WSR 15-17-006
PROPOSED RULES
COUNTY ROAD ADMINISTRATION BOARD
[Filed August 6, 2015, 3:11 p.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 136-150-022 Ascertaining the expenditures for traffic law enforcement, 136-150-024 Ascertaining the expenditures for marine navigation and moorage purposes, and 136-150-030 Identifying eligible counties.

Hearing Location(s): County Road Administration Board, 2404 Chandler Court S.W., Suite 280, Olympia, WA 98504, on October 29, 2015, at 2:00 p.m.

Date of Intended Adoption: October 29, 2015.

Submit Written Comments to: Karen Pendleton, 2404 Chandler Court S.W., Suite 240, Olympia, WA 98504-0913, e-mail karen@crab.wa.gov, fax (360) 350-6094, by October 23, 2015.

Assistance for Persons with Disabilities: Contact Karen Pendleton by October 23, 2015, TTY (800) 883-6384 or (360) 753-5989.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: WAC 136-150-022 Ascertaining the expenditures for traffic law enforcement, proposed changes to this section requires each county sheriff to maintain records of actual annual traffic law enforcement expenditures in such format and detail as to demonstrate that the funds were used for traffic law enforcement. Also references new chapter 136-25 WAC for defining traffic law enforcement activities.

WAC 136-150-024 Ascertaining the expenditures for marine navigation and moorage purposes, adoption of this new section outlines ascertaining expenditures for marine navigation and moorage purposes, which were added as road purposes by EHB 1868.

WAC 136-150-030 Identifying eligible counties, proposed changes to this section defines uses of any expenditures of the road levy for marine navigation and moorage, per RCW 36.82.070, and highlights the requirement for a specific and identifiable account within the road fund for said purposes.

Reasons Supporting Proposal: Rule updates concomitant with adoption of new chapter 136-25 WAC and passage of EHB 1868.

Statutory Authority for Adoption: Chapter 36.78 RCW.

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

Name of Proponent: County road administration board, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Derek Pohle, Thurston County, (360) 753-5989; and Enforcement: Jay Weber, Thurston County, (360) 753-5989.

No small business economic impact statement has been prepared under chapter 19.85 RCW. Not applicable.

A cost-benefit analysis is not required under RCW 34.05.328. Not applicable.

July 29, 2015
Jay P. Weber
Executive Director

AMENDATORY SECTION (Amending WSR 03-21-136, filed 10/21/03, effective 11/21/03)

WAC 136-150-022 Ascertaining the expenditures for traffic law enforcement. In those counties in which diverted road levy or transfer of road funds has been budgeted for traffic law enforcement, the county sheriff shall submit a certification showing the actual expenditure for traffic law enforcement in the previous budget year, on a form provided by the county road administration board, provided that counties with a population of less than eight thousand shall be exempt from this requirement. Such certification shall be submitted to the county road administration board no later than April 1st of each year. Each county sheriff shall maintain records of actual annual traffic law enforcement expenditures in such format and detail as to demonstrate that the funds were used for traffic law enforcement.

Definition of traffic law enforcement. For purposes of this chapter, traffic law enforcement is defined as engaging in the activities listed in WAC 136-25-030 in unincorporated county locations.

NEW SECTION

WAC 136-150-025 Ascertaining the expenditures for marine navigation and moorage purposes. In those counties in which road funds have been used for marine navigation and moorage purposes as specified in RCW 36.82.070, the county engineer shall submit a certification showing the amount of county road fund used for those activities related to marine navigation and moorage purposes performed contiguous with, adjacent to, or offshore concomitant to the county road right of way. Such certification shall be submitted to the county road administration board no later than April 1st of each year.

AMENDATORY SECTION (Amending WSR 03-05-010, filed 2/7/03, effective 3/10/03)

WAC 136-150-030 Identifying eligible counties. All counties with a population of less than eight thousand shall be eligible to receive RATA funds. Counties with a population greater than eight thousand shall be eligible to receive RATA funds only if, during the immediately preceding calendar year:

(1) The actual expenditures for traffic law enforcement have been equal to or greater than either the amount of the diverted road levy budgeted for traffic law enforcement or the amount of road funds transferred to current expense to fund traffic law enforcement;

(2) The amount of county road funds used beyond the county right of way for activities clearly associated with removal of fish passage barriers that are the responsibility of the county did not exceed twenty-five percent of the total cost of activities related to fish barrier removal on any one project and the total cost of activities related to fish barrier removal beyond the county right of way did not exceed one-half of

one percent of the county's total annual road construction budget;

(3) Any expenditures of the road levy for marine navigation and moorage by those counties eligible per RCW 36.82.070 were made from amounts deposited into a special account within the road fund for those purposes and, performed contiguous with, adjacent to, or offshore concomitant to the county road right of way.

(4) All road funds that have been transferred to other funds have been used for legitimate road purposes;

(((~~(4)~~))) (5) Revenues collected for road purposes have been expended on other governmental services only after authorization from the voters of that county under RCW 84.55.050; and

(((~~(5)~~))) (6) County road levy funds have been expended in accordance with chapter 36.82 RCW.

WSR 15-17-007
PROPOSED RULES
COUNTY ROAD ADMINISTRATION BOARD

[Filed August 6, 2015, 3:12 p.m.]

Original Notice.

Proposal is exempt under RCW 34.05.310(4) or 34.05.330(1).

Title of Rule and Other Identifying Information: New chapter 136-25 WAC, Standard of good practice—Traffic law enforcement expenditures.

Hearing Location(s): County Road Administration Board (CRABoard), 2404 Chandler Court S.W., Suite 280, Olympia, WA 98504, on October 29, 2015, at 2:00 p.m.

Date of Intended Adoption: October 29, 2015.

Submit Written Comments to: Karen Pendleton, 2404 Chandler Court S.W., Suite 240, Olympia, WA 98504-0913, e-mail karen@crab.wa.gov, fax (360) 350-6094, by October 23, 2015.

Assistance for Persons with Disabilities: Contact Karen Pendleton by October 23, 2015, TTY (800) 883-6384 or (360) 753-5989.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The CRABoard finds that adopting this new standard of good practice will define traffic law enforcement expenditures, and help counties comply with the rural arterial program eligibility requirements.

Reasons Supporting Proposal: Recent state audits have highlighted this as a potential area of concern.

Statutory Authority for Adoption: Chapter 36.78 RCW.

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

Name of Proponent: CRABoard, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Derek Pohle, Thurston County, (360) 753-5989; and Enforcement: Jay Weber, Thurston County, (360) 753-5989.

No small business economic impact statement has been prepared under chapter 19.85 RCW. Not applicable.

A cost-benefit analysis is not required under RCW 34.05.328. Not applicable.

July 29, 2015
Jay P. Weber
Executive Director

Chapter 136-25 WAC

STANDARD OF GOOD PRACTICE—TRAFFIC LAW ENFORCEMENT EXPENDITURES

NEW SECTION

WAC 136-25-010 Purpose and authority. RCW 36.79.140 sets forth the conditions under which counties are eligible to receive funds from the rural arterial trust account (RATA). Chapter 136-150 WAC describes how the RATA provisions will be implemented by the county road administration board. This chapter is specific to WAC 136-150-020, 136-150-021, 136-150-022, and 136-150-030 relating to road levy, road levy diversion, and traffic law enforcement.

NEW SECTION

WAC 136-25-020 Diversion of road levy funds may only be for traffic law enforcement within unincorporated areas of the county. To preserve RATA eligibility, road levy funds diverted pursuant to RCW 36.33.220 may only be used for traffic law enforcement within the unincorporated areas of counties, except those counties with a population of less than eight thousand, RCW 36.79.140 and WAC 136.150.030.

NEW SECTION

WAC 136-25-030 Eligible traffic law enforcement activities on county roads. For purposes of maintaining RATA eligibility, should the legislative authority vote and budget to divert road levy funds, the following traffic law enforcement activities occurring in unincorporated county areas are the only activities that can be funded by county road levy funds.

(1) Speed limit and other traffic law enforcement;

(2) Collision investigation documenting/reporting;

(3) Oversize vehicle (weight, length, width, and height) enforcement;

(4) Special emphasis patrols at the request of the county engineer or in cooperation with the WTSC or WSP;

(5) Facilitating the removal of abandoned vehicles from the county road and rights of way at the request of the county engineer;

(6) Facilitating the removal of roadway and right of way obstructions at the request of the county engineer;

(7) Investigating illegal littering and dumping on county road rights of way at the request of the county engineer;

(8) Sign damage investigation and enforcement at the request of the county engineer;

(9) Road condition enforcement, including mud, water, debris, or spills;

(10) Rights of way encroachment investigation and enforcement at the request of the county engineer;

(11) Maintenance and construction zone traffic enforcement, typically at the request of the county engineer;

(12) Road department vehicle collision investigation at the request of the county engineer; and

(13) Other activities clearly related to county road law enforcement needs, as mutually agreed upon in writing by the county road engineer and the county sheriff.

NEW SECTION

WAC 136-25-040 Compliance and documentation. The certification required by WAC 136-150-022 shall be on a form provided by the county road administration board. Each county sheriff shall maintain adequate records of annual traffic law enforcement expenditures in such format and detail to demonstrate that the funds were used only for the traffic law enforcement activities set out in WAC 136-25-030.

NEW SECTION

WAC 136-25-050 Agreements. The county road administration board shall provide model documents for counties to use to establish agreements (relationships) between the county legislative authority and the county sheriff and between the county road engineer and the county sheriff for the use of county road levy funds for traffic law enforcement. The agreements should list which activities set out in WAC 136-25-030 are subject to the agreement.

WSR 15-17-033
PROPOSED RULES
TRANSPORTATION IMPROVEMENT BOARD

[Filed August 11, 2015, 1:40 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-05-009.

Title of Rule and Other Identifying Information: Update of small city programs, new LED streetlight program, and other updates.

Hearing Location(s): Kitsap Conference Center, 100 Washington Avenue, Bremerton, WA 98337, on September 25, 2015, at 9:00 a.m.

Date of Intended Adoption: October 28, 2015.

Submit Written Comments to: Kelsey Davis, P.O. Box 40901, Olympia, WA 98504-0901, e-mail kelseyd@tib.wa.gov, fax (360) 586-1165, by September 1, 2015.

Assistance for Persons with Disabilities: Contact Kelsey Davis by September 1, 2015, (360) 586-1146.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Amend sections of chapters 479-05, 479-10, and 479-14 WAC where appropriate and develop new WAC necessary to implement updates to the small city arterial program and small city sidewalk program as well as other general updates.

Reasons Supporting Proposal: Ongoing improvement, preparation for funding to be allocated in the 2015 legislative session.

