~~)) water heating systems ((~~that are part of the alteration~~)), equipment and components of existing systems that are altered or replaced shall comply with Sections C404, C408.3, C409.5 and C501.6. Additions or alterations shall not be made to an existing service water heating system that will cause the existing system to become out of compliance.

OPTION 2 for Section C503.5:

C503.5 Service ((~~hot~~)) water ((~~systems~~)) heating equipment. New service ((~~hot~~)) water ((~~systems that are part of the alteration~~)) heating equipment shall comply with Section C404.

EXCEPTIONS:
1. Replacement of a single electric resistance or fuel-fired service water heating appliance with a unit that is the same type and has the same or higher efficiency and the same or lower capacity, provided there are no other alterations made to the existing service water heating system size or configuration.
2. Replacement of any of the following water heater appliances:
2.1. Electric water heaters with an input of 12 kW or less.
2.2. Gas storage water heaters with an input of 75,000 Btu/h or less.
2.3. Gas instantaneous water heaters with an input of 200,000 Btu/h or less and 2 gallons or less of storage.
3. Where it has been determined by the code official that existing building constraints including, but not limited to, available floor space or ceiling height, limitations of the existing structure, or electrical service capacity, make compliance technically infeasible.

C503.6 Pools and permanent spas. All new systems and equipment serving pools and permanent spas and components of existing systems that are altered or replaced, shall comply with Sections C404.11, C408.3, C409.5, and C501.6. Additions or alterations shall not be made to an existing system serving a pool or spa that will cause the existing system to become out of compliance.

((~~C503.6 Lighting, controlled receptacles~~)) C503.7 Electrical power and lighting systems and motors. Alterations or the addition of lighting, ((~~electric~~)) receptacles and motors shall comply with Sections ((~~C503.6.1 through C503.6.6~~)) C503.7.1 through C503.7.7. Additions or alterations shall not be made to an existing lighting or electrical system that will cause the existing system to become out of compliance.

((~~C503.6.1~~)) C503.7.1 New lighting systems and controls. All new interior and exterior lighting systems within an existing building site shall be provided with lighting controls in accordance with Section C405.2 and shall comply with C408.4, C409.5, and C501.6.

C503.7.2 Luminaire additions and alterations. Alterations that add or replace ((~~50~~)) 20 percent or more of the luminaires in a space enclosed by walls or ceiling-height partitions, replace ((~~50~~)) 20 percent or more of parking garage luminaires, or replace ((~~50~~)) 20 percent or more of the total installed wattage of exterior luminaires shall comply with Sections C405.4 and C405.5. Exterior power allowance shall be determined using the specific area allowances for the areas altered and shall not include the base site allowance. Where less than ((~~50~~)) 20 percent of the fixtures in an interior space enclosed by walls or ceiling-height partitions or in a parking garage are added or replaced, or less than ((~~50~~)) 20 percent of the installed exterior wattage is replaced, the installed lighting wattage shall be maintained or reduced.

((~~C503.6.2~~)) C503.7.3 Rewiring and recircuiting. Where new wiring is being installed to serve added fixtures and/or fixtures are being relocated to a new circuit, lighting controls shall comply with all applicable requirements in accordance with Sections C405.2.1, C405.2.3, C405.2.4, C405.2.5, C405.2.6, ((~~and as applicable C408.3. New lighting control devices shall comply with the requirements of Section C405.2~~)) C405.2.7, C405.2.8, C408.4, and C501.6.

((~~C503.6.3~~)) C503.7.4 New or moved lighting panel. Where a new lighting panel (or a moved lighting panel) with all new raceway and conductor wiring from the panel to the fixtures is being installed, lighting controls shall also comply with, in addition to the requirements of Section ((~~C503.6.2~~)) C503.7.3, all remaining requirements in Sections C405.2 ((~~and C408.3~~)), C408.4, and C501.6.

((~~C503.6.4~~)) C503.7.5 Newly-created rooms. Where new walls or ceiling-height partitions are added to an existing space and create a new enclosed space, but the lighting fixtures are not being changed, other than being relocated, the new enclosed space shall have lighting controls that comply with all applicable requirements in accordance with Sections C405.2.1, C405.2.2, C405.2.3, C405.2.4, C405.2.5 ((~~and C408.3~~)), C405.2.6, C408.4 and C501.6.

((~~C503.6.5~~)) C503.7.6 Motors. ((~~Those motors which~~)) Motors that are altered or replaced shall comply with Section C405.8.

((~~C503.6.6~~)) C503.7.7 Controlled receptacles. Where electric receptacles are added or replaced, controlled receptacles shall be provided in accordance with Section C405.10 and shall comply with Sections C408.4 and C501.6.

EXCEPTIONS:
1. Where an alteration project impacts an area smaller than 5,000 square feet, controlled receptacles are not required.
2. Where existing systems furniture or partial-height relocatable office cubical partitions are reconfigured or relocated within the same area, controlled receptacles are not required in the existing systems furniture or office cubicle partitions.
3. Where new or altered receptacles meet the exception to Section C405.10, they are not required to be controlled receptacles or be located within 12 inches of noncontrolled receptacles.

((~~C503.7~~)) C503.8 Refrigeration systems. ((~~Those parts of systems which are altered or replaced shall comply with Section C410. Additions or alterations shall not be made to an existing refrigerated space or system that will cause the existing mechanical system to become out of compliance. All new refrigerated spaces or systems in existing buildings, including refrigerated display cases, shall comply with Section C410.~~)) Components of existing refrigeration systems that are altered or replaced shall comply with Sections C408.7, C410 and C501.6. Additions or alterations shall not be made to an existing refrigeration system that will cause the existing system to become out of compliance. All new refrigerated spaces and refrigeration systems and equipment in existing buildings, including new refrigerated display cases, shall comply with Sections C408.7, C409.5, C410 and C501.6.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-50300, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-50300, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27A and 19.27 RCW. WSR 19-02-089, § 51-11C-50300, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-50300, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-50300, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-50300, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-50500 Section C505—Change of space conditioning, occupancy or use.

C505.1 General. Buildings or spaces undergoing a change in space conditioning alteration shall comply with Sections C505.2 and C505.4.

Buildings or spaces undergoing a change in occupancy alterations shall comply with Sections C505.3 and C505.4. Spaces changing from one use type to another shall comply with Section C505.5.

Buildings or spaces undergoing a change in space conditioning, change in occupancy or use shall conform to the provisions of this code without requiring the unaltered portion of the existing building to comply with this code. Alterations shall be such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration.

A change in space conditioning alteration shall be deemed to comply with this code if the alteration area alone complies or if the alteration area is combined with all other spaces within the existing building that are of the same space conditioning category according to Section C505.2 to demonstrate compliance. A change in occupancy alteration shall be deemed to comply with this code if the alteration area alone complies or if the existing building and the alteration area are combined to demonstrate complete for the whole building. This allowance applies to prescriptive compliance in accordance with Section C505.4 or total building performance in accordance with Section C407.

Buildings or spaces that were permitted prior to the 2009 Washington state energy code, or were originally permitted as unconditioned, may comply with this section as follows:

1. Where the component performance alternative in Section C402.1.5 is used to demonstrate compliance with this section, the Proposed Total UA is allowed to be up to 110 percent of the Allowable Total UA. This exception may be applied to the project area alone, or to the existing building and project area combined as a whole building.

2. Where total building performance in accordance with Section C407 is used to demonstrate compliance with this section, the total annual carbon emissions from energy consumption of the proposed design is allowed to be up to 110 percent of the annual carbon emissions from energy consumption allowed by Section C407.3. This exception may be applied to the project area alone, or to the existing building and project area combined as a whole building.

C505.1.1 Additional energy efficiency credits. Buildings or spaces that are required to comply with Sections C505.2 or C505.3 shall also comply with Section C502.1.1 in the same manner as an addition.

C505.1.2 Renewable energy. Buildings or spaces that are required to comply with Section C505.2 or C505.3 shall also comply with Section C502.1.2 in the same manner as an addition.

C505.2 Change in space conditioning. Spaces undergoing a change in space conditioning alteration shall be brought up to full compliance with this code for all disciplines in the following cases:

1. Any low energy space in accordance with Section C402.1.1.1 that is altered to become *conditioned space* or *semi-heated* space shall be brought into full compliance with this code.

2. Any semi-heated space in accordance with Section C402.1.1.2 that is altered to become conditioned space shall be brought into full compliance with this code.

For buildings with more than one space conditioning category, the interior partition walls, ceilings, floors and fenestration that separate space conditioning areas shall comply with the thermal envelope requirements per the area with the highest level of space conditioning.

C505.3 Change in occupancy. Spaces undergoing a change in occupancy alteration shall be brought up to full compliance with this code for all disciplines in the following cases:

1. Any space that is converted from ((~~an~~)) a Group F, S or U occupancy to an occupancy other than Group F, S or U.

2. Any space that is converted to a Group R dwelling unit or portion thereof, from another use or occupancy.

3. Any Group R dwelling unit or portion thereof permitted prior to July 1, 2002, that is converted to a commercial use or occupancy.

((~~A change in occupancy project shall be deemed to comply with this code if the project area alone complies or if the existing building and the project area combined comply with this code as a whole building.~~

~~EXCEPTION: Buildings or spaces that were permitted prior to the 2009 WSEC may comply with this section as follows:~~
~~1. Where the component performance alternative in Section C402.1.5 is used to demonstrate compliance with this section, the Proposed Total UA is allowed to be up to 110 percent of the Allowable Total UA. This exception may be applied to the project area alone, or to the existing building and project area combined as a whole building.~~
~~2. Where total building performance in Section C407 is used to demonstrate compliance with this section, the total annual carbon emissions from energy consumption of the proposed design is allowed to be 110 percent of the annual carbon emissions from energy consumption allowed by Section C407.3. This exception may be applied to the project area alone, or to the existing building and project area combined as a whole building.~~))

C505.4 Prescriptive compliance. Change in space conditioning and change in occupancy alterations shall comply with Sections C505.4.1 through C505.4.6.

C505.4.1 Vertical fenestration. A change in space conditioning alteration with vertical fenestration shall comply with the following:

1. Where the vertical fenestration area of the alteration combined with the vertical fenestration area of all equivalent space conditioning areas in the existing building results in a total vertical fenestration area that is less than or equal to the maximum allowed by Section C402.4.1, the alteration shall comply with Section C402.4.

2. Where the vertical fenestration area of the alteration combined with the vertical fenestration area of all equivalent space conditioning areas in the existing building results in a total vertical fenestration area that is greater than the maximum allowed by Section C402.4.1, the alteration shall comply with one of the following:

2.1. Component performance alternative with target area adjustment in accordance with Section C402.1.5 for the alteration area of the building only.

2.2. Alteration area is combined with all equivalent space conditioning areas to demonstrate compliance with the component performance alternative.

2.3. Total building performance in accordance with Section C407 for the alteration area of the building only.

2.4. Alteration area is combined with all equivalent space conditioning areas to demonstrate total building performance compliance.

C505.4.1.2 Skylights. A change in space conditioning alteration with skylights shall comply with the following:

1. Where the skylight area of the alteration combined with the skylight area of all equivalent space conditioning areas in the existing building results in a total skylight area that is less than or equal to the maximum allowed by Section C402.4.1, the alteration shall comply with Section C402.4.

2. Where the skylight area of the alteration combined with the skylight area of all equivalent space conditioning areas in the existing building results in a total skylight area that is greater than the

maximum allowed by Section C402.4.1, the alteration shall comply with one of the following:

2.1. Component performance alternative with target area adjustment in accordance with Section C402.1.5 for the alteration area of the building only.

2.2. Alteration area is combined with all equivalent space conditioning areas to demonstrate compliance with the component performance alternative.

2.3. Total building performance in accordance with Section C407 for the alteration area of the building only.

2.4. Alteration area is combined with all equivalent space conditioning areas to demonstrate total building performance compliance.

C505.4.2 Building mechanical systems. All new and existing mechanical systems and equipment that serve the new building heating, cooling and ventilation needs of the alteration area shall comply with Sections C403, C408.2, C409.5 and C501.6.

C505.4.3 Service water-heating systems. All new and existing service water-heating systems and equipment that serve the new service water-heating needs of the alteration area shall comply with Sections C404, C408.3, C409.5 and C501.6.

C505.4.4 Pools and permanent spas. All new and existing systems and equipment serving pools and permanent spas that are included in the alteration shall comply with Sections C404.11, C408.3, C409.5 and C501.6.

C505.4.5 Electrical power and lighting systems and motors. All new and existing electrical power and lighting systems and motors that are included in the alteration shall comply with Sections C405, C408.4, C409.5 and C501.6.

C505.4.6 Refrigeration systems. All new and existing refrigerated spaces and refrigeration systems and equipment that serve the new refrigeration needs of the alteration area shall comply with Sections C410, C408.7, C409.5 and C501.6.

C505.5 Change of use. Where the use in a space changes from one use in Table C405.4.2 (1) or (2) to another use in Table C405.4.2 (1) or (2), the installed lighting wattage in the space shall comply with Section C405.4 and the ventilation air flow provided to the space shall be in accordance with Chapter 4 of the *International Mechanical Code*.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-50500, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27A and 19.27 RCW. WSR 19-02-089, § 51-11C-50500, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-50500, filed 1/19/16, effective 7/1/16.]

NEW SECTION

WAC 51-11C-50600 Section C506—Metering for existing buildings.

C506.1 Existing buildings that were constructed subject to the requirements of this section. Where new or replacement systems or equip-

ment are installed in an existing building that was constructed subject to the requirements of this section, metering shall be provided for such new or replacement systems or equipment so that their energy use is included in the corresponding end-use category defined in Section C409.2. This includes systems or equipment added in conjunction with additions or alterations to existing buildings.

C506.1.1 Small existing buildings. Metering and data acquisition systems shall be provided for additions over 25,000 square feet to buildings that were constructed subject to the requirements of this section, in accordance with the requirements of Sections C409.2 and C409.3.

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AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-60000 ((~~Appendix A—Default heat loss coefficients.~~)) Reserved.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-60000, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-600000 Chapter 6 [CE]—Referenced standards. This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section C106.

AAMA	American Architectural Manufacturers Association 1827 Walden Office Square Suite 550 Schaumburg, IL 60173-4268		
Standard reference number	Title		Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A C440—17	North American Fenestration Standard/ Specifications for Windows, Doors and Unit Skylights	.....	Table C402.4.1.1.2
AHAM	Association of Home Appliance Manufacturers 1111 19th Street, N.W., Suite 402 Washington, D.C. 20036		
Standard reference number	Title		Referenced in code section number
ANSI/AHAM RAC-1—2008	Room Air Conditioners	.....	Table C403.3.2(((~~3~~))) (4)

AHAM HRF-1—2017	Energy, Performance and Capacity of Household Refrigerators, Refrigerator-Freezers and Freezers	.....	Table C410.1(1)
AHRI	Air Conditioning, Heating, and Refrigeration Institute 4100 North Fairfax Drive, Suite 200 Arlington, VA 22203		
Standard reference number	Title		Referenced in code section number
ISO/AHRI/ASHRAE 5801—2017	Fans - Performance Testing Using Standardized Airways	.....	C403.8.1.1
ISO/AHRI/ASHRAE 13256-1 (2017)	Water-source Heat Pumps - Testing and Rating for Performance - Part 1: Water-to-air and Brine-to-air Heat Pumps	.....	Table C403.3.2(((~~2~~))) (14)
ISO/AHRI/ASHRAE 13256-2 (2017)	Water-source Heat Pumps - Testing and Rating for Performance - Part 2: Water-to-water and Brine-to-water Heat Pumps	.....	Table C403.3.2(((~~2~~))) (14)
210/240—((~~2016~~)) 2017 and 2023	Performance Rating of Unitary Air Conditioning and Air-source Heat Pump Equipment	.....	Table C403.3.2(1), Table C403.3.2(2)
310/380—((~~2014~~)) 2017	Standard for Packaged Terminal Air Conditioners and Heat Pumps	.....	Table C403.3.2(((~~3~~))) (4)
340/360—((~~2015~~)) 2018	Commercial and Industrial Unitary Air-conditioning and Heat Pump Equipment	.....	Table C403.3.2(1), Table C403.3.2(2)
365—2009	Commercial and Industrial Unitary Air-conditioning Condensing Units	.....	Table C403.3.2(1)((~~, Table C403.3.2(6)~~))
390—2015	Performance Rating of Single Package Vertical Air Conditioners and Heat Pumps	.....	Table C403.3.2(((~~3~~))) (4)
400—2015	Liquid to Liquid Heat Exchangers with Addendum 2	.....	((~~Table~~)) C403.3.2(((~~9~~)))
430—2020	Performance Rating of Central Station Air-Handling Unit Supply Fans	.....	C403.8.1.1
440—((~~08~~)) 19	Room Fan Coil	.....	C403.8.1.1, C403.10.3
460—05	Performance Rating Remote Mechanical Draft Air-cooled Refrigerant Condensers	.....	Table C403.3.2(((~~8~~))) (7)
550/590—((~~2015~~)) 2018	Water Chilling Packages Using the Vapor Compression Cycle—with Addenda	.....	((~~C403.3.2.1~~)) C403.3.2.3, Table C403.3.2(((~~7~~))) (3), Table C403.3.2(15)
560—((~~00~~)) 2018	Absorption Water Chilling and Water-heating Packages	.....	Table C403.3.2(((~~7~~))) (3)
910—2014	Performance Rating of Indoor Pool Dehumidifiers	.....	Table C403.3.2(11)
920—2015	Performance Rating of DX-Dedicated Outdoor Air System Units	.....	C202, Table C403.3.2(((~~11~~))) (12), Table C403.3.2(((~~12~~))) (13)
1160—2014	Performance Rating of Heat Pump Pool Heaters	.....	Table C404.2, C404.11.1
1200—2013	Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets	.....	C410.1,Table C410.1(1), Table C410.1(2)

1230—2014	Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment (with Addendum 1)	. . . . .	Table C403.3.2(9)
1250—2014	Standard for Performance Rating in Walk-in Coolers and Freezers	. . . . .	Table C410.2.1(3)
AMCA	Air Movement and Control Association International 30 West University Drive Arlington Heights, IL 60004-1806		
Standard reference number	Title		Referenced in code section number
205—12	Energy Efficiency Classification for Fans	. . . . .	C403.8.3
208—2018	Calculation of the Fan Energy Index	. . . . .	C403.8.1.1, C403.8.3
210—2016	Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating	. . . . .	C403.8.1.1
220—((8 (2012))) 19	Laboratory Methods for Testing Air Curtain Units for Aerodynamic Performance Rating	. . . . .	C402.5.7
230—15	Laboratory Methods of Testing Air Circulating Fans for Rating and Certification	. . . . .	C403.9
500D—((12)) 18	Laboratory Methods for Testing Dampers for Rating	. . . . .	C402.4.5.1, C402.4.5.2
ANSI	American National Standards Institute 25 West 43rd Street Fourth Floor New York, NY 10036		
Standard reference number	Title		Referenced in code section number
ANSI/AMCA 208-2018	Calculation of the Fan Energy Index	. . . . .	C403.8.1.1
ANSI/AMCA 210-16/ ASHRAE 51-16	Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating	. . . . .	C403.8.1.1
ANSI/ASME A17.1—2010	Safety code for elevators and escalators	. . . . .	C405.12.1
ANSI/CTA 2045-A—2018	Modular Communications Interface for Energy Management	. . . . .	C404.14
ANSI/CTA 2045-B—2021	Modular Communications Interface for Energy Management	. . . . .	C404.14
Z21.10.3/CSA 4.3—((11)) 17	Gas Water Heaters, Volume III—Storage Water Heaters with Input Ratings Above 75,000 Btu per Hour, Circulating Tank and Instantaneous	. . . . .	Table C404.2
Z21.47/CSA 2.3—((12)) 16	Gas-fired Central Furnaces	. . . . .	Table C403.3.2(((4))) (5)
Z83.8/CSA 2.6—((09)) 16	Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters and Gas-fired Duct Furnaces	. . . . .	Table C403.3.2(((4))) (5)
APSP	The Association of Pool and Spa Professionals 2111 Eisenhower Avenue Alexandria, VA 22314		
Standard reference number	Title		Referenced in code section number
14—((2014)) 2019	American National Standards for Portable Electric Spa Efficiency	. . . . .	C404.12
ASABE	American Society of Agricultural and Biological Engineers 2950 Niles Road		

	St. Joseph, MI 49085		
Standard reference number	Title		Referenced in code section number
S640—2017	Quantities and Units of Electromagnetic Radiation for Plants (Photosynthetic Organisms)	. . . . .	C405.3
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, N.E. Atlanta, GA 30329-2305		
Standard reference number	Title		Referenced in code section number
ANSI/ASHRAE/ACCA Standard 127-2007	Method of Testing for Rating Computer and Data Processing Room Unitary Air Conditioners	. . . . .	((~~Table C403.3.2(9)~~)) C403.5
Standard 183—((~~2007~~)) RA2017	Peak Cooling and Heating Load Calculations in Buildings, Except Low-rise Residential Buildings	. . . . .	C403.1.2
ASHRAE—((~~2016~~)) 2020	ASHRAE HVAC Systems and Equipment Handbook—((~~2016~~)) 2020	. . . . .	C403.1.2
ISO/AHRI/ASHRAE 13256-1 (((~~2011~~)) 2012)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	Table C403.3.2(((~~2~~))) (14)
ISO/AHRI/ASHRAE 13256-2 (((~~2011~~)) 2012)	Water-source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	Table C403.3.2(((~~2~~))) (14)
90.1—((~~2016~~)) 2019	Energy Standard for Buildings Except Low-rise Residential Buildings (ANSI/ASHRAE/IESNA 90.1—((~~2010~~)) 2019)(with addendum af)	. . . . .	Table C402.1.3, Table C402.1.4, C406.2
90.4—((~~2016~~)) 2019	Energy Standard for Data Centers (with Addenda a, b, d, e)	. . . . .	C403.1.3
146—2011	Testing and Rating Pool Heaters	. . . . .	Table C404.2
ASME	American Society of Mechanical Engineers Two Park Avenue New York, NY 10016-5990		
Standard reference number	Title		Referenced in code section number
ASME A17.1/CSA B44—((~~2016~~)) 2019	Safety Code for Elevators and Escalators	. . . . .	C405.9.2
BPVC Section IV-2021	Boiler and Pressure Vessel Code, Section IV—Rules for Construction of Heating Boilers	. . . . .	C404.14
BPVC Section X-2021	Boiler and Pressure Vessel Code, Section X—Fiber-Reinforced Plastic Pressure Vessels	. . . . .	C404.14
ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859		
Standard reference number	Title		Referenced in code section number
C 90—((~~14~~)) 206A	Specification for Load-bearing Concrete Masonry Units	. . . . .	Table C402.1.3

C518—17	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	. . . . .	Table C403.10.1.1
C1363—11	Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus	. . . . .	C303.1.4.1, Table C402.1.4
C1363—11	Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus	. . . . .	C303.1.4.1, Table C402.1.4, C402.2.7
C 1371—15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	. . . . .	Table C402.4
C 1549—09	Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using A Portable Solar Reflectometer	. . . . .	Table C402.4
D 1003—13	Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	. . . . .	C402.4.2.2
E 283—04 (2012)	Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen	. . . . .	C402.5.8
E 408—13	Test Methods for Total Normal Emittance of Surfaces Using Inspection-meter Techniques	. . . . .	Table ((~~C402.4~~)) C402.3
E 779—((~~10~~)) 2018	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	. . . . .	C402.5.1.2.3
E 903—12	Standard Test Method Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres (Withdrawn 2005)	. . . . .	Table C402.4
E 1677—11	Standard Specification for an Air-retarder (AR) Material or System for Low-rise Framed Building Walls	. . . . .	C402.5.1.2.2
E 1827—2011(2017)	Standard Test Methods for Determining Airtightness of Building Using an Orifice Blower Door	. . . . .	C402.5.2, C402.5.3
E 1918—06 (2015)	Standard Test Method for Measuring Solar Reflectance of Horizontal or Low-sloped Surfaces in the Field	. . . . .	Table C402.4
E 1980—11	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-sloped Opaque Surfaces	. . . . .	Table C402.2.1.1
E 2178—13	Standard Test Method for Air Permanence of Building Materials	. . . . .	C402.4
E 2357—11	Standard Test Method for Determining Air Leakage of Air Barrier Assemblies	. . . . .	C402.5.1.2.2
F 1281—2017	Specification for Cross-linked Polyethylene/ Aluminum/Cross-linked Polyethylene (PEX-AL_PEX) Pressure Pipe	. . . . .	Table C404.5.2.1
CSA	Canadian Standards Association 5060 Spectrum Way Mississauga, Ontario, Canada L4W 5N6		
Standard reference number	Title		Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A440—11	North American Fenestration Standard/ Specification for Windows, Doors and Unit Skylights	. . . . .	Table C402.4.2