Statutory Authority for Adoption: Chapter 47.26 RCW.

Statute Being Implemented: RCW 47.26.084 [(1)](c).

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

Name of Proponent: [Transportation improvement board], governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Stevan Gorcester, P.O. Box 40901, Olympia, WA 98504-0901, (360) 586-1139.

No small business economic impact statement has been prepared under chapter 19.85 RCW. Customers are local government entities.

A cost-benefit analysis is not required under RCW 34.05.328. Not required under RCW 34.05.328(5).

April 28, 2015
Stevan Gorcester
Executive Director

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-05-020 Six-year transportation plan. Projects selected in the priority array must be included in the local agency's six-year transportation plan prior to receiving authorization to proceed on the project.

((~~Small city~~)) Preservation projects identified through pavement condition ratings are not required to appear in the local agency's six-year transportation plan.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-05-035 Qualifications for small city projects administered by another agency. A local agency that has a small city arterial program or small city preservation project may elect to have, or the executive director may require, the project to be administered by another city, a county, state department of transportation, or state transportation improvement board when:

(1) The local agency does not have certification acceptance from the state department of transportation per the Washington state department of transportation local agency guidelines manual, chapter 13; or

(2) The executive director determines that the local agency has ((~~no internal~~)) insufficient capacity to directly administer transportation projects.

AMENDATORY SECTION (Amending WSR 13-20-087, filed 9/30/13, effective 10/31/13)

WAC 479-10-310 Who is eligible for arterial preservation program funds. Incorporated cities with a population of ((~~more than~~)) five thousand or more and an assessed property valuation below a maximum valuation established annually by the board are eligible to receive arterial preservation program funding.

NEW SECTION

WAC 479-10-400 Intent of the streetlight program. The intent of the streetlight program is to provide funding for cities to modernize their street lights to current technology.

NEW SECTION

WAC 479-10-410 Who is eligible for streetlight program funds. Agencies eligible to receive streetlight program funding are:

(1) Incorporated cities with a population less than five thousand; and

(2) Incorporated cities with a population of five thousand or more with an assessed property valuation below a maximum valuation established by the board based on available funding.

For the purposes of determining population, cities may exclude the population of any state correctional facility located within the city.

NEW SECTION

WAC 479-10-420 Work eligible for streetlight program funds. Eligible projects include:

(1) Replacement of existing luminaires;

(2) Replacement of existing streetlight infrastructure may be included when:

(a) The infrastructure is required for installation of new luminaires; and

(b) The cost is determined by TIB to be appropriately borne by the city.

(3) Placement of new lights when necessary as determined by the executive director or board.

NEW SECTION

WAC 479-10-422 When streetlights are on state routes facilities. WSDOT approval is required in advance of award of TIB funding.

NEW SECTION

WAC 479-10-430 Project types for the streetlight program. To be considered for a project under the streetlight program, a streetlight program project may be identified through the following ways:

(1) An eligible agency may submit a funding application in response to a TIB call for projects;

(2) TIB may select eligible agencies based on opportunities provided by an electrical service provider; or

(3) TIB may select eligible agencies based on other board established criteria.

NEW SECTION

WAC 479-10-440 Project award criteria for the streetlight program. When funds are available projects may be awarded by the board based on cost savings for the city, installation efficiency, or energy savings. Availability of other funding sources or rebates may also be considered.

NEW SECTION

WAC 479-10-450 Project phases for the streetlight program. Streetlight program projects will have three phases. Each phase will require specific documentation as described below and each phase must be approved before the applicant agency is eligible to receive the related funding:

(1) Application phase - The city shall submit an application form as well as documentation showing scope, schedule, and budget.

(2) Design and construction phase - TIB will provide documents for the city to sign and return. The city must submit the following agreements where utilized:

(a) Grant agreement;

(b) Rights of entry agreement (if applicable);

(c) Consultant agreement (if applicable).

(3) Project closeout phase - All necessary project cost documentation must be received prior to final payment.

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 479-10-005 Purpose, authority, and funding.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-14-151 Funding distribution formula for the urban program. The statewide distribution of urban program funds is allocated between regions according to the following formula:

The average of the ratios of region urban area population (RUP) divided by the statewide urban population (SUP) plus region functionally classified lane miles within the urban area (RFC) divided by statewide functionally classified lane miles within urban areas (SFC).

$$\frac{(RUP/SUP) + (RFC/SFC)}{2}$$

The board may adjust the regional allocation by plus or minus five percent of the total annual allocation to fully fund the approved list of regional projects. When requested by the board, TIB staff will update the regional allocation to ensure equitable distribution of funds.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-14-200 Sidewalk deviation authorities for the urban and small city arterial programs. The board recognizes the need for pedestrian facilities on arterial roadways and has required that sidewalks be provided under the urban program. A sidewalk deviation may be requested by the lead agency and may be granted under the following authorities:

(1) The executive director has administrative authority to grant sidewalk deviations as follows:

(a) On both sides if the roadway is a ramp providing access to a limited access route;

(b) On both sides of a designated limited access facility if:

(i) Route is signed to prohibit pedestrians; or

(ii) Pedestrian facilities are provided on an adjacent parallel route;

(c) On one side if the roadway is a frontage road immediately adjacent to a limited access route; or

(d) On one side if the roadway is immediately adjacent to a railroad or other facility considered dangerous to pedestrians.

(2) All other sidewalk deviation requests require board action.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-14-221 What projects are eligible for small city arterial program funding. To be eligible for funding((~~, a proposed project must improve an arterial that meets at least one of the following standards:~~

~~(1) Serves as a logical extension of a county arterial or state highway through the city; or~~

~~(2) Acts as a bypass or truck route to relieve the central core area; or~~

~~(3) Serves as a route providing access to local facilities such as:~~

~~(a) Schools;~~

~~(b) Medical facilities;~~

~~(c) Social centers;~~

~~(d) Recreational areas;~~

~~(e) Commercial centers;~~

~~(f) Industrial sites.~~

~~Sidewalks are required on one side of the roadway unless a deviation is granted under WAC 479-14-200~~)) from the transportation improvement account a small city street must be classified as an arterial by the board.

Arterials are paved streets connecting to other paved streets on both ends that are publicly owned by the city or a state route. Arterials must provide circulation within the network or provide access to at least twenty residential units, or equivalent trip generation, per point of access.

Alleys are not considered arterials.

Dead end paved streets may be determined by the board to be arterials if they serve significant generators of traffic or at least twenty residential units or equivalent trip generation.

New streets may be determined by the board to be arterials if they would meet the description of an arterial in this section after they are completed.

Gravel streets may be determined by the board to be arterials if they should be paved based on serving significant traffic generators only if the funded project results in a paved street.

NEW SECTION

WAC 479-14-223 When is a sidewalk required for the small city arterial program. A sidewalk is required on at least one side of the street when project scope includes full depth reconstruction or new construction on an arterial that:

(1) Is in a business district; or

(2) Connects significant pedestrian generators to a business district.

Unless a deviation is granted under WAC 479-14-200.

NEW SECTION

WAC 479-14-225 What is eligible on state highways under the small city arterial program? State highways in small cities are not eligible for preservation projects inside the curb face.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-14-231 Award criteria for the small city arterial program. The board establishes the following criteria for use in evaluating small city arterial program grant applications:

((~~(1) Safety improvement - Projects that address accident reduction, hazard elimination, and roadway deficiencies.~~

~~(2) Pavement condition - Replaces or rehabilitates street surfaces and structural deficiencies.~~

~~(3) Local support - Projects that improve network development and address community needs.~~

~~(4) Sustainability - Improves network development of street system, reduces or eliminates water detention, and encourages energy reduction technology and use of recycled materials.~~)) (1) Condition of surface;

(2) Stability of subsurface base structure;

(3) Condition of subsurface utilities;

(4) Accessibility;

(5) Leveraging of funding sources;

(6) Elimination of hazards;

(7) Continuity of improved street segments including sidewalk;

(8) Community needs;

(9) Sustainable design;

(10) Efficient project implementation.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-14-251 Funding distribution formula for the small city arterial program. The statewide distribution of small city arterial program funds is allocated between regions according to the following formula:

Region small city population divided by statewide small city population.

The board may adjust the regional allocation by plus or minus five percent of the total annual allocation to fully fund the approved list of regional projects. When requested by the board, staff will update the regional allocations to ensure equitable distribution of funds.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-14-261 Matching requirement for the small city arterial program. ((~~There is no match requirement for cities with a population of one thousand or less. Cities with a population over one thousand must provide a min-~~

~~imum match of five percent of the total project cost.~~)) The small city arterial program provides funding which will be matched by other funds as follows:

(1) If the city assessed valuation is greater than five hundred million, a match of ten percent will be contributed.

(2) If the city assessed valuation is from one hundred million to five hundred million, a five percent match will be contributed.

(3) If the city assessed valuation is under one hundred million, no cash match is necessary.

AMENDATORY SECTION (Amending WSR 12-08-060, filed 4/3/12, effective 5/4/12)

WAC 479-14-451 Distribution formula for the sidewalk program. For the purpose of allocating funds, the sidewalk program is divided into two subprograms, the urban sidewalk program and the small city sidewalk program. The distribution formulas are as follows:

(1) Urban sidewalk program - The average of the ratios of region urban area population (RUP) divided by statewide urban population (SUP) plus region functionally classified lane miles within the urban area (RFC) divided by statewide functionally classified lane miles within urban areas (SFC).

The equation is as follows:

$$\frac{(RUP/SUP) + (RFC/SFC)}{2}$$

(2) Small city sidewalk program - Region small city population divided by statewide small city population.

For either program, the board may adjust regional allocations by plus or minus five percent of the total annual allocation to fully fund the approved list of regional projects. When requested by the board, staff will update the regional allocations to ensure equitable distribution of funds.

WSR 15-17-037
PROPOSED RULES
BUILDING CODE COUNCIL
[Filed August 12, 2015, 10:46 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-10-079.

Title of Rule and Other Identifying Information: Adoption and amendment of the 2015 International Energy Conservation Code (IECC)/Washington State Energy Code (WSEC) (commercial), chapter 51-11C WAC.

Hearing Location(s): DES Presentation Room, 1500 Jefferson S.E., Olympia, WA 98504, on October 16, 2015, at 10 a.m.

Date of Intended Adoption: November 13, 2015.

Submit Written Comments to: Dave Kokot, Chair, State Building Code Council (SBCC), P.O. Box 41449, Olympia, WA 98504-1449, e-mail sbcc@ga.wa.gov, fax (360) 586-9088, by October 23, 2015.