CSA B55.1—2015	Test Method for Measuring Efficiency and Pressure Loss of DWHR Units	. . . . .	C404.10
CSA B55.2—2015	Drain Water Heat Recovery Units	. . . . .	C404.10
CTA	Consumer Technology Association 1919 S Eads Street Arlington, VA 22202		
Standard reference number	Title		Referenced in code section number
ANSI/CTA 2045-A—2018	Modular Communications Interface for Energy Management	. . . . .	C404.14
ANSI/CTA 2045-B—2021	Modular Communications Interface for Energy Management	. . . . .	C404.14
CTI	Cooling Technology Institute 2611 FM 1960 West, Suite A-101 Houston, TX 77068		
Standard reference number	Title		Referenced in code section number
ATC 105 (((~~00~~)))—2019	Acceptance Test Code for Water Cooling Tower	. . . . .	Table C403.3.2(((~~8~~))) (7)
ATC 105DS—2018	Acceptance Test Code for Dry Fluid Coolers	. . . . .	Table C403.3.2(7)
ATC 105S—11	Acceptance Test Code for Closed Circuit Cooling Towers	. . . . .	Table C403.3.2(((~~8~~))) (7)
ATC 106—11	Acceptance Test Code for Mechanical Draft Evaporative Vapor Condensers	. . . . .	Table C403.3.2(((~~8~~))) (7)
STD 201—((~~11~~)) 17	Standard for Certification of Water Cooling Towers Thermal Performances	. . . . .	Table C403.3.2(((~~8~~))) (7)
DASMA	Door and Access Systems Manufacturers Association 1300 Sumner Avenue Cleveland, OH 44115-2851		
Standard reference number	Title		Referenced in code section number
105—((~~92 (R2004)—13~~)) 17	Test Method for Thermal Transmittance and Air Infiltration of Garage Doors	. . . . .	Table C402.4.2
DOE	U.S. Department of Energy c/o Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402-9325		
Standard reference number	Title		Referenced in code section number
10 C.F.R., Part 430—2015	Energy Conservation Program for Consumer Products: Test Procedures and Certification and Enforcement Requirement for Plumbing Products; and Certification and Enforcement Requirements for Residential Appliances; Final Rule	. . . . .	Table C403.3.2(((~~4~~))) (1), Table C403.3.2(((~~5~~))) (2), Table C403.3.2(5), Table C403.3.2(6), Table C403.3.2(14), Table C404.2
((~~10 C.F.R., Part 430, Subpart B, Appendix N—2015~~	~~Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers~~	. . . . .	~~C202~~))

10 C.F.R., Part 431—2015	Energy Efficiency Program for Certain Commercial and Industrial Equipment: Test Procedures and Efficiency Standards; Final Rules	. . . . .	Table C403.3.2(((~~(5)~~))) (6), C403.8.4, C403.11, Table ((~~C406.2(5)~~)) C403.11, C403.11.2, C405.7, Table C405.7, C405.8, Table C405.8(1), Table C405.8(2), Table C405.8(3)
((~~NAECA 87—(88)~~	~~National Appliance Energy Conservation Act 1987 [(Public Law 100-12 (with Amendments of 1988-P.L. 100-357)]~~	~~. . . . . .~~	~~Tables C403.3.2 (1), (2), (4)~~)))
HVI	Home Ventilating Institute 1740 Dell Range Blvd., Ste. H, PMB 450 Cheyenne, WY 82009		
Standard reference number	Title		Referenced in code section number
920—2020	Product Performance Certification Procedure Including Verification and Challenge	. . . . .	C403.3.5.1, C403.3.6
IAPMO	International Association of Plumbing and Mechanical Officials 4755 E. Philadelphia Street Ontario, CA 91761		
Standard reference number	Title		Referenced in code section number
UPC—((~~2015~~)) 2021	Uniform Plumbing Code	. . . . .	C201.3, ((~~C501.4~~)) C501.2
ICC	International Code Council, Inc. 500 New Jersey Avenue, N.W., 6th Floor Washington, D.C. 20001		
Standard reference number	Title		Referenced in code section number
IBC—((~~15~~)) 21	International Building Code	. . . . .	C201.3, C303.2, C402.4.3, C501.2
ICC 500—2020	Standard for the Design and Construction of Storm Shelters	. . . . .	C402.4.2
IFC—((~~15~~)) 21	International Fire Code	. . . . .	C201.3, ((~~C501.4~~)) C501.2
IFGC—((~~15~~)) 21	International Fuel Gas Code	. . . . .	C201.3, ((~~C501.4~~)) C501.2
IMC—((~~15~~)) 21	International Mechanical Code	. . . . .	C106.3, C201.3, C402.5.3, C403.2.2.1, C403.2.2.2, C403.3.5, C403.3.5.1, C403.6.1, C403.6.5, C403.6.10, C403.7.1, C403.7.2, C403.7.5, C403.7.5.1, C403.7.6, C403.7.7.3, C403.7.8.1, C403.7.8.4, C403.8.4, C403.8.5.1, Table C403.10.1, C403.10.1.2, Table C403.10.1.2, C403.10.2.2, C403.12, C406.6, C408.2.2.1, ((~~C501.4~~)) C501.2
IEEE	The Institute of Electrical and Electronic Engineers, Inc. 3 Park Avenue New York, NY 10016		

Standard reference number	Title		Referenced in code section number
IEEE 515.1—2012	IEEE Standard for the Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Commercial Applications	. . . . .	C404.6.2
((~~IESNA~~)) IES	Illuminating Engineering Society ((~~of North America~~)) 120 Wall Street, 17th Floor New York, NY 10005-4001		
Standard reference number	Title		Referenced in code section number
ANSI/ASHRAE/IESNA 90.1—((~~2016~~)) 2019	Energy Standard for Buildings Except Low-rise Residential Buildings	. . . . .	Table C402.1.3, Table C402.1.4, Table C407.5.1
ISO	International Organization for Standardization 1, rue de Varembe, Case postale 56, CH-1211 Geneva, Switzerland		
Standard reference number	Title		Referenced in code section number
ISO/AHRI/ASHRAE 13256-1 (2017)	Water-Source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	C403.3.2(((~~2~~))) (14)
ISO/AHRI/ASHRAE 13256-2 (2017)	Water-Source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	C403.3.2(((~~2~~))) (14)
25745-2:2015	Energy Performance of Lifts, Escalators and Moving Walks—Part 2: Energy Calculation and Classification for Lifts (Elevators)	. . . . .	C406.2.14
NEEA	Northwest Energy Efficiency Alliance 421 SW 6th Ave. Suite 600 Portland, OR 97204		
Standard reference number	Title		Referenced in code section number
AWHS Vers. 8.0—2022	Advanced Water Heating Specification	. . . . .	C404.2.1
NEMA	National Electric Manufacturers Association 1300 North 17th Street Suite 1752 Rosslyn, VA 22209		
Standard reference number	Title		Referenced in code section number
((~~TP-1-2002~~	~~Guide for Determining Energy Efficiency for Distribution Transformers~~	~~. . . . . .~~	~~C405.9~~))
ANSI/NEMA WD 6-2016	Wiring Devices—Dimensional Specifications	. . . . .	C405.12
MGI—((~~2014~~)) 2016	Motors and Generators	. . . . .	C202
TP-1-2002	Guide for Determining Energy Efficiency for Distribution Transformers	. . . . .	C405.9
NFRC	National Fenestration Rating Council, Inc. 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770		
Standard reference number	Title		Referenced in code section number

100—((~~2017~~)) 2020	Procedure for Determining Fenestration Product U-factors	.....	C303.1.2, C402.2.2
200—((~~2017~~)) 2020	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence	.....	C303.1.3, C402.4.1.1
202—2017	Procedure for Determining Fenestration Product Visible Transmittance at Normal Incidence	.....	C202
NFRC 203—2017	Procedure for Determining Visible Transmittance of Tubular Daylighting Devices	.....	C202, C402.4.2
400—2017	Procedure for Determining Fenestration Product Air Leakage	.....	Table C402.4.2
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. 4021 Lafayette Center Drive Chantilly, VA 20151-1209		
Standard reference number	Title		Referenced in code section number
SMACNA—2012	HVAC Air Duct Leakage Test Manual	.....	C403.10.2.3
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062-2096		
Standard reference number	Title		Referenced in code section number
710—12	Exhaust Hoods for Commercial Cooking Equipment	.....	C403.7.5
727—((~~06~~)) 18	Oil-fired Central Furnaces—with Revisions through April 2010	.....	Table C403.3.2(4), Table C403.3.2(5)
731—((~~95~~)) 18	Oil-fired Unit Heaters—with Revisions through April 2010	.....	Table C403.3.2(((~~4~~))) (5)
US-FTC	United States-Federal Trade Commission 600 Pennsylvania Avenue N.W. Washington, D.C. 20580		
Standard reference number	Title		Referenced in code section number
C.F.R. Title 16 (2015)	R-value Rule	.....	C303.1.4
WDMA	Window and Door Manufacturers Association 1400 East Touhy Avenue, Suite 470 Des Plaines, IL 60018		
Standard reference number	Title		Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A440—17	North American Fenestration Standard/ Specification for Windows, Doors and Unit Skylights	.....	Table C402.4.2

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-600000, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-600000, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-600000, filed 1/19/16, effective 7/1/16.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-11C-61000 Appendix A—Default heat loss coefficients.

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AMENDATORY SECTION (Amending WSR 20-21-080, filed 10/19/20, effective 2/1/21)

WAC 51-11C-80500 Appendix D—Calculation of HVAC total system performance ratio.

D101 Scope. This appendix establishes criteria for demonstrating compliance using the *HVAC total system performance ratio (HVAC TSPR)* for systems serving office (including medical offices), retail, library and education occupancies and buildings, which are subject to the requirements of Section C403.3.5 without exceptions, and *dwelling units* and common areas within multifamily buildings. Those HVAC systems shall comply with Section C403 and this appendix as required by Section C403.1.1.

D101.1 Core and Shell/Initial Build-Out, and Future System Construction Analysis.

Where the *building* permit applies to only a portion of the *HVAC system* in a *building* and the remaining components will be designed under a future *building* permit or were previously installed, the future or previously installed components shall be modeled as follows:

1. Where the HVAC zones that do not include HVAC systems in the current permit will be or are served by independent systems, then the block including those zones shall not be included in the model.

2. Where the HVAC zones that do not include complete HVAC systems in the permit are intended to receive HVAC services from systems in the permit, their proposed zonal systems shall be modeled with equipment that meets, but does not exceed, the requirements of Section C403.

3. Where the zone equipment in the permit receives HVAC services from previously installed systems that are not in the permit, the previously installed systems shall be modeled with equipment matching the certified value of what is installed or equipment that meets the requirements of Section C403.

4. Where the central plant heating and cooling equipment is completely replaced and HVAC zones with existing systems receive HVAC services from systems in the permit, their proposed zonal systems shall be modeled with equipment that meets, but does not exceed, the requirements of Section C403.

Informative Notes: 1. Examples of HVAC systems that are intended to receive HVAC services from systems in the permit include future zonal water source heat pumps that will receive loop water that is heated by a boiler or cooled by a cooling tower included in the permit, any system that will receive outdoor ventilation air from a dedicated outdoor air system included in the permit, and future zone terminal units that will be connected to a central VAV system included in the permit.

2. An initial build-out with heating coils served from a previously installed system with a high-efficiency condensing boiler would use the installed efficiency if it exceeded the current requirements. If the installed boiler had a lower efficiency than the current requirements, the current requirement would be used.
3. A partial central plant upgrade (e.g., chiller, but not boiler replacement) cannot use this method.

D201 Compliance. Compliance based on *HVAC total system performance ratio* requires that the provisions of Section C403.3 are met and the *HVAC total system performance ratio* of the *proposed design* is more than or equal to the *HVAC total system performance ratio* of the *standard reference design*. The *HVAC TSPR* is calculated according to the following formula:

HVAC TSPR = annual heating and cooling load/annual carbon emissions from energy consumption of the building HVAC systems

Where:

Annual carbon emissions from energy consumption of the building HVAC systems	=	sum of the annual carbon emissions in pounds for heating, cooling, fans, energy recovery, pumps, and heat rejection calculated by multiplying site energy consumption by the carbon emission factors from Table C407.1
Annual heating and cooling load	=	sum of the annual heating and cooling loads met by the building HVAC system in thousands of Btus.

Table ((~~C407.1~~)) C407.3(1) (Reprinted from Chapter 4)
Carbon Emissions Factors

Type	CO2e (lb/unit)	Unit
Electricity	((~~0.70~~)) 0.44	kWh
Natural gas	11.70	Therm
Oil	19.2	Gallon
Propane	10.5	Gallon
Other[a]	195.00	mmBtu
On-site renewable energy[b]	0.00	

[a] District energy systems may use alternative emissions factors supported by calculations approved by the *code official*.

[b] Not applicable to TSPR calculation in Appendix D.

D300 Simulation program.

D301 General.

D302 Calculation of the HVAC TSPR for the *Standard Reference Design*. The simulation program shall calculate the HVAC TSPR based only on the input for the *proposed design* and the requirements of this appendix. The calculation procedure shall not allow the user to directly modify the building component characteristics of the *standard reference design*.

D303 Specific approval. Performance analysis tools meeting the applicable subsections of Appendix D and tested according to ASHRAE Stand-

ard 140 shall be permitted to be *approved*. Tools are permitted to be *approved* based on meeting a specified threshold for a jurisdiction. The *code official* shall be permitted to approve tools for a specified application or limited scope.

D400 Climatic data. The simulation program shall perform the simulation using hourly values of climatic data, such as temperature and humidity, using TMY3 data for the site as specified here: https://buildingenergyscore.energy.gov/resources

D500 Documentation. Documentation conforming to the provisions of this section shall be provided to the *code official*.

D501 Compliance report. Building permit submittals shall include:

1. A report produced by the simulation software that includes the following:

1.1 Address of the building.

1.2 Name of individual completing the compliance report.

1.3 Name and version of the compliance software tool.

1.4 The dimensions, floor heights and number of floors for each *block*.

1.5 By block, the *U*-factor, *C*-factor, or *F*-factor for each simulated opaque envelope component and the *U*-factor and SHGC for each fenestration component.

1.6 By *block* or by surface for each block, the fenestration area.

1.7 By *block*, a list of the HVAC equipment simulated in the proposed design including the equipment type, fuel type, equipment efficiencies and system controls.

1.8 Annual site HVAC energy use by end use for the proposed and baseline building.

1.9 Annual sum of heating and cooling loads for the baseline building.

1.10 The *HVAC total system performance ratio* for both the *standard reference design* and the *proposed design*.

2. A mapping of the actual building HVAC component characteristics and those simulated in the *proposed design* showing how individual pieces of HVAC equipment identified above have been combined into average inputs as required by Section ((~~D601.11~~)) D601.10 including:

2.1 Fans.

2.2 Hydronic pumps.

2.3 Air handlers.

2.4 Packaged cooling equipment.

2.5 Furnaces.

2.6 Heat pumps.

2.7 Boilers.

2.8 Chillers.

2.9 Cooling towers.

2.10 Electric resistance coils.

2.11 Condensing units.

2.12 Motors for fans and pumps.

2.13 Energy recovery devices.

For each piece of equipment identified above, include the following as applicable:

2.14 Equipment name or tag consistent with that found on the design documents.

2.15 Rated efficiency level.

2.16 Rated capacity.

2.17 ((~~Input power for fans and pumps.~~)) Electrical input power for fans and pumps (before any speed or frequency control device) at design conditions and calculation of input value (W/cfm or W/gpm).

3. Floor plan of the building identifying how portions of the building are assigned to the simulated *blocks* and areas of the building that are not covered under the requirements of Section C403.1.1.

D600 Calculation procedure. Except as specified by this appendix, the *standard reference design* and *proposed design* shall be configured and analyzed using identical methods and techniques.

D601 Simulation of the proposed building design. The *proposed design* shall be configured and analyzed as specified in this section.

D601.1 ((~~Utility rates.~~ ~~For the purpose of calculating the *HVAC TSPR* the following simple utility rate determined by the Washington state department of commerce shall be used:~~

~~$0.112/kWh of electricity.~~

~~$1.158/therm of fossil fuel.~~

~~D601.2~~)) Block geometry. The geometry of buildings shall be configured using one or more *blocks*. Each *block* shall define attributes including *block* dimensions, number of floors, floor to floor height and floor to ceiling height. Simulation software may allow the use of simplified shapes (such as rectangle, L shape, H shape, U shape or T shape) to represent *blocks*. Where actual building shape does not match these predefined shapes, simplifications are permitted providing the following requirements are met:

1. The conditioned floor area and volume of each block shall match the *proposed design* within 10 percent.

2. The area of each exterior envelope component from Table C402.1.4 is accounted for within 10 percent of the actual design.

3. The area of vertical fenestration and skylights is accounted for within 10 percent of the actual design.

4. The orientation of each component in 2 and 3 above is accounted for within 45 degrees of the actual design.

The creation of additional *blocks* may be necessary to meet these requirements.

EXCEPTION: Portions of the building that are unconditioned or served by systems not covered by the requirements of Section C403.1.1 shall be omitted.

((~~D601.2.1~~)) D601.1.1 Number of blocks. One or more *blocks* may be required per building based on the following restrictions:

1. Each *block* can have only one occupancy type (multifamily *dwelling unit*, multifamily common area, office, library, education or retail). Therefore, at least one single *block* shall be created for each unique use type.

2. Each *block* can be served by only one type of HVAC system. Therefore, a single *block* shall be created for each unique HVAC system and use type combination. Multiple HVAC units of the same type may be represented in one *block*. ((~~Table~~)) Section D601.10.2 provides directions for combining multiple HVAC units or components of the same type into a single *block*.

3. Each *block* can have a single definition of floor to floor or floor to ceiling heights. Where floor heights differ by more than 2 feet, unique *blocks* should be created for the floors with varying heights.

4. Each *block* can include either above grade or below grade floors. For buildings with both above grade and below grade floors,

separate *blocks* should be created for each. For buildings with floors partially above grade and partially below grade, if the total wall area of the floor(s) in consideration is greater than or equal to 50 percent above grade, then it should be simulated as a completely above grade *block*, otherwise it should be simulated as a below grade *block*.

5. Each wall on a façade of a *block* shall have similar vertical fenestration. The product of the *proposed design U*-factor times the area of windows (UA) on each façade of a given floor cannot differ by more than 15 percent of the average UA for that façade in each *block*. The product of the *proposed design SHGC* times the area of windows ((~~(USHGC)~~)) (SHGCA) on each façade of a given floor cannot differ by more than 15 percent of the average ((~~USHGC~~)) SHGCA for that façade in each *block*. If either of these conditions are not met, additional *blocks* shall be created consisting of floors with similar fenestration.

6. For a building model with multiple *blocks*, the *blocks* should be configured together to have the same adjacencies as the actual building design.

((~~D601.3~~)) D601.2 Thermal zoning. Each floor in a *block* shall be modeled as a single thermal zone or as five thermal zones consisting of four perimeter zones and a core zone. Below grade floors shall be modeled as a single thermal *block*. If any façade in the *block* is less than 45 feet in length, there shall only be a single thermal zone per floor. Otherwise each floor shall be modeled with 5 thermal zones. A perimeter zone shall be created extending from each façade to a depth of 15 feet. Where facades intersect, the zone boundary shall be formed by a 45 degree angle with the 2 facades. The remaining area or each floor shall be modeled as a core zone with no exterior walls.

((~~D601.4~~)) D601.3 Occupancy.

((~~D601.4.1~~)) D601.3.1 Occupancy type. The occupancy type for each *block* shall be consistent with the building area type as determined in accordance with Section C405.4.2.1. Portions of the building that are building area types other than multifamily *dwelling unit*, multifamily common area, office, school (education), library, or retail shall not be included in the simulation. Surfaces adjacent to such building portions shall be modeled as adiabatic in the simulation program.

((~~D601.4.2~~)) D601.3.2 Occupancy schedule, density, and heat gain. The occupant density, heat gain, and schedule shall be for multifamily, office, retail, library, or school as specified by ASHRAE Standard 90.1 Normative Appendix C.

((~~D601.5~~)) D601.4 Envelope components.

((~~D601.5.1~~)) D601.4.1 Roofs. Roofs will be modeled with insulation above a steel roof deck. The roof *U*-factor and area shall be modeled as in the proposed design. If different roof thermal properties are present in a single block, an area weighted *U*-factor shall be used. Roof solar absorbtance shall be modeled at 0.70 and emittance at 0.90.

((~~D601.5.2~~)) D601.4.2 Above grade walls. Walls will be modeled as steel frame construction. The *U*-factor and area of above grade walls shall be modeled as in the *proposed design*. If different wall constructions exist on the façade of a *block* an area-weighted *U*-factor shall be used.

((~~D601.5.3~~)) D601.4.3 Below grade walls. The *C*-factor and area of below grade walls shall be modeled as in the *proposed design*. If differ-

ent slab on grade floor constructions exist in a *block*, an area-weighted *C*-factor shall be used.

((~~D601.5.4~~)) D601.4.4 Above grade exterior floors. Exterior floors shall be modeled as steel frame. The *U*-factor and area of floors shall be modeled as in the *proposed design*. If different wall constructions exist in the block an area-weighted *U*-factor shall be used.

((~~D601.5.5~~)) D601.4.5 Slab on grade floors. The *F*-factor and area of slab on grade floors shall be modeled as in the *proposed design*. If different below grade wall constructions exist in a *block*, an area-weighted *F*-factor shall be used.

((~~D601.5.6~~)) D601.4.6 Vertical fenestration. The window area and area weighted *U*-factor and SHGC shall be modeled for each façade based on the *proposed design*. Each exterior surface in a *block* must comply with Section ((~~D601.2.1~~)) D601.1.1 item 5. Windows will be combined in to a single window centered on each façade based on the area and sill height input by the user. When different *U*-factors, SHGC or sill heights exist on a single façade, area weighted average for each shall be input by the user.

((~~D601.5.7~~)) D601.4.7 Skylights. The skylight area and area weighted *U*-factor and SHGC shall be modeled for each floor based the *proposed design*. Skylights will be combined in to a single skylight centered on the roof of each zone based on the area ((~~and sill height~~)) input by the user.

D601.4.8 Exterior shading. Permanent window overhangs shall be modeled. When windows with and without overhangs or windows with different overhang projection factors exist on a façade, window width weighted projection factors shall be input by the user as follows.

$$P_{avg} = \frac{A_1 \times L_{o1} + A_2 \times L_{o2} \ldots A_n \times L_{on}}{L_{w1} + L_{w2} \ldots L_{wn}}$$

Where:

P_{avg}	=	Average overhang projection modeled in the simulation tool.
A	=	Distance measured horizontally from the furthest continuous extremity of any overhang, eave or permanently attached shading device to the vertical surface of the glazing.
L_o	=	Length off the overhang.
L_w	=	Length of the window.

((~~D601.6~~)) D601.5 Lighting. Interior lighting power density shall be equal to the allowance in Table C405.4.2(1) for multifamily, office, retail, library, or school. The lighting schedule shall be for multifamily, office, retail, library, or school as specified by ASHRAE Standard 90.1 Normative Appendix C. The impact of lighting controls is assumed to be captured by the lighting schedule and no explicit controls shall be modeled. Exterior lighting shall not be modeled.

((~~D601.7~~)) D601.6 Miscellaneous equipment. The miscellaneous equipment schedule and power shall be for multifamily, office, retail, library, or school as specified by ASHRAE Standard 90.1 Normative Appendix C. The impact of miscellaneous equipment controls is assumed to be cap-

tured by the equipment schedule and no explicit controls shall be modeled.

EXCEPTIONS:
1. Multifamily *dwelling units* shall have a miscellaneous load density of 0.42 W/ft^2.
2. Multifamily common areas shall have a miscellaneous load density of 0 W/ft^2.

((~~D601.8~~)) D601.7 Elevators. Elevators shall not be modeled.

((~~D601.9~~)) D601.8 Service water heating equipment. Service water heating shall not be modeled.

((~~D601.10~~)) D601.9 On-site renewable energy systems. On-site renewable energy systems shall not be modeled.

((~~D601.11~~)) D601.10 HVAC equipment. HVAC systems shall meet the requirements of Section C403.

((~~D601.11.1~~)) D601.10.1 Supported HVAC systems. At a minimum, the HVAC systems shown in Table ((~~D601.11.1~~)) D601.10.1 shall be supported by the simulation program.