Assistance for Persons with Disabilities: Contact Peggy Bryden by September 24, 2015, (360) 407-9280.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The proposed rules adopt the 2015 edition of WSEC (commercial) with amendments to incorporate requirements from the 2015 IECC (commercial), and formatted to the 2015 IECC, to provided [provide] increased clarity and energy efficiency as required in RCW 19.27A.160.

Note: Sections that had no changes are not shown in this filing.

The 2015 WSEC contains several extensive reorganizational items:

Existing Buildings *(2015 IECC Change)*. Provisions for existing buildings have been removed from Section C101.4 and elsewhere in the code and relocated to a new Chapter 5 and broken out into additions, alterations, repairs and change of use. *(Proposed State Amendment.)* An exception is added to **Section C503.3** for air leakage testing of alteration, unless the alteration involves a change in space conditioning. Replacement exterior lighting and parking garage lighting is now addressed in the alterations Section **C503.6.**

Compliance Options *(2015 IECC Change)*. Section C402.1 was extensively rewritten for the 2015 edition. The IECC added a component performance alternative, in Section C402.1.5, based on Washington's method. This new section replaces the old WSEC language. The prescriptive compliance path is now shown as a number list of items. The exception to C402.1 was moved to the list of exempt equipment buildings shown in C402.1.2. Low energy and semi-heated buildings were also moved into this section as subsections.

Refrigerated Spaces (*2015 IECC Change/Proposed State Amendment)*. The 2015 IECC added requirements equivalent to those found in the 2012 WSEC. The 2015 WSEC relocates all of these requirements to a new **Section C410**. Duplicative language was removed and language was clarified. Federal efficiency tables were added. Use of the component performance method was clarified.

Economizers *(2015 IECC Change/Proposed State Amendment)*. The 2015 IECC was reorganized to remove the division between simple systems and complex systems. All of the economizer requirements (and exceptions) were moved to **C403.3**. Much of C403.4 was moved into C403.3. Section C403.4.1.3 moved to **C403.3.1** and was integrated into the ASHRAE 90.1 economizer control requirements. New requirements for modulating airflow units from ASHRAE are also added. Section C403.4.1.4 became Section **C403.3.2**. Section C403.3.1.1 became Section **C403.3.3**. Section C403.4.1.1 became Section **C403.3.4**.

Economizer Exceptions: Two new economizer exceptions were added for controlled atmosphere agricultural buildings and buildings utilizing waste heat for space heating or water heating. Exceptions for replacement equipment were moved to Chapter 5. The size limitation of the VRF exception was removed.

Lighting Controls *(2015 IECC Change)*. The 2015 IECC reorganizes the lighting controls section significantly. It is broken into five main topics: Occupant sensors, time switches, manual control, daylight responsive controls and additional controls.

Commissioning *(Proposed State Amendment)*. The term "certified commissioning professional" replaced most

instances of "registered design professional" throughout this section. All of the documentation requirements were moved to Section C103.6. Commissioning plan was moved from Section C408.1.1 to C408.1.2 and revised to incorporate ASHRAE 202 requirements, as was the final commissioning report language. The checklist was revised to reflect the new section numbers and titles. System specific sections were revised to clarify exemptions and simplify language. The electrical section scope increased to all systems covered under Section C405.

As well as several new requirements:

DOAS *(Proposed State Amendment)*. New Section **C403.2.6.1** mandates dedicated outdoor air systems (DOAS) in certain occupancy types (office, retail, education, libraries and fire stations) to separate the ventilation system and heating/cooling system to reduce fan energy use. Section **C403.2.6.1.1** allows the code official to waive this requirement if it is shown to be impractical. Section **C403.2.6.1.2** sets fan control requirements for DOAS systems.

Section C406: Additional Efficiency Package Options (*2015 IECC Change/Proposed State Amendment)*. The 2015 IECC revised the requirements for additional efficiency options, adding more options and simplifying the others provided. SBCC determined this would be an efficient, tested method of gaining energy efficiency and incorporated it into WSEC. All buildings are now required to achieve two credits from the available options. Based on the changes made to the LPA tables, the C406 LPA was reduced a further fifteen percent over the C405.2 values.

Controlled Receptacles *(Proposed State Amendment)*. A new requirement was added in Section **C405.10** for fifty percent of receptacles to be controlled by time switches or occupancy sensors.

Appendix E: **Renewable Energy** *(Proposed State Amendment)*. A new appendix is included requiring commercial buildings to provide some type of renewable energy generation or energy recovery. This appendix is not adopted as a statewide requirement, but may be adopted by a local jurisdiction.

Other notable changes include:

Ventilation *(Proposed State Amendment)*. Modification of Section **C403.2.6** to limit the amount of outdoor air introduced into the building to reduce the amount of energy needed to heat/cool that air. Exceptions are provided for when needed for specific nonventilation functions, residential buildings, alterations and systems with ERV.

Table C402.1.3 *(Proposed State Amendments)*. Two options are presented for this table. They differ only in the mass wall category. Option 1 uses the value from the 2015 IECC (and 2012 IECC) and deletes the footnote allowing uninsulated walls for some building types. Option 2 also deletes the footnote, but increases the R-value to that of the 2012 Seattle Energy Code. The other change, present in both options, is the additional column to the compliance option for continuous insulation fasteners, increasing the allowable penetrations to 0.12 percent.

Lighting Power Allowance *(Proposed State Amendment)*. Both the building area method and space-by-space method were decreased by twenty percent over those proposed in the integrated draft.

A number of changes were made to update to new ASHRAE 90.1 requirements:

Efficiency tables C403.2.3 (1) through (10), C404.2, C405.8 (1) through (4).

C403.2.3.1, Water-cooled centrifugal chilling packages.

C403.2.3.2, Positive displacement (air- and water-cooled) chilling packages.

C403.2.4.1.3, Setpoint overlap restrictions.

C403.2.4.5, Zone isolation.

C403.2.4.6, Freeze protection systems.

C403.2.4.12, Direct digital control systems.

C403.2.7.1, Kitchen exhaust.

C403.2.11.5, Fan airflow control.

C403.4.1.1, Static pressure sensor location.

C403.4.1.2, Set points for DDC.

C403.4.2.5, Boiler turndown.

C403.4.4, Mechanical systems serving multiple zones.

C403.4.4.3, Multiple zone VAV control.

C404.7.3, Controls for hot water storage.

C405.6, Electrical transformers.

Several sections were moved to accommodate the reorganization (and thus shown as underlined text), but were not changed (or had very minor editorial changes):

Area weighted U-factors moved from C402.3.4 to C402.4.3.4.

Doors moved from C402.2.7 to C402.4.4.

Off hour controls moved from C403.2.4.3 to C403.2.4.2.

Group R-2/R-3 dwelling units moved from C403.2.4.8 to C403.2.4.10.

Group R-2 sleeping units moved from C403.2.4.9 to C403.2.4.11.

Occupancy sensors moved from C403.2.5.2 to C403.2.6.3.

Laboratory exhaust moved from C403.2.5.4.2 to C403.2.7.2.

Manual controls moved from C405.2.1 to C405.2.3.

Area controls moved from C405.2.5 to C405.2.8.

Many changes were minor editorial changes to correlate section references or minor language adjustments:

C101.1, C101.2, C101.3, C108, C402.1, C402.2, C402.2.6, C402.4.1.3, Table C402.4, C403.2.1, C403.2.2, C403.2.3.4, C403.2.4, C403.2.4.5, C405.1, C405.5, C409.1, C409.3.

For a more detailed description of all of the changes, please see SBCC's web site at **https://fortress.wa.gov/ga/apps/SBCC/Page.aspx?cid=3119**.

A more in-depth analysis can be found on our web site, www.sbcc.wa.gov, or by contacting the office (contact information is noted under the small business/cost-benefit analysis section).

Reasons Supporting Proposal: RCW 19.27.031 and 19.27.074.

Statutory Authority for Adoption: RCW 19.27A.020, 19.27A.025, 19.27A.045, 19.27A.160.

Statute Being Implemented: Chapters 19.27, 19.27A, and 34.05 RCW.

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 Fis-

cal Matters: SBCC is seeking comments on the issues proposed in the rules shown below.

Name of Proponent: SBCC, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Krista Braaksma, 1500 Jefferson S.E., P.O. Box 41449, Olympia, WA, (360) 407-9278.

A small business economic impact statement has been prepared under chapter 19.85 RCW.

Small Business Economic Impact Statement

Description: SBCC is filing a proposed rule to adopt the updated 2015 edition of IECC with state amendments, known as the 2015 WSEC: Chapters 51-11R and 51-11C WAC. Since 1985 SBCC has been responsible to update 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 51-51 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 bylaws. 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 one hundred fifty-four proposals to improve WSEC. The energy code technical advisory group (TAG) recommended approval of one hundred sixteen amendments as submitted or as modified. Of those, TAG identified twenty-one as editorial corrections, and eighty-seven as technical corrections. The remaining eight proposed amendments were identified by TAG as having a significant cost.

The energy code TAG and the 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. See the preliminary cost-benefit analysis of the 2015 WSEC for a detailed review of each of these amendments.

Proposal Number	Section/Subject	*Economic Workgroup Comments*
15-E009	R403.7.1 Ductless mini-split heat pumps	Look at costs outside of the Tacoma area. Note that there is a side benefit of cooling being provided without additional cost.
Link: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4888		
15-E012 (Mod 2)	R406.2 Additional Requirements	Look at analysis of Option 2 point requirements, small house requirement in particular.
Link: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4892 Mod2: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=5534		
15-E029 and E036	Table C402.1.1 Appendix A Mass Walls	Requesting more information on the analysis done by the minority report proponents.
Link E029: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4939 Link E036: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4941		
15-E070	C403.2.6.1 Dedicated Outdoor Air Systems	Look at a model for east of the Cascades.
Link: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4909		
15-E098	C405.14 Controlled Receptacles	
Link: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4980		

Proposal Number	Section/Subject	*Economic Workgroup Comments*
15-E114	C405.4.2 Lighting Power Allowance	
Link: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4992		
15-E121	C406 Additional Requirements	Looking for more cost-benefit data from the proponents, example analyses.
Link: https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=4997		

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 ninety-five percent of those listed in the construction and related industries have under fifty 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 telephone conference bridge and over the internet, and allowed comment on every item on every agenda. SBCC appointed over one hundred representatives of all segments of the business and construction community to serve on the TAGs.