Table ((~~D601.11.1~~)) D601.10.1
Proposed Building HVAC Systems Supported by HVAC TSPR Simulation Software

System No.	System Name	System Abbreviation
1	Packaged Terminal Air Conditioner	PTAC
2	Packaged Terminal Air Heat Pump	PTHP
3	Packaged Single Zone Gas Furnace	PSZGF
4	Packaged Single Zone Heat Pump (air to air only)	PSZHP
5	Variable Refrigerant Flow (air cooled only)	VRF
6	Four Pipe Fan Coil	FPFC
7	Water Source Heat Pump	WSHP
8	Ground Source Heat Pump	GSHP
9	Packaged Variable Air Volume (dx cooling)	PVAV
10	Variable Air Volume (hydronic cooling)	VAV
11	Variable Air Volume with Fan Powered Terminal Units	VAVFPTU
12	Dedicated Outdoor Air System (in conjunction with systems 1-8)	DOAS

((~~D601.11.2~~)) D601.10.2 Proposed building HVAC system simulation. The HVAC systems shall be modeled as in the *proposed design* with clarifications and simplifications as described in Table ((~~D601.11.2~~)) D601.10.2. System parameters not described in the following sections shall be simulated to meet the minimum requirements of Section C403. All zones within a *block* shall be served by the same HVAC system type as described in Section ((~~D601.2.1~~)) D601.1.1 item 2. Where multiple system components serve a block, average values weighed by the appro-

priate metric as described in this section shall be used. Heat loss from ducts and pipes shall not be modeled.

((~~EXCEPTION: Where the building permit applies to only a portion of an HVAC system and remaining components will be designed under a future building permit, the future components shall be modeled to meet, but not exceed, the requirements of Section C403.~~))

1. Where multiple fan systems serve a single block, fan power shall be based on weighted average using the design supply air cfm.

2. Where multiple cooling systems serve a single block, COP shall be based on a weighted average using cooling capacity. DX coils shall be entered as multi-stage if more than 50% of coil capacity serving the block is multi-stage with staged controls.

3. Where multiple heating systems serve a single block, thermal efficiency or heating COP shall be based on a weighted average using heating capacity.

4. Where multiple boilers or chillers serve a heating water or chilled water loop, efficiency shall be based on a weighted average for using heating or cooling capacity.

5. When multiple cooling towers serving a condenser water loop are combined, the cooling tower efficiency, cooling tower design approach and design range are based on a weighted average of the design water flow rate through each cooling tower.

6. Where multiple pumps serve a heating water, chilled water or condenser water loop, pump power shall be based on a weighted average for using design water flow rate.

7. When multiple system types with and without economizers are combined, the economizer maximum outside air fraction of the combined system shall be based on weighted average of 100% supply air for systems with economizers and design outdoor air for systems without economizers.

8. Multiple systems with and without ERVs cannot be combined.

9. Systems with and without supply air temperature reset cannot be combined.

10. Systems with different fan control (constant volume, multi-speed or VAV) for supply fans cannot be combined.

11. Demand Controlled Ventilation (DCV) shall be modeled using a simplified approach that adjusts the design outdoor supply air flow rate based on the area of the building that is covered by DCV.

Table ((~~D601.11.2~~)) D601.10.2
Proposed Building System Parameters

Category	Parameter	Fixed or User Defined	Required	Applicable Systems
HVAC System Type	System Type	User Defined	Selected from Table ((~~D601.11.1~~)) D601.10.1	All
System Sizing	Design Day Information	Fixed	99.6 percent heating design and 1 percent dry-bulb and 1 percent wet-bulb cooling design	All
	Zone Coil Capacity	Fixed	Sizing factors used are 1.25 for heating equipment and 1.15 for cooling equipment	All
	Supply Airflow	Fixed	Based on a supply-air-to-room-air temperature *set-point* difference of 20°F	1-11
		Fixed	Equal to required outdoor air ventilation	12
Outdoor Ventilation Air	Portion of Supply Air with Proposed Filter ≥ MERV 13	User Defined	Percentage of supply air flow subject to higher filtration (Adjusts baseline fan power higher. Prorated)	All
	Outdoor Ventilation Air Flow Rate	Fixed	As specified in ASHRAE Standard 90.1 Normative Appendix C, adjusted for proposed DCV control	All

Category	Parameter	Fixed or User Defined	Required	Applicable Systems
	Outdoor Ventilation Supply Air Flow Rate Adjustments	Fixed	Based on ASHRAE Standard 62.1 Section 6.2.4.3 system ventilation efficiency (E_VS) is 0.75	9-11
		Fixed	System ventilation efficiency (E_VS) is 1.0	1-8, 12
		Fixed	Base is 1.0 zone air distribution effectiveness	All
System Operation	Space Temperature Setpoints	Fixed	As specified in ASHRAE Standard 90.1 Normative Appendix C, except multifamily which shall use 68°F heating and 76°F cooling setpoints	1-11
	Fan Operation - Occupied	User Defined	Runs continuously during occupied hours or cycled to meet load. Multispeed fans reduce airflow related to thermal loads	1-11
	Fan Operation - Occupied	Fixed	Fan runs continuously during occupied hours	12
	Fan Operation - Night Cycle	Fixed	Fan cycles on to meet setback temperatures	1-11
Packaged Equipment Efficiency	DX Cooling Efficiency	User Defined	Cooling COP without fan energy calculated in accordance with ASHRAE Standard 90.1 Section 11.5.2c.[b]	1, 2, 3, 4, 5, 7, 8, 9, 11, 12
	DX Coil Number of Stages	User Defined	Single state or multistage	3, 4, 9
	Heat Pump Efficiency	User Defined	Heating COP without fan energy calculated in accordance with ASHRAE Standard 90.1 Section 11.5.2c.[c]	2, 4, 5, 7, 8
	Furnace Efficiency	User Defined	Furnace thermal efficiency[c]	3, 11
Heat Pump Supplemental Heat	Control	Fixed	Supplemental electric heat locked out above 40°F. Runs in conjunction with compressor between 40°F and 0°F.	2, 4
System Fan Power and Controls	Part-Load Fan Controls	User Defined	Constant volume or two speed	1-8
	Part-Load Fan Controls[a]	User Defined	Constant volume or variable air volume	12
	Part-Load Fan Controls[a]	Fixed	Variable air volume. VFD with static pressure reset.	9-11
	Design Fan Power (W/cfm)	User Defined	Input electric power for all fans is required to operate at *fan system design conditions* divided by the supply airflow rate. This is a "wire to air" value including all drive, motor efficiency and other losses.	All
	((~~Single Zone System Fan Power During Deadband (W/cfm)~~)) Low-Speed Fan Power	User Defined	((~~W/cfm during deadband for VAV or multispeed single zone fans~~)) Low speed input electric power for all fans required to operate at low speed conditions divided by the low speed supply airflow rate. This is a "wire to air" value including all drive, motor efficiency and other losses.	((~~3, 4, 5, 6, 7, 8~~)) 1-8

Category	Parameter	Fixed or User Defined	Required	Applicable Systems
Variable Air Volume Systems	((~~Part Load Fan Controls~~	~~User Defined~~	~~VFD included. User specifies presence of static pressure reset~~	~~9, 10, 11~~))
	Supply Air Temperature (SAT) Controls	User Defined	If not SAT reset, constant at 55°F. ((~~SAT reset results in 60°F SAT during low load conditions~~)) Options for reset based on outdoor air temperature (OAT) or warmest zone. If warmest zone, then the user can specify the minimum and maximum temperatures. If OAT reset, SAT is reset higher to 60°F at outdoor low of 50°F. SAT is 55°F at outdoor high of 70°F.	9, 10, 11
	Minimum Terminal Unit Airflow Percentage	User Defined	Average minimum terminal unit airflow percentage for *block* weighted by cfm	9, 10, 11
	Terminal Unit Heating Source	User Defined	Electric or hydronic	9, 10, 11
	Dual Set Point Minimum VAV Damper Position	User Defined	Heating maximum airflow fractions	9, 10
	Fan Powered Terminal Unit (FPTU) Type	User Defined	Series or parallel FPTU	11
	Parallel FPTU Fan	Fixed	Sized for 50 percent peak primary air at 0.35 W/cfm	11
	Series FPTU Fan	Fixed	Sized for 50 percent peak primary air at 0.35 W/cfm	11
Economizer	Economizer Presence	User Defined	Yes or No	3, 4, 9, 10, 11
	Economizer ((~~High Limit~~)) Control Type	Fixed	((~~75°F fixed~~)) Differential dry-bulb	3, 4, 9, 10, 11
Energy Recovery	Sensible Effectiveness	User Defined	Heat exchanger sensible effectiveness at design heating and cooling conditions	3, 4, 9, 10, 11, 12
	Latent Effectiveness	User Defined	Heat exchanger latent effectiveness at design heating and cooling conditions	3, 4, 9, 10, 11, 12
	Economizer Bypass	User Defined	If ERV is bypassed during economizer conditions	3, 4, 9, 10, 11, 12
	((~~Energy Recovery Temp Control~~)) Bypass SAT Setpoint	User Defined	If bypass, target supply air temperature	3, 4, 9, 10, 11, 12
	Fan Power Reduction during Bypass (W/cfm)	User Defined	If ERV system include bypass, static pressure setpoint and variable speed fan, fan power can be reduced during economizer conditions	3, 4, 9, 10, 11, 12
Demand Controlled Ventilation	DCV Application	User Defined	Percent of block floor area under DCV control	3, 4, 9, 10, 11, 12

Category	Parameter	Fixed or User Defined	Required	Applicable Systems
DOAS	DOAS Fan Power W/cfm	User Defined	Fan electrical input power in W/cfm of supply airflow((a))	12
	DOAS Supplemental Heating and Cooling	User Defined	Heating source, cooling source	12
	Minimum SAT Setpoint (Cooling)	User Defined	SAT setpoint if DOAS includes supplemental cooling	12
	((~~DOAS Supply Air Temperature Control~~)) Minimum SAT Setpoint (Heating)	User Defined	SAT setpoint if DOAS includes supplemental heating ((~~or cooling and active temperature controls~~))	12
Heating Plant	Boiler Efficiency((d))	User Defined	Boiler thermal efficiency	1, 6, 7, 9, 10, 11, 12
	Heating Water Loop Configuration[a]	User Defined	Constant flow primary only; variable flow primary only; constant flow primary-variable flow secondary	1, 6, 7, 9, 10, 11, 12
	Heating Water Primary Pump Power (W/gpm)	User Defined	Heating water primary pump input W/gpm heating water flow	1, 6, 7, 9, 10, 11, 12
	Heating Water Secondary Pump Power (W/gpm)	User Defined	Heating water secondary pump input W/gpm heating water flow (if primary/secondary)	1, 6, 7, 9, 10, 11, 12
	Heating Water Loop Temperature	Fixed	180°F supply, 130°F return	1, 6, 9, 10,11
	Boiler Type	Fixed	Noncondensing boiler where input thermal efficiency is less than 86%; condensing boiler otherwise	1, 6, 7, 9, 10, 11, 12

Category	Parameter	Fixed or User Defined	Required	Applicable Systems
Chilled Water Plant	Chiller Compressor Type	User Defined	Screw/scroll, centrifugal or reciprocating	6,10, 11, 12
	Chiller Condenser Type	User Defined	Air cooled or water cooled	6, 10, 11, 12
	Chiller Full Load Efficiency((d))	User Defined	Chiller COP	6, 10, 11, 12
	Chilled Water Loop Configuration[a]	User Defined	Variable flow primary only, constant flow primary - variable flow secondary	6, 10, 11, 12
	Chilled Water Primary Pump Power (W/gpm)	User Defined	Primary pump input W/gpm chilled water flow (if primary/secondary)	6, 10, 11, 12
	Chilled Water Secondary Pump Power (W/gpm)	User Defined	Secondary pump input W/gpm chilled water flow	6, 10, 11, 12
	Chilled Water Temperature Reset Included	User Defined	Yes/No	6, 10, 11, 12
	Chilled Water Temperature Reset Schedule (if included)	Fixed	Outdoor air reset: CHW supply temperature of 44°F at 80°F outdoor air dry-bulb and above, CHW supply temperature of 54°F at 60°F outdoor air dry-bulb temperature and below, ramped linearly between	6, 10, 11, 12
	Condenser Water Pump Power (W/gpm)	User Defined	Pump input W/gpm condenser water flow	6, 7, 8, ((9,)) 10, 11, 12
	Condenser Water Pump Control	User Defined	Constant speed or variable speed	6, 7, 8, 10, 11, 12
	Cooling Tower Efficiency	User Defined	gpm/hp tower fan	6, 7, 10, 11, 12
((~~Cooling Tower~~))	Cooling Tower Fan Control	User Defined	Constant or variable speed	6, 7, 10, 11, 12
	Cooling Tower Approach and Range	User Defined	Design cooling tower approach and range temperature	6, 7, 10, 11, 12
Heat Pump Loop Flow Control	Loop Flow and Heat Pump Control Valve	Fixed	Two position valve with VFD on pump. Loop flow at 3 gpm/ton	7, 8
Heat Pump Loop Temperature Control		Fixed	Set to maintain temperature between 50°F and 70°F	7
GLHP Well Field		Fixed	Bore depth = 250 feet Bore length 200 feet/ton for greater of cooling or heating load Bore spacing = 15 feet Bore diameter = 5 inches 3/4 inch Polyethylene pipe Ground and grout conductivity = 4.8 Btu-in/h-ft^2-°F	8

((~~[a] Where multiple fan systems serve a single *block*, fan power is based on weighted average using on supply air cfm.~~

~~[b] Where multiple cooling systems serve a single *block*, COP is based on a weighted average using cooling capacity.~~

~~[c] Where multiple heating systems serve a single *block*, thermal efficiency or heating COP is based on a weighted average using heating capacity.~~

~~[d] Where multiple boilers or chillers serve a heating water or chilled water loop, efficiency is based on a weighted average for using heating or cooling capacity.~~))

[a] Part load fan power and pump power modified in accordance with Table D601.10.3.

Table D601.10.3
Fan and Pump Power Curve Coefficients

Equation Term	Fan Power Coefficients	Pump Power Coefficients	
	VSD + SP Reset	Ride Pump Curve	VSD + DP/Valve Reset
b	0.0408	0	0
x	0.088	3.2485	0.0205
x^2	-0.0729	-4.7443	0.4101
x^3	0.9437	2.5295	0.5753

D602 Simulation of the standard reference design. The *standard reference design* shall be configured and analyzed as specified in this section.

D602.1 Utility rates. Same as proposed.

D602.2 Blocks. Same as proposed.

D602.3 Thermal zoning. Same as proposed.

D602.4 Occupancy type, schedule, density, and heat gain. Same as proposed.

D602.5 Envelope components. Same as proposed.

D602.6 Lighting. Same as proposed.

D602.7 Miscellaneous equipment. Same as proposed.

D602.8 Elevators. Not modeled. Same as proposed.

D602.9 Service water heating equipment. Not modeled. Same as proposed.

D602.10 On-site renewable energy systems. Not modeled. Same as proposed.

D602.11 HVAC equipment. The *standard reference design* HVAC equipment consists of separate space conditioning systems and dedicated outside air systems as described in Table D602.11 for the appropriate building occupancies.

Table D602.11
Standard Reference Design HVAC Systems

Parameter	Building Type				
	Large Office[a]	Small Office and Libraries[a]	Retail	School	Multifamily
System Type	Water-source Heat Pump	Packaged air-source Heat Pump	Packaged air-source Heat Pump	Packaged air-source Heat Pump	Packaged air-source Heat Pump
Fan Control[b]	Cycle on Load	Cycle on Load	Cycle on Load	Cycle on Load	Cycle on Load
Space Condition Fan Power (W/cfm) Proposed < MERV 13	0.528	0.528	0.522	0.528	0.528
Space Condition Fan Power (W/cfm) Proposed ≥ MERV 13	0.634	0.634	0.634	0.634	0.634

Heating/Cooling Sizing Factor[c]	1.25/1.15	1.25/1.15	1.25/1.15	1.25/1.15	1.25/1.15
Supplemental Heating Availability	NA	<40°F	<40°F	<40°F	<40°F
Modeled cooling COP (Net of Fan) [d]	4.46	3.83	4.25	3.83	3.83
Modeled heating COP (Net of Fan) [d]	4.61	3.81	3.57	3.81	3.86
Cooling Source	DX (Heat Pump)	DX (Heat Pump)	DX (Heat Pump)	DX (Heat Pump)	DX (Heat Pump)
Heat Source	Heat Pump	Heat Pump	Heat Pump	Heat Pump	Heat Pump
Number of Stages of Cooling	Single	Single	Two	Single	Single
OSA Economizer[e]	No	No	Yes	Yes	Yes
Occupied Ventilation Source[f]	DOAS	DOAS	DOAS	DOAS	DOAS
DOAS Fan Power (W/cfm of Outside Air)	0.819	0.819	0.730	0.742	0.780
DOAS Fan Power (W/cfm) Proposed ≥ MERV 13	1.042	1.042	0.928	0.944	0.944
DOAS Temperature Control[g, h]	Bypass	Wild	Bypass	Bypass	Wild
ERV Efficiency (Sensible Only)	70 percent	70 percent	70 percent	70 percent	70 percent
WSHP Loop Heat Rejection	Cooling Tower[i]	NA	NA	NA	NA
WSHP Loop Heat Source	Gas Boiler [j]	NA	NA	NA	NA
WSHP Loop Temperature Control[k]	50°F to 70°F	NA	NA	NA	NA
WSHP Circulation Pump W/gpm[l]	16	NA	NA	NA	NA
WSHP Loop Pumping Control[m]	HP Valves & Pump VSD	NA	NA	NA	NA

[a] Offices less than 50,000 square feet use "Small Office" parameters; otherwise use "Large Office" parameters.

[b] Space conditioning system shall cycle on to meet heating and cooling setpoint schedules as specified in ASHRAE Standard 90.1 Normative Appendix C. One space conditioning system is modeled in each zone. Conditioning system fan operation is not necessary for ventilation delivery.

[c] The equipment capacities (i.e., system coil capacities) for the *standard reference design* building design shall be based on design day sizing runs and shall be oversized by 15 percent for cooling and 25 percent for heating.

[d] COPs shown are direct heating or cooling performance and do not include fan energy use. See ASHRAE 90.1 Appendix G (G3.1.2.1) for separation of fan from COP in packaged equipment for units where the efficiency rating includes fan energy (e.g., SEER, EER, HSPF, COP).

[e] Economizer on space conditioning systems shall be simulated when outdoor air conditions allow free cooling. Economizer high limit shall be based on differential dry-bulb control. DOAS system continues to operate during economizer mode.

[f] Airflow equal to the outside air ventilation requirements is supplied and exhausted through a separate DOAS system including a supply fan, exhaust fan and sensible only heat exchanger. No additional heating or cooling shall be provided by the DOAS. A single DOAS system will be provided for each *block*. The DOAS supply and return fans shall

run whenever the HVAC system is scheduled to operate in accordance with ASHRAE 90.1 Normative Appendix C.

[g] "Wild" DOAS control indicates no active control of the supply air temperature leaving the DOAS system. Temperature will fluctuate based only on entering and leaving conditions and the effectiveness of ERV.

[h] "Bypass" DOAS control includes modulating dampers to bypass ERV with the intent to maintain supply air temperature at a maximum of 60°F when outside air is below 75°F. Once outside air is above 75°F, bypass dampers will be fully closed.

[i] Includes a single axial fan cooling tower with variable speed fans at 40.2 gpm/hp, sized for an approach of 10°F and a range of 10°F.

[j] Includes a single natural draft boiler with 80 percent E_t.

[k] Loop boiler and heat rejection shall be controlled to maintain loop temperature entering heat pumps between 50°F and 70°F.

[l] Pump motor input power shall be 16 W/gpm.

[m] Loop flow shall be variable with variable speed drive pump and unit fluid flow shutoff at each heat pump when its compressor cycles off.

[Statutory Authority: RCW 19.27A.025, 19.27A.045 and chapter 19.27 RCW. WSR 20-21-080, § 51-11C-80500, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-80500, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-80500, filed 1/19/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-90000 Appendix E—((~~Renewable energy~~)) Reserved.

((**~~Informational Note:~~** *~~The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.~~*

~~E101.1 On-site renewable energy systems.~~ ~~Each new commercial building or addition larger than 5,000 square feet of gross conditioned floor area shall include a renewable energy generation system consisting of at least 70 watts rated peak photovoltaic energy production, or 240 kBtu of annual solar water heating energy production, per 1,000 square feet of conditioned floor area or fraction thereof. For buildings over 5 stories in height, the conditioned area for this calculation shall be based on the conditioned area of the largest 5 above-grade stories in the building. If the on-site renewable energy option in C406 is selected, this energy shall be in addition to that required by C406.~~

~~EXCEPTION: Alternate means of achieving equivalent energy savings are permissible where approved by the code official, if the calculated net annual energy savings equals or exceeds the calculated annual energy production of the required on-site renewable energy system.~~))

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-90000, filed 11/26/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 19-24-040, filed 11/26/19, effective 7/1/20)

WAC 51-11C-90500 Appendix F—Outcome-based energy budget.

Informational Note: *The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.*

F101.1 General. This section is an outcome-based energy budget compliance requirement pursuant to RCW 19.27A.160 to incrementally move toward achieving by 2031 a 70 percent reduction in annual net energy use compared with 2006 baseline. As an outcome-based energy budget, this requirement uses a building's actual energy use to determine compliance.

F101.2 Scope. Buildings permitted under this section shall document one year of net energy use below an energy budget within 3 years after occupancy and every 5 years thereafter. Buildings and sites shall also be designed with the ability to offset in the future all estimated energy needs through renewable energy generation with minimum 40 percent on-site, maximum 40 percent off-site, and maximum 20 percent through green power purchase. Buildings that exceed the energy budget by up to 20 percent shall offset the excess amount through a green power purchase agreement. Buildings that exceed the energy budget by more than 20 percent shall, using a posted performance bond or financial security, offset the excess amount over 20 percent by installing renewable energy or with an energy retrofit.

F101.3 Building permit submittal. Building designs shall establish on the Washington State Outcome-Based Energy Budget form (Figure F101.3):

1. The anticipated building energy use is lower than the energy budget.
2. The energy generation ability in the future is greater than or equal to the anticipated building energy use.

F101.3.1 Anticipated building energy use. The total yearly energy use from all metered fuel sources is the anticipated building energy use. Any energy used from district energy, combined heat and power, renewable energy, or captured waste heat systems must be metered. Buildings with any nonmetered energy sources are not permitted for compliance with this section. All secondary spaces and services (examples: Exterior building and site lighting, surface parking, garages, and exterior swimming pools) associated with the building shall be included in the overall energy use total. The anticipated site Energy Use Intensity (EUI) for each fuel source shall be reported in units of kWh/ft^2/yr or kBtu/ft^2/yr using the conversions listed below:

Metered Fuel Source	to kWh:	to kBTU:
Electric	kWh × 1	kWh × 3.412
Gas	Therm × 29.308	Therm × 100
Propane	Cubic Foot × 0.738	Cubic Foot × 2.5185
Fuel Oil	Gallon × 43.872	Gallon × 149.6905

F101.3.2 Building use and occupancy types. Building use and occupancy types permitted are indicated in Table F101.3.2(1).

F101.3.3 Maximum site energy budget. Table F101.3.2(1) indicates the site EUI budget for each building use and occupancy type along with the building enclosure requirements for all use and occupancy types.

F101.3.3.1 Mixed-use buildings. For buildings that contain more than one building use or occupancy type, the overall energy budget shall be based on the individual floor area percentage totals of each use times the individual energy budget and summing the results of all individual areas.

F101.3.3.2 Energy budget level options. Development teams may commit to a future, more stringent energy budget level from Table F101.3.2(1). Actual energy use and energy generation ability will be evaluated on this lower budget level.

F101.3.3.3 Energy modeling. A proposed building energy model is required for compliance with Section F101.3.2. A baseline energy model is not required. The proposed design model must show estimated energy use below the energy.

F101.3.4 Energy generation ability. Permit documents shall indicate the location, space allocated, and connection pathways for future installation of all potential energy generation systems. Only items defined by the Washington State Energy Code as on-site renewable energy shall be used to meet energy generation requirements.

F101.3.4.1 Energy generation categories. The development team shall complete the Washington State Outcome-Based Energy Budget form (Figure F101.3) to show the total renewable energy generation ability in the following categories:

1. Building integral: Renewable energy generation sources attached to the building. This value, combined with the on-site value, shall be at least 40 percent of the energy budget.
2. On-site: Renewable energy generation sources located on the building site property. This value, combined with the building integral value, shall be at least 40 percent of the energy budget.
3. Off-site: Renewable energy generation sources not located on the building site. This amount is limited to 40 percent of the energy budget. A specific off-site location does not need to be identified.
4. Green Power: Renewable energy purchased through the electric utility provider for the building. This amount is limited to 20 percent of the energy budget.