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

NAICS #	Type of Business	Businesses with fewer than 50 employees	Businesses with 50 or more employees
236115	New Single-Family Housing Construction	2523	18
236116	New Multifamily Housing Construction	69	4
236118	Residential Remodelers	4298	3
236210	Industrial Building Construction	88	8
236220	Commercial and Institutional Building Construction	1151	40
238120	Structural Steel and Precast Concrete Contractors	154	10
238130	Framing Contractors	1866	17
238140	Masonry Contractors	517	1
238150	Glass and Glazing Contractors	208	6
238190	Other Foundation, Structure, and Building Exterior Contractors	145	1
238220	Plumbing, Heating, and Air-Conditioning Contractors	2245	66
238290	Other Building Equipment Contractors	315	6
238310	Drywall and Insulation Contractors	898	18
321911	Wood Window and Door Manufacturing	31	1
327331	Concrete Block and Brick Manufacturing	13	1
332311	Prefabricated Metal Building and Component Manufacturing	16	4
332312	Fabricated Structural Metal Manufacturing	67	8
332321	Metal Window and Door Manufacturing	10	1
332322	Sheet Metal Work Manufacturing	69	8
333415	Air-Conditioning and Warm Air Heating Equipment	13	2
335110	Electric Lamp Bulb and Part Manufacturing	3	
335121	Residential Electric Lighting Fixture Manufacturing	14	

NAICS #	Type of Business	Businesses with fewer than 50 employees	Businesses with 50 or more employees
335122	Commercial, Industrial, and Institutional Electric Light	2	1
335129	Other Lighting Equipment Manufacturing	3	1
423320	Brick, Stone, and Related Construction Material Merchant	68	1
423330	Roofing, Siding, and Insulation Material Merchant Wholesale	33	4
423390	Other Construction Material Merchant Wholesalers	78	
423720	Plumbing and Heating Equipment and Supplies (Hydronics)	99	6
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies	48	1
531110	Lessors Of Residential Buildings and Dwellings	1525	152
531120	Lessors Of Nonresidential Buildings (Except Mini Warehouse)	2046	7
541310	Architectural Services	579	19
541330	Engineering Services	2351	82
541340	Drafting Services	69	
541350	Building Inspection Services	168	1
922160	Fire Protection	246	31

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, 2016. Building permits issued prior to that date will be vested under the 2012 building code. Permits issued for projects under the 2015 code edition will start with the 2017 construction season.

The construction industry has experienced growth over the period June 2014 to June 2015.

(Data from Current Employment Statistics (CES))

Wage and salary workers	2015	2014
Residential building construction	25,600	22,400
Nonresidential building construction	18,700	16,500
Specialty trade contractors	114,200	101,400

A copy of the statement may be obtained by contacting Tim Nogler, Washington SBCC, P.O. Box 41449, Olympia, WA 98504-1449, phone (360) 407-9280, fax (360) 586-9088, e-mail sbcc@ga.wa.gov.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Tim Nogler, Managing Director, Washington SBCC, P.O. Box 41449, Olympia, WA 98504-1449, phone (360) 407-9280, fax (360) 586-9088, e-mail sbcc@ga.wa.gov.

August 12, 2015
David F. Kokot
Council Chair

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10100 Section C101—Scope and general requirements.

C101.1 Title. This code shall be known as the ((~~*International Energy Conservation Code* of [NAME OF JURISDICTION]~~)) *Washington State Energy Code*, and shall be cited as such. It is referred to herein as "this code."

C101.2 Scope. This code applies to *commercial buildings* and the buildings sites and associated systems and equipment.

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. ((~~"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 the purposes of this code.

C101.3 Intent. This code shall regulate the design and construction of buildings for the ((~~effective~~)) use and conservation of energy over the ((~~useful~~)) 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.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-10140 Section C101.4—Applicability.

C101.4 Applicability. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

C101.4.1 ((**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.

C101.4.2 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.

C101.4.3 Additions, alterations, renovations or repairs. Additions, alterations, renovations or repairs 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(s) of the existing building or building system to comply with this code. Additions, alterations, renovations or repairs 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.

EXCEPTION: The following need not comply provided the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Glass only replacements in an existing sash and frame.
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. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
6. 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.
7. Alterations to lighting systems only that replace less than 60 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.
8. Alterations that replace only the bulb and ballast within the existing luminaires in a space provided that the *alteration* does not increase the installed interior lighting power.

C101.4.3.1 Lighting and motors. Alterations that replace 60 percent or more of the luminaires in a space enclosed by walls or ceiling height partitions shall comply with Section C405.5. Where less than 60 percent of the luminaires in a space enclosed by walls or ceiling height partitions are new, the installed lighting wattage shall be maintained or reduced.

Alterations that replace 60 percent or more of the exterior luminaires shall comply with Section C405.6. Where less than 60 percent of the exterior luminaires are new, the installed lighting wattage shall be maintained or reduced.

Where new wiring is being installed to serve added fixtures and/or fixtures are being relocated to a new circuit, controls shall comply with Sections C405.2.1, C405.2.2.3, C405.2.3, C405.2.4, and as applicable C408.3. In addition, office areas less than 300 ft^2 enclosed by walls or ceiling-height partitions, and all meeting and conference rooms, and all school classrooms, shall be equipped with occupancy sensors that comply with Section C405.2.2 and C408.3. 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, controls shall also comply with the other requirements in Sections C405.2.2 and C408.3.

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 controls that comply with Sections C405.2.1, C405.2.2, C405.2.3 and C408.3.

Those motors which are altered or replaced shall comply with Section C403.2.13.

C101.4.3.2 Mechanical systems. Those parts of systems which are altered or replaced shall comply with Section C403. Additions or alterations shall not be made to an existing mechanical system that will cause the existing mechanical system to become out of compliance.

All new systems in existing buildings, including packaged unitary equipment and packaged split systems, shall comply with Section C403.

Where mechanical cooling is added to a space that was not previously cooled, the mechanical cooling system shall comply with the economizer requirements in Section C403.3.1 or C403.4.1.

EXCEPTION: Alternate designs that are not in full compliance with this code may be approved when the building official determines that existing building or occupancy constraints make full compliance impractical or where full compliance would be economically impractical.

Alterations to existing mechanical cooling systems shall not decrease economizer capacity unless the system complies with Section C403.3.1 or C403.4.1. In addition, for existing mechanical cooling systems that do not comply with Sections C403.3.1 or Section 403.4.1, including both the individual unit size limits and the total building capacity limits on units without economizer, other alterations shall comply with Table C101.4.3.2.

When space cooling equipment is replaced, controls shall be installed to provide for integrated operation with economizer in accordance with Section C403.3.

Existing equipment currently in use may be relocated within the same floor or same tenant space if removed and reinstalled within the same permit.

C101.4.4 Change in occupancy or use. Spaces undergoing a change in occupancy from an F, S or U occupancy to an occupancy other than F, S or U shall comply with this code. Any space that is converted to a Group R dwelling unit or portion thereof, from another use or occupancy shall comply with this code. Where the use in a space changes from one use in Table C405.5.2 (1) or (2) to another use in Table C405.5.2 (1) or (2), the installed lighting wattage shall comply with Section C405.5.

EXCEPTION: Where the component performance building envelope option in Section C402.1.3 is used to comply with this section, the Proposed UA is allowed to be up to 110 percent of the Target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3 and Section C401.2 (3).

C101.4.5 Change in space conditioning. Any nonconditioned space that is altered to become *conditioned space* or *semi-heated* space shall be required to be brought into full compliance with this code. Any semi-heated space that is altered to become conditioned space shall be required to be brought into full compliance with this code.

EXCEPTION: Where the component performance building envelope option in Section C402.1.3 is used to comply with this section, the Proposed UA is allowed to be up to 110 percent of the Target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3 and Section C401.2 (3).

C101.4.6)) Mixed occupancy. Where a building includes both *residential* and *commercial* occupancies, each occupancy shall be separately considered and meet the applicable provisions of ((IECC)) WSEC—Commercial Provisions or ((IECC)) WSEC—Residential Provisions.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-10143 ((Table C101.4.3.2—Economizer compliance options for mechanical alterations.)) Reserved.

((**Table C101.4.3.2**
Economizer Compliance Options for Mechanical Alterations

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
1. Packaged Units	Efficiency: min.[1] Economizer: C403.4.1[2]	Efficiency: min.[1] Economizer: C403.4.1[2, 3]	Efficiency: min.[1] Economizer: C403.4.1[2, 3]	Efficiency: min.[1] Economizer: C403.4.1[2, 4]
2. Split Systems	Efficiency: min.[1] Economizer: C403.4.1[2]	Efficiency: + 10/5%[5] Economizer: Shall not decrease existing economizer capability	Only for new units < 54,000 Btu/h replacing unit installed prior to 1991 (one of two): Efficiency: + 10/5%[5] Economizer: 50%[6] For units > 54,000 Btu/h or any units installed after 1991: Option A	Efficiency: min.[1] Economizer: C403.4.1[2, 4]

	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.[1] Economizer: C403.4.1[2]	(two of three): Efficiency: + 10/5%[5] Flow control valve[7] Economizer: 50%[6]	(three of three): Efficiency: + 10/5%[5] Flow control valve[7] Economizer: 50%[6] (except for certain pre-1991 systems[8])	Efficiency: min.[1] Economizer: C403.4.1[2, 4] (except for certain pre-1991 systems[8])
4. Hydronic Economizer using Air-Cooled Heat Rejection Equipment (Dry Cooler)	Efficiency: min.[1] Economizer: 1433[2]	Efficiency: + 10/5%[5] Economizer: Shall not decrease existing economizer capacity	Option A	Efficiency: min.[1] Economizer: C403.4.1[2, 4]
5. Air-Handling Unit (including fan coil units) where the system has an air-cooled chiller	Efficiency: min.[1] Economizer: C403.4.1[2]	Economizer: Shall not decrease existing economizer capacity	Option A (except for certain pre-1991 systems[8])	Option A (except for certain pre-1991 systems[8])
6. Air- Handling Unit (including fan coil units) and Water-cooled Process Equipment, where the system has a water-cooled chiller[10]	Efficiency: min.[1] Economizer: C403.4.1[2]	Economizer: Shall not decrease existing economizer capacity	Option A (except for certain pre-1991 systems[8] and certain 1991-2004 systems[9])	Efficiency: min.[1] Economizer: C403.4.1[2, 4] (except for certain pre-1991 systems[8] and certain 1991-2004 systems[9])
7. Cooling Tower	Efficiency: min.[1] Economizer: C403.4.1[2]	No requirements	Option A	Option A
8. Air-Cooled Chiller	Efficiency: min.[1] Economizer: C403.4.1[2]	Efficiency: + 5%[11] Economizer: Shall not decrease existing economizer capacity	Efficiency (two of two): (1) + 10%[12] and (2) multistage Economizer: Shall not decrease existing economizer capacity	Efficiency: min.[1] Economizer: C403.4.1[2, 4]
9. Water-Cooled Chiller	Efficiency: min.[1] Economizer: C403.4.1[2]	Efficiency (one of two): (1) + 10%[13] or (2) plate frame heat exchanger[15] Economizer: Shall not decrease existing economizer capacity	Efficiency (two of two): (1) + 15%[14] and (2) plate frame heat exchanger[15] Economizer: Shall not decrease existing economizer capacity	Efficiency: min.[1] Economizer: C403.4.1[2, 4]
10. Boiler	Efficiency: min.[1] Economizer: C403.4.1[2]	Efficiency: + 8%[16] Economizer: Shall not decrease existing economizer capacity	Efficiency: + 8%[16] Economizer: Shall not decrease existing economizer capacity	Efficiency: min.[1] Economizer: C403.4.1[2, 4]