F101.3.4.2 Energy generation ability for building sites within a 2030 District. The development team for building sites within a designated 2030 District recognized by Architecture 2030 may use the Architecture 2030 Challenge 70 percent energy reduction target from the 2003 baseline as the energy budget. Building locations meeting this criteria and choosing this energy budget are exempt from the building integral and on-site requirements in Section F101.3.4.1. Green power remains capped at 20 percent. The generation requirements may be split, in any amount, among the building integral, on-site, or off-site categories. Actual energy use will be evaluated against the Architecture 2030 Challenge 70 percent energy reduction budget.

F101.4 Actual energy use submittal. The building owner or representative shall submit energy use documentation summary from all energy source providers or from an energy benchmarking service to the building code official. Code compliance is achieved with net energy use be-

low the energy budget for any continuous 12-month span within the first 3 years of occupancy.

F101.4.1 Energy use monitoring period and occupancy. The energy use monitoring time frame shall start on the first full-month billing cycle of the utility or energy source provider(s) 6 months after a certificate of occupancy is issued. Buildings shall be deemed substantially occupied when a minimum 85 percent of the floor area, including all common areas, is occupied. The energy monitoring start time may be delayed up to an additional 6 months from certificate of occupancy (up to 12 months total) if 85 percent occupancy is not yet achieved. Buildings not 85 percent occupied after 12 months shall start the monitoring period for the portions occupied with an energy budget based on the spaces occupied and all common areas combined.

F101.4.2 Change of occupancy use during monitoring period. If an area within the building changes from one occupancy use to another with a different target EUI energy budget or if the building occupancy level drops below 50 percent, the target EUI energy budget shall be recalculated to become the new energy budget against which the building energy use shall be compared for compliance.

F101.4.3 Energy metering. All building spaces and uses subject to an energy budget or a portion of the energy budget shall be metered separately for all energy uses.

F101.4.4 Energy budget responsibility. The building owner is responsible for the compliance of the whole building. At the building owner's discretion, responsibility for the energy use budget may be divided and transferred into portions attributable to the occupant, operator or controller of each energy budget space. Common area spaces not under the control of an occupant or tenant may not be transferred.

F101.5 Actual energy use above the energy budget. Buildings exceeding the energy budget are not in compliance with the energy code and the building owner shall complete one of the following measures within 1 year:

1. Owners of buildings with actual energy use that exceeds the energy budget by up to 20 percent may offset the excess energy amount through annual green power purchase agreement from the utility provider at a rate of 1.1 times the excess energy amount until future code compliance is demonstrated.

2. Owners of buildings with actual energy use that exceeds the energy budget by more than 20 percent and up to 40 percent shall complete item 1 and either install on-building, on-site, or off-site energy generation equipment or invest in an energy conservation retrofit using the performance bond or financial security for energy amount remaining above 20 percent.

3. Owners of buildings with actual energy use that exceeds the energy budget by more than 40 percent shall complete item 1, item 2, and post a replacement performance bond or financial security equal to the first bond or security amount.

F101.5.1 Continued energy monitoring. Upon completing the necessary compliance measure(s) in Section F101.5 the building owner is provided another 3-year time frame to achieve and document net energy use below the energy budget for any continuous 12-month span. Owners of buildings that remain more than 20 percent above the energy budget shall repeat the measures in Section F101.5, up to 3 times maximum, using the performance bond or financial security to install energy genera-

tion equipment or to install an energy retrofit and post a new performance bond equal to the first.

F101.5.2 Tradable certificate for energy savings. As an alternate to the requirements of Section F101.5 a building owner may, when this market-based instrument becomes available, purchase a Tradable Certificate for Energy Savings (TCES) or "white certificates" from a building or entity with energy savings. The building owner shall purchase TCES's equal to 1.1 times the amount that the building's actual energy use exceeds the energy budget.

F101.6 Performance bond or financial security. A building developer must secure and submit to the code official a performance bond or an irrevocable financial security letter of credit from a state of Washington financial institution prior to certificate of occupancy issuance. The bond or security shall have a value equal to $4.00 per square foot of gross conditioned floor area. The bond or security shall be used only to install renewable energy on the building or for investment into energy conservation measures as part of an energy retrofit. The bond or security may also be held for one additional 3-year energy-monitoring period if green power is purchased. Upon demonstrated compliance with the energy budget, the bond or security requirement shall be released.

F101.6.1 Failure to submit energy use data. Building owners that fail to submit energy use data at the end of the 3-year monitoring period shall forfeit the full amount of the performance bond or financial security as payment to the local jurisdiction. Building owners that fail to submit energy use data at the end of each continuing five-year monitoring period shall be fined an amount equal to the original bond or financial security by the local jurisdiction.

F101.7 Continued energy budget certification. After achieving code compliance buildings shall be required every 5 years to document a continuous 12-month span with net energy use that is lower than the required energy budget. Owners of buildings with actual energy use that is at least 2.5 percent below their energy budget (from year permitted baseline, not voluntary year) may sell, when a future market-based instrument becomes available, their unused energy equivalents in the form of a "white certificate" or Tradable Certificate for Energy Savings.

F101.8 Local amendments. Local jurisdictions may amend the current code cycle EUI maximum energy budget by adopting a more stringent future code year value stated in Table F101.3.2(1).

Table F101.3.2(1)
Washington State Outcome-Based Energy Budget

((~~**Zone 4C:**~~

	~~Site EUI~~	~~Base~~	~~Current~~	~~Future~~			
~~Building Occupancy/Use~~	~~ft²/year~~	~~2003~~	~~2018~~	~~2021~~	~~2024~~	~~2027~~	~~2030~~
~~A-3~~							
~~Library~~	~~kWh~~	~~30.5~~	~~14.6~~	~~13.3~~	~~11.9~~	~~10.5~~	~~9.1~~
	~~kBtu~~	~~104~~	~~49.9~~	~~45.3~~	~~40.6~~	~~35.9~~	~~31.2~~
~~B~~							

	Site EUI	Base	Current	Future			
Building Occupancy/Use	ft^2/year	2003	2018	2021	2024	2027	2030
Office/Bank	kWh	19.7	8.5	7.8	7.2	6.6	5.9
	kBtu	67.3	28.9	26.7	24.5	22.4	20.2
Medical Office (nondiagnostic)	kWh	14.8	7.1	6.4	5.8	5.1	4.4
	kBtu	50.4	24.2	21.9	19.6	17.4	15.1
E							
School K-12	kWh	17.1	8.2	7.4	6.7	5.9	5.1
	kBtu	58.4	28.0	25.4	22.8	20.2	17.5
I-2							
Hospital (in-patient)	kWh	51.6	24.8	22.5	20.1	17.8	15.5
	kBtu	176.1	84.5	76.6	68.7	60.8	52.8
M							
Grocery/Food Market	kWh	66.6	32.0	29.0	26.0	23.0	20.0
	kBtu	227.4	109.1	98.9	88.7	78.5	68.2
Retail	kWh	25.7	12.3	11.2	10.0	8.9	7.7
	kBtu	87.5	42.0	38.1	34.1	30.2	26.3
S-1							
Parking							
Enclosed Garage[a]	kWh	3.8	2.3	2.0	1.7	1.4	1.1
	kBtu	13.0	8.0	7.0	5.9	4.9	3.9
Open Garage[a]	kWh	2.3	1.4	1.2	1.0	0.9	0.7
	kBtu	7.8	4.8	4.2	3.6	3.0	2.3
S-2							
NonRefrigerated Distribution/ Shipping[b]	kWh	8.6	4.1	3.7	3.3	3.0	2.6
	kBtu	29.2	14.0	12.7	11.4	10.1	8.8
R-2 Multi-Family (3+ stories)							
Lobby/Common Area	kWh	29.0	17.5	15.3	13.1	10.9	8.7
	kBtu	99	59.7	52.2	44.7	37.2	29.7
Studio/Micro-unit	kWh	9238	3284	3156	3028	2900	2771
	kBtu	31520	11205	10768	10331	9893	9456
One Bedroom	kWh	18476	6568	6312	6055	5799	5543
	kBtu	63040	22411	21536	20661	19787	18912
Two Bedroom	kWh	27714	9852	9468	9083	8699	8314
	kBtu	94560	33616	32304	30992	29680	28368
Three Bedroom	kWh	36952	13136	12624	12111	11598	11086
	kBtu	126080	44821	43072	41323	39573	37824
Additional Bedroom	kWh	9238	3284	3156	3028	2900	2771
	kBtu	31520	11205	10768	10331	9893	9456

All Occupancies/Use Types	2003	2018	2021	2024	2027	2030
	U-Factor					
Vertical Fenestration						
Nonmetal		0.28	0.27	0.25	0.24	0.23
Metal - Fixed		0.33	0.31	0.28	0.26	0.23
Metal - Operable		0.34	0.32	0.29	0.26	0.23
Roof		0.016	0.015	0.014	0.013	0.012
Wall (above/below grade)		0.031	0.028	0.024	0.021	0.018

All Occupancies/Use Types	2003	2018	2021	2024	2027	2030
Floors		0.024	0.023	0.021	0.020	0.018
	F-Value					
Slab on Grade		0.41	0.39	0.36	0.34	0.32
	CFM75/ft^2					
Air Leakage		0.25	0.17	0.14	0.11	0.08

Zone 5B:

	Site EUI	Base	Current	Future			
Building Occupancy/Use	ft^2/year	2003	2018	2021	2024	2027	2030
A-3							
Library	kWh	31.9	15.3	13.9	12.4	11.0	9.6
	kBtu	108.8	52.2	47.3	42.4	37.5	32.6
B							
Office/Bank	kWh	20.1	9.1	8.3	7.5	6.8	6.0
	kBtu	68.6	30.9	28.3	25.8	23.2	20.6
Medical Office (nondiagnostic)	kWh	15.0	7.2	6.5	5.9	5.2	4.5
	kBtu	51.3	24.6	22.3	20.0	17.7	15.4
E							
School K-12	kWh	18.3	8.8	8.0	7.1	6.3	5.5
	kBtu	62.4	30.0	27.2	24.3	21.5	18.7
I-2							
Hospital (in-patient)	kWh	48.5	23.3	21.1	18.9	16.7	14.6
	kBtu	165.5	79.4	72.0	64.5	57.1	49.7
M							
Grocery/Food Market	kWh	66.3	31.8	28.8	25.8	22.9	19.9
	kBtu	226.1	108.5	98.4	88.2	78.0	67.8
Retail	kWh	28.4	13.6	12.4	11.1	9.8	8.5
	kBtu	97.0	46.6	42.2	37.8	33.5	29.1
S-1							
Parking							
Enclosed Garage[a]	kWh	3.8	2.3	2.0	1.7	1.4	1.1
	kBtu	13.0	8.0	7.0	5.9	4.9	3.9
Open Garage[a]	kWh	2.3	1.4	1.2	1.0	0.9	0.7
	kBtu	7.8	4.8	4.2	3.6	3.0	2.3
S-2							
NonRefrigerated Distribution/ Shipping[b]	kWh	10.5	5.0	4.6	4.1	3.6	3.1
	kBtu	35.8	17.2	15.6	14.0	12.4	10.7
R-2 Multi-Family (3+ stories)							
Lobby/Common Area	kWh	29.0	18.8	16.3	13.8	11.2	8.7
	kBtu	99	64.2	55.6	46.9	38.3	29.7
Studio/Micro-unit	kWh	9238	3495	3314	3133	2952	2771
	kBtu	31520	11925	11308	10691	10073	9456
One Bedroom	kWh	18476	6990	6628	6267	5905	5543
	kBtu	63040	23851	22616	21381	20147	18912
Two Bedroom	kWh	27714	10485	9943	9400	8857	8314
	kBtu	94560	35776	33924	32072	30220	28368

	Site EUI	Base	Current	Future			
Building Occupancy/Use	ft²/year	2003	2018	2021	2024	2027	2030
Three Bedroom	kWh	36952	13980	13257	12533	11809	11086
	kBtu	126080	47701	45232	42763	40293	37824
Additional Bedroom	kWh	9238	3495	3314	3133	2952	2771
	kBtu	31520	11925	11308	10691	10073	9456