~~1 Minimum equipment efficiency shall comply with Section C403.2.3 and Tables C403.2.3(1) through C403.2.3(9).~~

~~2 System and building shall comply with Section C403.4.1 (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 C403.4.1.~~

~~3 All equipment replaced in an existing building shall have air economizer complying with Sections C403.3.1 and C403.4.1 unless both the individual unit size and the total capacity of units without air economizer in the building is less than that allowed in Exception 1 to Section C403.3.1.~~

~~4 All separate new equipment added to an existing building shall have air economizer complying with Sections C403.3.1 and C403.4.1 unless both the individual unit size and the total capacity of units without air economizer in the building is less than that allowed in Exception 1 to Section C403.4.1.~~

~~5 Equipment shall have a capacity-weighted average cooling system efficiency:~~

~~a. For units with a cooling capacity below 54,000 Btu/h, a minimum of 10% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2) (1.10 x values in Tables C403.2.3(1) and C403.2.3(2)).~~

~~b. For units with a cooling capacity of 54,000 Btu/h and greater, a minimum of 5% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2) (1.05 x values in Tables C403.2.3(1) and C403.2.3(2)).~~

~~6 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 capable of providing this additional outside air and equipped with economizer control.~~

~~7 Have flow control valve to eliminate flow through the heat pumps that are not in operation with 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, have a capacity-weighted average cooling system efficiency that is 5% greater than the requirements in note 5 (i.e., a minimum of 15%/10% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2) (1.15/1.10 x values in Tables C403.2.3(1) and C403.2.3(2)).~~

~~8 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 Btu/h.~~

~~9 Economizer not required for systems installed with water economizer plate and frame heat exchanger complying with previous codes between 1991 and June 2013, provided that the total fan coil load does not exceed the existing or added capacity of the heat exchangers.~~

~~10 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.~~

~~11 The air-cooled chiller shall have an IPLV efficiency that is a minimum of 5% greater than the IPLV requirements in Table C403.2.3(7) (1.05 x IPLV values in Table C403.2.3(7)).~~

~~12 The air-cooled chiller shall:~~

~~a. Have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7) (1.10 x IPLV values in Table C403.2.3(7)); and~~

~~b. Be multistage with a minimum of two compressors.~~

~~13 The water-cooled chiller shall have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7) (1.10 x IPLV values in Table C403.2.3(7)).~~

~~14 The water-cooled chiller shall have an IPLV efficiency that is a minimum of 15% greater than the IPLV requirements in Table C403.2.3(7), (1.15 x IPLV values in Table C403.2.3(7)).~~

~~15 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.~~

~~16 The replacement boiler shall have an efficiency that is a minimum of 8% higher than the value in Table C403.2.3(5) (1.08 x value in Table C403.2.3(5)), except for electric boilers.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10150 Section C101.5—Compliance.

C101.5 Compliance. *Residential buildings* shall meet the provisions of ((~~IECC~~)) WSEC—Residential Provisions. *Commercial buildings* shall meet the provisions of ((~~IECC~~)) WSEC—Commercial Provisions.

C101.5.1 Compliance materials. The *code official* shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.

((~~**C101.5.2 Low energy buildings.** The following buildings, or 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 provisions 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 • ft² (10.7 W/m²) or 1.0 watt/ft² (10.7 W/m²) of floor area for space conditioning purposes.~~

~~2. Those that do not contain *conditioned space*.~~

~~3. Greenhouses isolated from any conditioned space and not intended for occupancy.~~

~~**C101.5.2.1 Semi-heated spaces.** A *semi-heated* space shall meet all of the *building thermal envelope* requirements, except that insulation is not required for opaque wall assemblies. Component performance calculations involving semi-heated spaces shall calculate fully insulated opaque walls for the Target UA calculation, and Total Building Performance calculations involving semi-heated spaces shall calculate fully insulated opaque walls for the Standard Reference Design.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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 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. Insulation materials and their *R*-values((:)).

2. Fenestration *U*-factors and SHGCs((:)).

3. Area-weighted *U*-factor and SHGC calculations((:)).

4. Mechanical system design criteria((:)).

5. Mechanical and service water heating system and equipment types, sizes and efficiencies((:)).

6. Economizer description((:)).

7. Equipment and systems controls((:)).

8. Fan motor horsepower (hp) and controls((:)).

9. Duct sealing, duct and pipe insulation and location((:)).

10. Lighting fixture schedule with wattage and control narrative((~~; and air sealing details~~)).

11. Location of daylight zones on floor plan.

12. 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 180 days of the date of receipt of the certificate of occupancy.

C103.6.1 Record documents. Construction documents shall be updated to convey a record of the completed work. Such updates shall include mechanical, electrical and control drawings red-lined, or redrawn if specified, that show all changes to size, type and locations of components, equipment and assemblies.

C103.6.2 Manuals. An operating and maintenance manual shall be provided for each component, device, piece of equipment, and system required to be commissioned by this code. The manual shall include all of the following:

1. Submittal data indicating all selected options for each piece of equipment.

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. 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.

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, 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 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 C401.2, item one the documentation shall include:

1. The envelop 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 C407 the documentation shall include:

1. A list of all proposed envelop 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.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-10400 Section C104—Inspections.

C104.1 General. Construction or work for which a permit is required shall be subject to inspection by the *code official* or his designated agent, and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed 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 ((~~**approvals.** Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *code official*. The *code official*, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *code official*. Where applicable, inspections shall include at least the requirements in Sections C104.2.1 through C104.2.3.2.~~

~~**C104.2.1 Envelope**~~

~~**C104.2.1.1** Wall Insulation Inspection: To be made after all wall insulation and air vapor retarder sheet or film materials are in place, but before any wall covering is placed.~~

~~**C104.2.1.2** Glazing Inspection: To be made after glazing materials are installed in the building.~~

~~**C104.2.1.3** Exterior Roofing Insulation: To be made after the installation of the roof insulation, but before concealment.~~

~~**C104.2.1.4** Slab/Floor Insulation: To be made after the installation of the slab/floor insulation, but before concealment.~~

~~**C104.2.2 Mechanical**~~

~~**C104.2.2.1** Mechanical Equipment Efficiency and Economizer: To be made after all equipment and controls required by this code are installed and prior to the concealment of such equipment or controls.~~

~~**C104.2.2.2** Mechanical Pipe and Duct Insulation: To be made after all pipe and duct insulation is in place, but before concealment.~~

~~**C104.2.3 Lighting and motors**~~

~~**C104.2.3.1** Lighting Equipment and Controls: To be made after the installation of all lighting equipment and controls required by this code, but before concealment of the lighting equipment.~~

~~**C104.2.3.2** Motor Inspections: To be made after installation of all equipment covered by this code, but before concealment.~~

~~**C104.3**~~)) **inspections.** The *code official* or his designated agent, upon notification, shall make the inspections set forth in Sections C104.2.1 through C104.2.6.

C104.2.1 Footing and foundation inspection. Inspections associated with footings and foundations shall verify compliance with the code as to *R*-value, location, thickness, depth of burial and protection of insulation as required by the code and *approved* plans and specifications.

C104.2.2 Insulation and fenestration inspection. Inspections shall be made before application of interior finish and shall verify compliance with the code as to types of insulation and corresponding *R*-values and their correct location and proper installation; fenestration properties (*U*-factor, SHGC and VT) and proper installation; and air leakage controls as required by the code and approved plans and specifications.

C104.2.3 Plumbing inspection. Inspections verify compliance as required by the code and *approved* plans and specifications as to types of insulation and corresponding *R*-values and protection, required controls and required heat traps.

C104.2.4 Mechanical inspection. Inspections shall verify compliance as required by the code and *approved* plans and specifications as to installed HVAC equipment type and size, required controls, system insulation and corresponding *R*-

value, system and damper air leakage and required energy recovery and/or economizers.

C104.2.5 Electrical and lighting inspection. Inspections shall verify compliance as required by the code and *approved* plans and specifications as to installed lighting systems, components and controls; motors and installation of an electric meter for each dwelling unit.

C104.2.6 Final inspection. The building shall have a final inspection and not be occupied until *approved*.

((~~C104.4~~)) C104.3 Reinspection. A building shall be reinspected when determined necessary by the *code official*.

((~~C104.5~~)) 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.

((~~C104.6~~)) 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.

((~~C104.7~~)) 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.

((~~C104.8~~)) 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*.

((~~C104.8.1~~)) 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10600 Section C106—Referenced standards.

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 ((**~~Conflicting requirements.~~** ~~Where the provisions of this code and the referenced standards conflict, the provisions of this code shall take precedence.~~

~~C106.3~~)) 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.

((~~C106.4~~)) 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10800 Section C108—Stop work order.

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 condition, shall be liable to a fine ((~~of not less than [AMOUNT] dollars or more than [AMOUNT] dollars~~)) as set by the applicable governing authority.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20201 Section C202.1—A.

ABOVE-GRADE WALL. A wall enclosing *conditioned space* 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.

ACCESSIBLE. Admitting close approach as a result of not being guarded by locked doors, elevation or other effective means (see "*Readily accessible*").

ADDITION. An extension or increase in the *conditioned space* floor area or height of a building or structure.

AIR BARRIER. Material(s) assembled and joined together to provide a barrier to air leakage through the building envelope. An air barrier may be a single material or a combination of materials.

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.

ALTERATION. Any construction, retrofit or renovation to an existing structure other than repair or addition that requires a permit. 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 that requires a permit.

APPROVED. Approval by the *code official* as a result of investigation and tests conducted by him or her, or by reason of accepted principles or tests by nationally recognized organizations.

APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved* by the *code official*.

ATTIC AND OTHER ROOFS. All other 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").

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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.

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 selected building systems have been designed, installed, and function according to the owner's project requirements and construction documents, and to minimum code requirements.