All Occupancies/Use Types	2003	2018	2021	2024	2027	2030
	U-Factor					
Vertical Fenestration						
Nonmetal		0.25	0.23	0.21	0.18	0.16
Metal - Fixed		0.31	0.27	0.23	0.20	0.16
Metal - Operable		0.32	0.28	0.24	0.20	0.16
Roof		0.016	0.015	0.014	0.013	0.012
Wall (above/below grade)		0.031	0.028	0.024	0.021	0.018
Floors		0.024	0.023	0.021	0.020	0.018
	F-Value					
Slab on Grade		0.41	0.39	0.36	0.34	0.32
	CFM75/ft²					
Air Leakage		0.25	0.17	0.14	0.11	0.08))

Building Occupancy/Use		Site EUI							
		2021		2024		2027		2030	
		4c	5b	4c	5b	4c	5b	4c	5b
B	Office - small	19.48	20.60	16.79	17.74	14.09	14.87	11.40	12.00
	Office - medium	22.22	24.47	18.91	20.81	15.61	17.16	12.30	13.50
	Office - large	21.94	23.06	18.53	19.48	15.11	15.89	11.70	12.30
B	Health out-patient	69.75	70.88	58.90	59.85	48.05	48.83	37.20	37.80
E	School - primary	25.40	27.20	22.80	24.30	18.99	21.31	14.70	16.50
	School - secondary	24.75	28.13	20.90	23.75	17.05	19.38	13.20	15.00
I-2	Hospital	76.60	72.00	68.70	64.50	56.19	57.10	43.50	49.70
M	Grocery	98.90	98.40	88.70	88.20	75.56	78.00	58.50	62.70
M	Retail - stand alone	30.00	34.50	26.60	30.40	23.20	26.30	19.80	22.20
	Retail - strip mall	29.14	34.76	26.53	31.28	23.91	27.79	21.30	24.30
S-1	Garage - enclosed[a]	7.00	7.00	5.90	5.90	4.90	4.90	3.90	3.90
	Garage - open[a]	4.20	4.20	3.60	3.60	3.00	3.00	2.30	2.30
S-2	Warehouse (nonref)[b]	6.49	7.61	5.63	6.58	4.76	5.54	3.90	4.50
R-2	kWh/person/year	3,089	3,212	2,681	2,789	2,256	2,348	1,808	1,886
R-2	Common kWh/sf/yr	15.0	15.8	11.6	12.2	8.5	8.9	5.7	5.9

[a]Lighting power allowance must still comply with Table C405.4.2(2).
[b]Applicable to heated warehouses only.

Table F101.3.2(2)
COMMERCIAL BUILDING TYPE DESCRIPTIONS
Commercial Building Prototype Descriptions Compared to CBSA Building Types

Commercial Prototypes	CBSA Detailed Building Type Included	Other Criteria
Small Office	office- admin, professional, government, financial; call center; city hall; retail banking; sales office; other office	Less than 20,000 square feet
Medium Office	office- admin, professional, government, financial; call center; city hall; retail banking; sales office; other office	20,001 - 100,000 square feet
Large Office	office- admin, professional, government, financial; call center; city hall; retail banking; sales office; other office	Greater than 100,000 square feet
Stand-alone Retail	auto parts; auto/boat dealer/show room; beauty/barber; car wash; clothing; department store; dry cleaner; electronics/ appliances; florist, nursery; hardware; home improvement; laundromat (self-service); pharmacy; post office; rental center; repair shop; studio/gallery; vehicle repair; warehouse club; other specialty merchandise	Single stand-alone building
Strip Mall	auto parts; auto/boat dealer/ show room; beauty/barber; car wash; clothing; department store; dry cleaner; electronics/ appliances; florist, nursery; hardware; home improvement; laundromat (self-service); pharmacy; post office; rental center; repair shop; studio/gallery; vehicle repair; warehouse club; other specialty merchandise	Part of larger mixed-use building
Supermarket	grocery	
Primary School	elementary school; middle school; pre-school; other k-12 school	
Secondary School	high school	
Small Hotel	motel; bed & breakfast; boarding/rooming house, apt hotel	
Large Hotel	hotel; hotel - resort	
Hospital	hospital	
Warehouse (non- refrigerated)	ministorage; warehouse, distribution; warehouse, storage; other warehouse	
Quick Service Restaurant	cafeteria; catering service; coffee, doughnut, or bagel shop; fast food restaurant; ice cream or frozen yogurt shop; take-out restaurant; truck stop	
Full-Service Restaurant	bar, pub, lounge; sit down restaurant; other restaurant	
Outpatient Health care	dental office; medical clinic/outpatient medical; medical office; medical urgent care clinic; outpatient rehab; veterinarian office/clinic	
Mid-rise Apartment	Not included in CBSA. Should represent all high rise (up to 4 stories) apartment buildings.	Census Data used to estimate number of apartments and square footage. Seattle Benchmarking Data used to estimate high rise to mid-rise split in urban area.
High-rise Apartment	Not included in CBSA. Should represent all low rise (greater than 4 story) apartment buildings.	Census Data used to estimate number of apartments and square footage. Seattle Benchmarking Data used to estimate high rise to mid-rise split in urban area.

Commercial Prototypes	CBSA Detailed Building Type Included	Other Criteria
Residential Care	assisted living; in-patient rehab; nursing home; retirement home; other residential care	

FIGURE F101.3.2

Washington State Outcome-based Energy Budget Form

WASHINGTON STATE OUTCOME-BASED ENERGY BUDGET FORM

(reserved for graphics)

Building occupancy/use _____

Conditioned floor area SF [ ]

Code maximum site EUI energy budget [ ]

Predicted EUI

Electric [ ]

Gas [ ]

Propane [ ]

Oil [ ]

Other (source/ generation) [ ]

Generation Potential EUI

Building Integral [ ] (combined must exceed 40%)

On-site [ ]

Off-site [ ] (max 40%)

Purchase [ ] (max 40%)

Percentage better than energy budget [ ]

Percentage potential EUI above predicted EUI [ ]

PROJECT SUMMARY

Building Name _____

Address _____

City _____

Owner _____

Address		
City, State, Zip		
PROJECT CERTIFICATION		
Name		
Firm		
Date		*(seal)*

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-90500, filed 11/26/19, effective 7/1/20.]

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 51-11C-402131	Reserved.
WAC 51-11C-402132	Reserved.
WAC 51-11C-402133	Reserved.
WAC 51-11C-402134	Reserved.
WAC 51-11C-402200	Reserved.
WAC 51-11C-40242	Reserved.
WAC 51-11C-403231	Table C403.3.2(1)—Minimum efficiency requirements—Electrically operated unitary air conditioners and condensing units.
WAC 51-11C-403232	Table C403.3.2(2)—Minimum efficiency requirements—Electrically operated unitary and applied heat pumps.
WAC 51-11C-403233	Table C403.3.2(3)—Minimum efficiency requirements—Electrically operated PTAC, PTHP, SPVAC, SPVHP, room air conditioners.
WAC 51-11C-403234	Table C403.3.2(4)—Minimum efficiency requirements—Warm air furnaces and unit heaters.
WAC 51-11C-403235	Table C403.3.2(5)—Minimum efficiency requirements—Gas- and oil-fired boilers.
WAC 51-11C-403236	Table C403.3.2(6)—Reserved.
WAC 51-11C-403237	Table C403.3.2(7)—Minimum efficiency requirements—Water chilling packages.
WAC 51-11C-403238	Table C403.3.2(8)—Minimum efficiency requirements—Heat rejection equipment.
WAC 51-11C-403239	Table C403.3.2(9) and Table C403.3.2(10)—Minimum efficiency requirements.

WAC 51-11C-403241	Reserved.
WAC 51-11C-403242	Reserved.
WAC 51-11C-403243	Reserved.
WAC 51-11C-403244	Reserved.
WAC 51-11C-403245	Reserved.
WAC 51-11C-403246	Reserved.
WAC 51-11C-403247	Reserved.
WAC 51-11C-403248	Reserved.
WAC 51-11C-403249	Reserved.
WAC 51-11C-403251	Reserved.
WAC 51-11C-403252	Reserved.
WAC 51-11C-403253	Reserved.
WAC 51-11C-403254	Reserved.
WAC 51-11C-403261	Reserved.
WAC 51-11C-403281	Reserved.
WAC 51-11C-403291	Reserved.
WAC 51-11C-403292	Reserved.
WAC 51-11C-403293	Reserved.
WAC 51-11C-403294	Reserved.
WAC 51-11C-403295	Reserved.

WSR 22-02-077
PROPOSED RULES
DEPARTMENT OF
RETIREMENT SYSTEMS
[Filed January 5, 2022, 11:55 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-23-057.

Title of Rule and Other Identifying Information: Amending WAC 415-104-500 LEOFF Plan 1 minimum medical and health standards. Repealing WAC 415-104-510 through 415-104-755.

Hearing Location(s): On February 8, 2022, at 10:00 a.m. The hearing will be conducted by Zoom. See https://www.drs.wa.gov/sitemap/rules/#proposed-rule-hearings for details. Zoom Meeting ID 847 3557 9121, Link https://us02web.zoom.us/j/84735579121, Dial-in 253 215 8782 US (Tacoma).

Date of Intended Adoption: February 9, 2022.

Submit Written Comments to: Bailee Roby, Department of Retirement Systems (DRS), P.O. Box 48380, Olympia, WA 98504-8380, email drs.rules@drs.wa.gov, by February 7, 2022.

Assistance for Persons with Disabilities: Contact Bailee Roby, phone 360-664-7235, TTY 711, email drs.Rules@drs.wa.gov, by February 1, 2022.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The minimum medical and health standards previously codified in WAC 415-104-510 through 415-104-755 are not currently necessary for administration of the plans and are being repealed.

Reasons Supporting Proposal: The minimum medical and health standards were applicable only for establishing law enforcement officers' and firefighters' (LEOFF) membership between August 1, 1971, and June 30, 1979. The standards are no longer necessary for administration of the plans.

Statutory Authority for Adoption: RCW 41.50.050.

Statute Being Implemented: Chapter 41.26 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: DRS, governmental.

Name of Agency Personnel Responsible for Implementation: Candice Myrum, DRS, P.O. Box 48380, Olympia, WA 98504-8380, 360-664-7288.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 (5)(a)(i) does not apply to this proposed rule and is not voluntarily made applicable by the agency.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules relate only to internal governmental operations that are not subject to violation by a nongovernment party.

Is exempt under RCW 19.85.025(4).

Explanation of exemptions: DRS' rules only impact members and beneficiaries of the state retirement systems and participating public employers, and do not affect small businesses.

January 5, 2022
Jilene Siegel
Rules Coordinator

OTS-3480.2

AMENDATORY SECTION (Amending WSR 78-03-023, filed 2/15/78)

WAC 415-104-500 ((~~Purpose.~~)) LEOFF Plan 1 minimum medical and health standards. ((~~The regulations contained in WAC 415-104-510 through 415-104-750 are adopted as the minimum medical and health standards which must be met or exceeded before a law enforcement officer or firefighter may become a member of the retirement system contained in chapter 41.26 RCW as now existing or hereafter amended. Such regulations are adopted pursuant to chapter 41.26 RCW (chapter 257, Laws of 1971 1st ex. sess.) and are to be applied consistent with the provisions of that act. The minimum medical and health standards are not hiring standards. They relate only to membership in the LEOFF system.~~)) The minimum medical and health standards previously codified in WAC 415-104-510 through 415-104-755 are not currently necessary for administration of the plans and are hereby repealed.

[Statutory Authority: RCW 41.50.050(6) and 41.50.090. WSR 78-03-023 (Order IV), § 415-104-500, filed 2/15/78. Formerly WAC 297-50-010.]

OTS-3477.1

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 415-104-510	Minimum standards for membership—— Physical examination.
WAC 415-104-520	Abdomen and gastrointestinal system.
WAC 415-104-530	Blood and blood-forming tissue diseases.
WAC 415-104-540	Dental.
WAC 415-104-550	Ears.
WAC 415-104-555	Hearing.
WAC 415-104-560	Table 1——Table of acceptable audiometric hearing level.
WAC 415-104-570	Endocrine and metabolic disorders.
WAC 415-104-580	Upper extremities.
WAC 415-104-584	Lower extremities.
WAC 415-104-588	Miscellaneous extremities.
WAC 415-104-590	Eyes.
WAC 415-104-595	Vision.
WAC 415-104-600	Genitalia.
WAC 415-104-605	Urinary system.
WAC 415-104-610	Head.