BUILDING ENTRANCE. Any door, set of doors, doorway, or other form of portal that is used to gain access to the building from the outside by the public.

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, floor, roof, and any other building elements that enclose *conditioned space* or provides a boundary between *conditioned space, semiheated space* and exempt or unconditioned space.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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 x °F) [W/(m^2 x K)].

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 commissioning processes. The individual's accredited certification required by the referenced standard provides a measured level of experience and competence with the various whole building commissioning processes and ability to deliver quality service. The engineer of record for the project may be considered the *certified commissioning professional* if she/he is qualified to perform commissioning services for the entire process.

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.

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 BUILDING. For this code, all buildings that are not included in the definition of "Residential buildings."

COMPUTER ROOM. A room whose primary function is to house equipment for the processing and storage of electronic data and that has a design electronic data equipment power density exceeding 20 watts per square foot of conditioned area.

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 ((~~or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent *conditioned space*~~)), 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.

CONTINUOUS AIR BARRIER. A combination of materials and assemblies that restrict or prevent the passage of air through the building thermal envelope.

CONTINUOUS INSULATION (CI). ((~~Insulation~~)) Insulating material that is continuous across all structural members without thermal bridges other than ((~~service openings and penetrations by metal fasteners with a cross-sectional area, as measured in the plane of the surface, of less than 0.04% of the opaque surface area of the assembly~~)) fasteners 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 specifically controlled to facilitate and enhance plant growth and production by manipulating various indoor environment 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.

CURTAIN WALL. Fenestration products used to create an external nonload-bearing wall that is designed to separate the exterior and interior environments.

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 13-04-056, filed 2/1/13, effective 7/1/13)

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.

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. ((~~(See also Fig. C202.4)~~

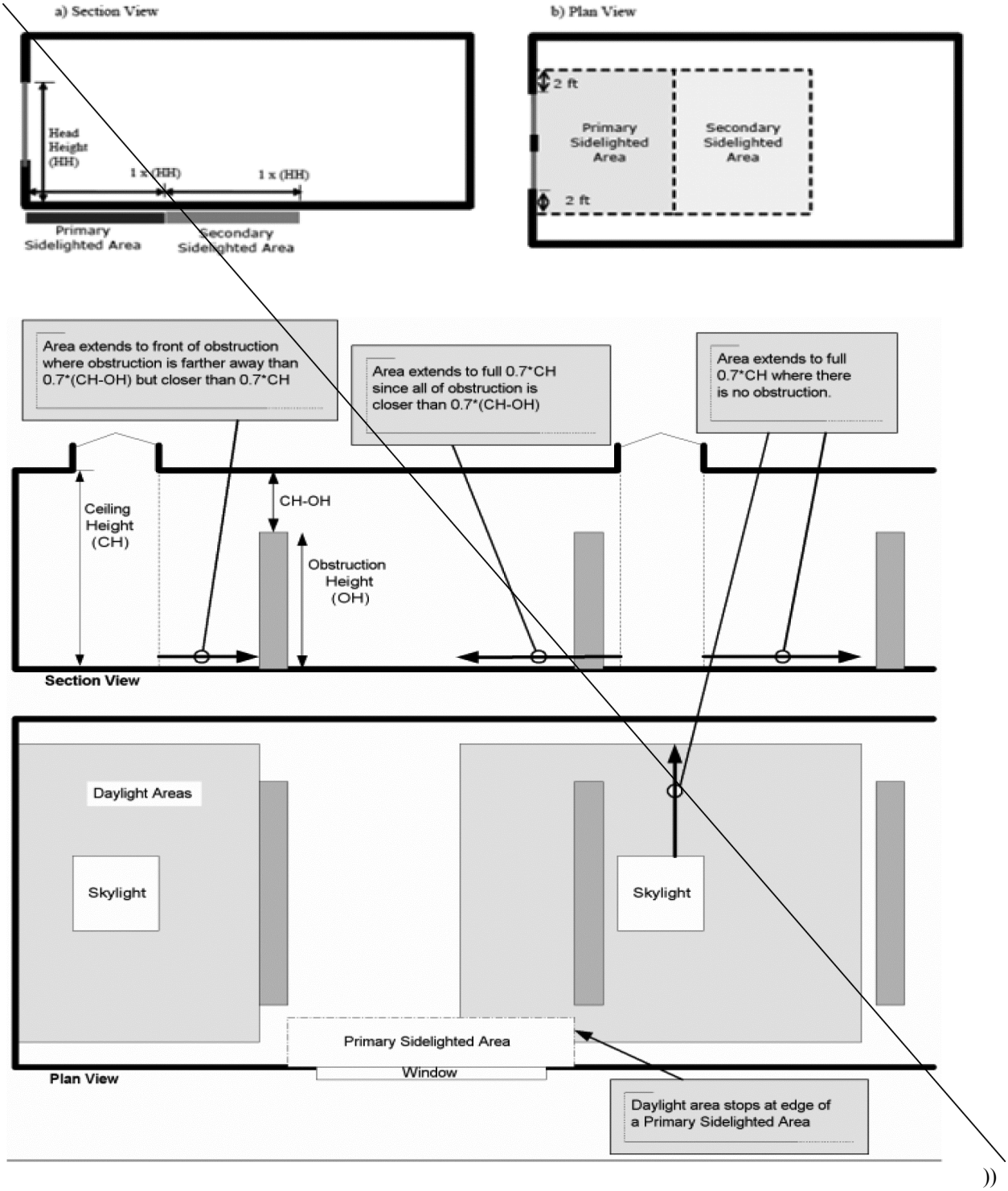
~~1. **Under skylights.** The area under skylights whose horizontal dimension, in each direction, is equal to the skylight dimension in that direction plus either 70 percent of the floor-to-ceiling height or the dimension to a ceiling height opaque partition, or one-half the distance to adjacent skylights or vertical fenestration, whichever is least.~~

~~2. **Adjacent to vertical fenestration.** The area adjacent to vertical fenestration which receives daylight through the fenestration. For purposes of this definition and unless more detailed analysis is provided, the primary daylight *zone* depth is assumed to extend into the space a distance equal to the window head height and the secondary daylighted zone extends from the edge of the primary zone to a distance equal to two times the window head height or to the nearest ceiling height opaque partition, whichever is less. The daylight *zone* width is assumed to be the width of the window plus 2 feet (610 mm) on each side, or the window width plus the distance to an opaque partition, or the window width plus one-half the distance to adjacent skylight or vertical fenestration, whichever is least.~~

~~3. **In parking garages.** 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 and no exterior obstructions within 20 feet.~~

~~4. **Under atrium glazing.** The area at the floor directly beneath the atrium and the top floor under the atrium whose horizontal dimension, in each direction, is equal to the distance between the floor and ceiling height. Levels below the top floor that are not directly beneath the atrium are unaffected.~~

~~Figure C202.1~~



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The portion of the building interior floor area that is illuminated by natural daylight through sidelight and toplight fenestration.

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 where ((~~pump(s)~~)) pumps prime the service hot water piping with heated water upon demand for hot water.

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.

DYNAMIC GLAZING. Any fenestration product that has the fully reversible ability to change its performance properties, including *U*-factor, SHGC, or VT.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20206 Section C202.6—F.

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 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.

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.

FENESTRATION. ((~~Skylights, roof windows, vertical windows (fixed or moveable), opaque doors, glazed doors, glazed block and combination opaque/glazed doors. Fenestration includes products with glass and nonglass glazing materials.~~)) Products classified as either vertical fenestration or skylights.

SKYLIGHT. Glass or other transparent or translucent glazing material installed at a slope of less than 60 degrees (91.05 rad) from horizontal.

VERTICAL FENESTRATION. Windows (fixed or moveable), opaque doors, glazed doors, glazed block and combination opaque/glazed doors composed of glass or other transparent or translucent glazing materials and installed at a slope of at least 60 degrees (91.05 rad) from horizontal.

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 x ft x $^{\circ}_{F}$) [W/(m x 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 x E_{AE})/1000 x E_F + 3.412 x 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.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20207 Section C202.7—G.

GENERAL LIGHTING. Lighting that provides a substantially uniform level of illumination throughout an area. General lighting shall not include ((~~decorative lighting or~~)) lighting that provides a dissimilar level of illumination to serve a ((~~specialized~~)) specific application or decorative feature within such area.

GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE I). A motor that is designed in standard ratings with either of the following:

1. Standard operating characteristics and standard mechanical construction for use under usual service conditions, such as those specified in NEMA MG1, paragraph 14.02, "Usual Service Conditions," and without restriction to a particular application or type of application.

2. Standard operating characteristics or standard mechanical construction for use under unusual service conditions, such as those specified in NEMA MG1, paragraph 14.03, "Unusual Service Conditions," or for a particular type of application, and that can be used in most general purpose applications.

General purpose electric motors (Subtype I) are constructed in NEMA T-frame sizes or IEC metric equivalent, starting at 143T.

GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE II). A motor incorporating the design elements of a general purpose electric motor (Subtype I) that is configured as one of the following:

1. A *U*-frame motor.
2. A Design C motor.
3. A close-coupled pump motor.
4. A footless motor.
5. A vertical, solid-shaft, normal-thrust motor (as tested in a horizontal configuration).
6. An 8-pole motor (900 rpm).
7. A polyphase motor with voltage of not more than 600 volts (other than 230 or 460 volts).

GREENHOUSE. A permanent structure or a thermally isolated area of a building that maintains a specialized sunlit environment that is used exclusively 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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.

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.

((~~**HIGH-EFFICACY LUMINAIRES.** Luminaires with compact fluorescent lamps, T-8 or smaller diameter linear fluorescent lamps, or lamps with a minimum efficacy of:~~

~~1. 60 Lumens per watt for lamps over 40 watts;~~

~~2. 50 Lumens per watt for lamps over 15 watts to 40 watts; and~~

~~3. 40 Lumens per watt for lamps 15 watts or less.~~))

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.

HUMIDISTAT. A regulatory device, actuated by changes in humidity, used for automatic control of relative humidity.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20209 Section C202.9—I.

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.

((~~**INSULATING SHEATHING.** An insulating board with a core material having a minimum *R*-value of R-2.~~))

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 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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, inspection 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.

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-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.

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. The output circuits of the power supply operate at 30 volts (42.4 volts peak) or less under all load conditions.

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 luminaire(s) with embedded lighting control logic, occupancy and ambient light sensors, wire-

less networking capabilities, and local override switching capability.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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. The area of the slab edge shall be defined as the thickness of the slab multiplied by the perimeter of the edge condition. Examples of this condition include, 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.

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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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, biomass, or the internal heat of the earth. The energy system providing on-site renewable energy shall be located on the project site.

OPAQUE DOOR. A door that is not less than 50 percent opaque in surface area.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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.

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.

PROPOSED DESIGN. A description of the proposed building used to estimate annual energy use for determining compliance based on total building performance.

AMENDATORY SECTION (Amending WSR 14-24-054, filed 11/25/14, effective 5/1/15)

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.

READILY ACCESSIBLE. Capable of being reached quickly for operation, renewal or inspection without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders or access equipment (see "*Accessible*").

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.

REPAIR. The reconstruction or renewal of any part of an existing building.

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, R-3 and R-4 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.

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 ($h \cdot ft^2 \cdot °F/Btu$) [$(m^2 \cdot K)/W$].

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 13-04-056, filed 2/1/13, effective 7/1/13)

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.

SCREW LAMP HOLDERS. A lamp base that requires a screw-in-type lamp, such as a compact-fluorescent, incandescent, or tungsten-halogen bulb.

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 a maximum installed heating system output capacity of 3.4 Btu/(h-ft²) but not greater than 8 Btu/(h-ft²);

2. Is not a ((~~cold storage space or frozen storage space~~)) walk-in or warehouse cooler or freezer space.

SERVICE WATER HEATING. Heating water for domestic or commercial purposes other than space heating and process requirements.

SKYLIGHT. Glass or other transparent or translucent glazing material installed at a slope of less than 60 degrees (1.05 rad) from horizontal. Glazing material in skylights, including unit skylights, solariums, sunrooms, roofs and sloped walls is included in this definition.

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.

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 for compliance based on total building performance.

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 nonresidential 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.

((~~**SUNROOM.** A one-story structure attached to a dwelling with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20220 Section C202.20—T.

((~~**THERMAL ISOLATION.** Physical and space conditioning separation from *conditioned space(s)*. The *conditioned space(s)* shall be controlled as separate zones for heating and cooling or conditioned by separate equipment.~~)) **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.

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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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)].

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.

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 13-04-056, filed 2/1/13, effective 7/1/13)

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. All fenestration other than skylights.

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.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20223 Section C202.23—W.

WALK-IN COOLER. An enclosed storage space capable of being refrigerated to temperatures above 32°F ((~~that can be walked into and has a total chilled storage area of less than 3,000 ft^2~~)) (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 ((~~that can be walked into and has a total chilled storage area of less than 3,000 ft^2~~)) (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.*

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*.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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.

C303.1.1.1 Blown or sprayed roof/ceiling insulation. The thickness of blown-in or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be written in inches (mm) on markers that are installed at least one for every 300 square feet (28 m^2) throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers ((~~a minimum~~)) 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.

C303.1.3 Fenestration product rating. *U*-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer.

EXCEPTION: Where required, garage door *U*-factors 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).

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 x ft² x °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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-303131 Table C303.1.3(1)—Default glazed fenestration *U*-factors.

Table C303.1.3(1)
Default Glazed Fenestration *U*-Factors

FRAME TYPE	SINGLE PANE	DOUBLE PANE	SKY-LIGHT
Metal	1.20	0.80	See Table C303.1.3(4)
Metal with Thermal Break	1.10	0.65	
Nonmetal or Metal Clad	0.95	0.55	
Glazed Block	0.60		

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-30320 Section C303.2—Installation.

C303.2 Installation. ((~~All~~)) Materials, systems and equipment shall be installed in accordance with the manufacturer's ((~~installation~~)) instructions and the *International Building Code*.

C303.2.1 Protection of exposed foundation insulation. Insulation applied to the exterior of basement walls, crawlspace walls and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend ((~~a minimum of~~)) not less than 6 inches (153 mm) below grade.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40100 Section C401—General.

C401.1 Scope. The ((~~requirements contained~~)) provisions in this chapter are applicable to commercial buildings((~~, or portions of 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 ((~~and~~)), C409 and C410.

2. The requirements of Section C407, C408, C409, C410, C402.4, C403.2, C404, C405.2, C405.3, C405.4, C405.6 and C405.7. The building energy consumption shall be equal to or less than ((~~93~~)) 87 percent of the standard reference design building.

((~~**C401.2.1 Application to existing buildings.** Additions, alterations and repairs to existing buildings shall comply with Sections C402, C403, C404, C405, C408 and C409.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40210 Section C402.1—General (Prescriptive).

C402.1 General (Prescriptive). ((~~The~~)) Building thermal envelope ((~~shall~~)) assemblies for buildings that are intended to comply with ((~~Section C402.1.1, Section C402.1.2 or Section C402.1.3 shall be permitted as an alternative to the *R*-values specified in Section C402.1.1. Walk-in coolers and walk-in freezers shall comply with C402.5. Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with C402.6.~~

~~EXCEPTION: Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.~~))

the code on a prescriptive basis, in accordance with the compliance path described in Item 1 of Section C401.2, shall comply with the following:

1. The opaque portions of the building thermal envelope shall comply with the specific insulation requirements of Section C402.2 and the thermal requirements of either the *R*-value based method of Section C402.1.3, the *U*-, *C*- and *F*-factor based method of Section C402.1.4, or the component performance alternative of Section C402.1.5.

2. Fenestration in building envelope assemblies shall comply with Section C402.5.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40211 Section C402.1.1—((~~Insulation and fenestration criteria~~)) Low energy buildings.

C402.1.1 ((~~**Insulation and fenestration criteria.** The *building thermal envelope* shall meet the requirements of Tables C402.2 and C402.3 based on the climate zone specified in Chapter 3. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *R*-values from the "Group R" column of Table C402.2. 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 C402.2.~~)) **Low energy buildings.** The following buildings, or 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/hx 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. Greenhouses where cooling does not include a condensing unit and that are isolated from any other conditioned space.

4. Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

C402.1.1.1 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. 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. *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 Design for Total Building Performance compliance per Section C407.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40212 Section C402.1.2—((~~*U*-factor alternative~~)) Equipment buildings.

C402.1.2 ((~~***U*-factor alternative.** An assembly with a *U*-factor, *C*-factor, or *F*-factor equal or less than that specified in Table C402.1.2 shall be permitted as an alternative to the *R*-value in Table C402.2. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *U*-factor, *C*-factor, or *F*-factor from the "Group R" column of Table C402.1.2. Commercial buildings or portions of commercial buildings enclosing occupancies other than Group R shall use the *U*-factor, *C*-factor or *F*-factor from the "All other" column of Table C402.1.2. 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.~~)) **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 equipment with installed equipment power totaling at least 7 watts per square foot (75 W/m^2) and not intended for human occupancy.

3. 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).

4. Have an average wall and roof *U*-factor less than 0.200.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-402121 Table ((~~C402.1.2~~)) C402.1.3—Opaque thermal envelope assembly *R-value* requirements.

((~~**Table C402.1.2**~~

~~**Opaque Thermal Envelope Assembly Requirements***~~

~~CLIMATE ZONE~~	~~5 AND MARINE 4~~		~~6~~	
	~~All Other~~	~~Group R~~	~~All Other~~	~~Group R~~
~~Roofs~~				
~~Insulation entirely above deck~~	~~U-0.034~~	~~U-0.031~~	~~U-0.032~~	~~U-0.031~~

~~CLIMATE ZONE~~	~~5 AND MARINE 4~~		~~6~~	
	~~All Other~~	~~Group R~~	~~All Other~~	~~Group R~~
~~Metal buildings~~	~~U-0.031~~	~~U-0.031~~	~~U-0.029~~	~~U-0.031~~
~~Attic and other~~	~~U-0.021~~	~~U-0.021~~	~~U-0.021~~	~~U-0.021~~
~~Walls, Above Grade~~				
~~Mass~~	~~U-0.104[d]~~	~~U-0.078~~	~~U-0.078~~	~~U-0.071~~
~~Metal building~~	~~U-0.052~~	~~U-0.052~~	~~U-0.052~~	~~U-0.044~~
~~Steel framed~~	~~U-0.055~~	~~U-0.055~~	~~U-0.049~~	~~U-0.044~~
~~Wood framed and other~~	~~U-0.054~~	~~U-0.054~~	~~U-0.051~~	~~U-0.044~~
~~Walls, Below Grade~~				
~~Below-grade wall[b]~~	~~Same as above grade~~	~~Same as above grade~~	~~Same as above grade~~	~~Same as above grade~~
~~Floors~~				
~~Mass~~	~~U-0.031~~	~~U-0.031~~	~~U-0.031~~	~~U-0.031~~
~~Joist/framing~~	~~U-0.029~~	~~U-0.029~~	~~U-0.029~~	~~U-0.029~~
~~Slab-on-Grade Floors~~				
~~Unheated slabs~~	~~F-0.54~~	~~F-0.54~~	~~F-0.54~~	~~F-0.52~~
~~Heated slabs[e]~~	~~F-0.55~~	~~F-0.55~~	~~F-0.55~~	~~F-0.55~~

~~[a] Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from Appendix A is required unless otherwise allowed by Section C402.1.2.~~

~~[b] Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.~~

~~[e] 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:~~

~~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 U-factor from Table C402.1.2.~~))

OPTION 1:

Table C402.1.3
Opaque Thermal Envelope Insulation Component Minimum Requirements, *R-value* Method[a-g]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	R-30ci	R-38ci
Metal buildings[b]	R-25 + R-11 LS	R-25 + R-11 LS
Attic and other	R-49	R-49
Walls, Above Grade		
Mass	R-11.4ci	R-13.3ci
Metal buildings	R-19ci	R-19ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci
Wood framed and other	R-21 int	R-21 int
Walls, Below Grade		
Below-grade wall[d]	Same as above grade	Same as above grade
Floors		
Mass[f]	R-30ci	R-30ci
Joist/framing	R-30[g]	R-30[g]
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		
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 shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.4.

[c] Reserved.

[d] Where heated slabs are below grade, below-grade walls shall comply with the exterior 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 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:

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-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

This alternate nominal *R*-value compliance option is allowed for projects complying with all of the following:

1. 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 0.0012 (0.12%).
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 C402.1.2 for determination of *U*-factors for assemblies that include metal other than screws and nails.

OPTION 2:

Table C402.1.3
Opaque Thermal Envelope Insulation Component Minimum Requirements, *R-value* Method[a-g]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	R-30ci	R-38ci
Metal buildings[b]	R-25 + R-11 LS	R-25 + R-11 LS
Attic and other	R-49	R-49
Walls, Above Grade		
Mass	R-13.3ci	R-13.3ci
Metal buildings	R-19ci	R-19ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci
Wood framed and other	R-21 int	R-21 int
Walls, Below Grade		
Below-grade wall[d]	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[d]	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab
Opaque Doors		
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 shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.4.

c Reserved.

d Where heated slabs are below grade, below-grade walls shall comply with the exterior 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 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:

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-13ci
R-13.3ci	R-16.6ci	R-15.7ci
R-15.2ci	R-19.0ci	R-18.3ci
R-30ci	R-38ci	R-21ci
R-38ci	R-48ci	R-42ci
R-13 + R-7.5ci	R-13 + R-9.4ci	R-53ci
R-13 + R-10ci	R-13 + R-12.5ci	R-13 + R-10.3ci
R-13 + R-12.5ci	R-13 + R-15.6ci	R-13 + R-13.8ci
R-13 + R-13ci	R-13 + R-16.3ci	R-13 + R-17.2ci
R-19 + R-8.5ci	R-19 + R-10.6ci	R-13 + R-17.9ci
R-19 + R-14ci	R-19 + R-17.5ci	R-19 + R-11.7ci
R-19 + R-16ci	R-19 + R-20ci	R-19 + R-19.2ci
R-20 + R-3.8ci	R-20 + R-4.8ci	R-19 + R-22ci
R-21 + R-5ci	R-21 + R-6.3ci	R-20 + R-5.3ci

This alternate nominal *R*-value compliance option is allowed for projects complying with all of the following:

1. 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 0.0012 (0.12%).
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 C402.1.2 for determination of *U*-factors for assemblies that include metal other than screws and nails.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40213 Section C402.1.3—((~~Component performance option~~)) Insulation component *R*-value method.

((~~**C402.1.3 Component performance building envelope option.**~~

~~**C402.1.3.1 General.** Buildings or structures whose design heat loss rate (UA_p) and solar heat gain coefficient rate (SHGC * A_p) are less than or equal to the target heat loss rate (UA_t) and solar heat gain coefficient rate (SHGC * A_t) shall be considered in compliance with this section. The stated *U*-factor, *F*-factor or allowable area of any component assembly, listed in Table C402.1.2 and Table C402.3, such as roof/ceiling, opaque wall, opaque door, fenestration, floor over conditioned space, slab on grade floor, radiant floor or opaque floor may be increased and the *U*-factor or *F*-factor for other components decreased, provided that the total heat gain or loss for the entire building envelope does not exceed the total resulting from compliance to the *U*-factors, *F*-factors or allowable areas specified in this section. Compliance shall be calculated in total for the building envelope for other than Group R spaces and for Group R spaces.~~

~~**C402.1.3.2 Component *U*-factors.** The *U*-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 90.1-2010 Normative Appendix A.~~

~~**C402.1.3.3 UA calculations.** The target UA_t and the proposed UA_p shall be calculated using Equations C402-1 and C402-2 and the corresponding areas and *U*-factors from Table C402.1.2 and Table C402.3. For the target UA_t calculation, the skylights shall be located in roof/ceiling area up to the maximum skylight area per Section C402.3.1 and the remainder of the fenestration allowed per Section C402.3.1 shall be located in the wall area.~~

~~**C402.1.3.4 SHGC rate calculations.** Solar heat gain coefficient shall comply with Table C402.3. The target $SHGCA_t$ and the proposed $SHGCA_p$ shall be calculated using Equations C402-3 and C402-4 and the corresponding areas and SHGCs from Table C402.3.~~)) **C402.1.3 Insulation component *R-value*-based method.** *Building thermal envelope* opaque assemblies shall meet the requirements of Section C402.2 and C402.4 based on the climate zone specified in Chapter 3. For opaque portions of the *building thermal envelope* intended to comply on an insulation component *R-value* basis, the *R-values* for insulation in framing areas, where required, and for continuous insulation, where required, shall not be less than that specified 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. The thermal resistance or *R*-value of the insulating material installed in, or continuously on, below grade exterior walls of the building envelope required in accordance with Table C402.1.3 shall extend to the lowest floor of the conditioned space enclosed by the below grade wall. Doors having less than 50 percent opaque glass area shall be considered opaque doors. Opaque swinging doors shall comply with the Table C402.1.4 and opaque nonswinging doors shall comply with Table C402.1.3 or C402.1.4.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-402131 ((~~Equation C402-1 Target UA_t~~)) Reserved.

((~~**Equation C402-1**~~

~~**Target UA_t**~~

$$UA_t = U_{radt}A_{radt} + U_{mrt}A_{mrt} + U_{rat}A_{rat} + U_{mwt}(A_{mwt} + A_{mwbgt}) + U_{mbwt}(A_{mbwt} + A_{mbwbgt}) + U_{sfwt}(A_{sfwt} + A_{sfwbgt}) + U_{wfwt}(A_{wfwt} + A_{wfwbgt}) + U_{fmt}A_{fmt} + U_{fjt}A_{fjt} + F_{st}P_{st} + F_{srt}P_{srt} + U_{dst}A_{dst} + U_{drt}A_{drt} + U_{vgt}A_{vgt} + U_{vgmt}A_{vgmt} + U_{vgmot}A_{vgmot} + U_{vgdt}A_{vgdt} + U_{ogt}A_{ogt}$$

~~UA_t = The target combined specific heat transfer of the gross roof/ceiling assembly, exterior wall and floor area.~~

~~Where:~~

~~U_{radt} = The thermal transmittance value for roofs with the insulation entirely above deck found in Table C402.1.2.~~

~~U_{mrt}~~	=	~~The thermal transmittance value for metal building roofs found in Table C402.1.2.~~
~~U_{rat}~~	=	~~The thermal transmittance value for attic and other roofs found in Table C402.1.2.~~
~~U_{mwt}~~	=	~~The thermal transmittance value for opaque mass walls found in Table C402.1.2.~~
~~U_{mbwt}~~	=	~~The thermal transmittance value for opaque metal building walls found in Table C402.1.2.~~
~~U_{sfwt}~~	=	~~The thermal transmittance value for opaque steel-framed walls found in Table C402.1.2.~~
~~U_{wfwt}~~	=	~~The thermal transmittance value for opaque wood framed and other walls found in Table C402.1.2.~~
~~U_{fmt}~~	=	~~The thermal transmittance value for mass floors over unconditioned space found in Table C402.1.2.~~
~~U_{fjt}~~	=	~~The thermal transmittance value for joist floors over unconditioned space found in Table C402.1.2.~~
~~F_{st}~~	=	~~The F-factor for slab-on-grade floors found in Table C402.1.2.~~
~~F_{srt}~~	=	~~The F-factor for radiant slab floors found in Table C402.1.2.~~
~~U_{dst}~~	=	~~The thermal transmittance value for opaque swinging doors found in Table C402.2.~~
~~U_{drt}~~	=	~~The thermal transmittance value for opaque roll-up or sliding doors found in Table C402.2.~~
~~U_{vgt}~~	=	~~The thermal transmittance value for vertical fenestration with nonmetal framing found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. *Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{vgmt}~~	=	~~The thermal transmittance value for vertical fenestration with fixed metal framing found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. *Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{vgmot}~~	=	~~The thermal transmittance value for vertical fenestration with operable metal framing found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. *Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{vgdt}~~	=	~~The thermal transmittance value for entrance doors found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{ogt}~~	=	~~The thermal transmittance for skylights found in Table C402.3 which corresponds to the proposed skylight area as a percent of gross exterior roof area.~~
~~A_{fmt}~~	=	~~The proposed mass floor over unconditioned space area, A_{fm}.~~
~~A_{fjt}~~	=	~~The proposed joist floor over unconditioned space area, A_{fj}.~~
~~P_{st}~~	=	~~The proposed linear feet of slab-on-grade floor perimeter, P_s.~~

~~P_{srt} = The proposed linear feet of radiant slab floor perimeter, P_{rs}.~~

~~A_{dst} = The proposed opaque swinging door area, A_{ds}.~~

~~A_{drt} = The proposed opaque roll-up or sliding door area, A_{dr}.~~

~~and~~

~~If the vertical fenestration area as a percent of gross above-grade exterior wall area does not exceed the maximum allowed in Section C402.3.1.3:~~

~~A_{mwt} = The proposed opaque above-grade mass wall area, A_{mw}.~~

~~A_{mwbgt} = The proposed opaque below-grade mass wall area, A_{mw}.~~

~~A_{mbwt} = The proposed opaque above-grade metal building wall area, A_{mbw}.~~

~~A_{mbwbgt} = The proposed opaque below-grade metal building wall area, A_{mbwbg}.~~

~~A_{sfwt} = The proposed opaque above-grade steel framed wall area, A_{mfw}.~~

~~A_{sfwbgt} = The proposed opaque below-grade steel framed wall area, A_{mfwbg}.~~

~~A_{wfwt} = The proposed opaque above-grade wall wood framed and other area, A_{wfwbg}.~~

~~A_{wfwbgt} = The proposed opaque below-grade wall wood framed and other area, A_{wfwbg}.~~

~~A_{vgt} = The proposed vertical fenestration area with nonmetal framing, A_{vg}.~~

~~A_{vgmt} = The proposed vertical fenestration area with fixed metal framing, A_{vgm}.~~

~~A_{vgmot} = The proposed vertical fenestration area with operable metal framing, A_{vgmo}.~~

~~A_{vgdt} = The proposed entrance door area, A_{vgd}.~~

~~or~~

~~If the vertical fenestration area as a percent of gross above-grade exterior wall area exceeds the maximum allowed in Section C402.3.1, the 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 allowed percentage per Section C402.3.1 of the gross above-grade wall area. The target wall area of a given wall type shall be the sum of the proposed below grade area and the increased above-grade area.~~

~~and~~

~~If the skylight area as a percent of gross exterior roof area does not exceed the maximum allowed in Section C402.3.1:~~

~~A_{radt} = The proposed roof area with insulation entirely above the deck, A_{rad}.~~

~~A_{mrt} = The proposed roof area for metal buildings, A_{mr}.~~

~~A_{rat} = The proposed attic and other roof area, A_{or}.~~

~~A_{ogat} = The proposed skylight area, A_{ogor}.~~

~~or~~

~~If the skylight area as a percent of gross exterior roof area exceeds the maximum allowed in Section C402.3.1, 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.~~

~~*Note: The vertical fenestration area does not include opaque doors and opaque spandrel panels.~~))

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402132 ((~~Equation C402-2 Proposed UA_p~~)) Reserved.

((~~**Equation C402-2**~~

~~**Proposed UA_p**~~

~~UA_p = $U_{rad}A_{rad} + U_{mr}A_{mr} + U_{ra}A_{ra} + U_{mw}A_{mw} + U_{mbw}A_{mbw} + U_{sfw}A_{sfw} + U_{wfow}A_{wfow} + U_{fm}A_{fm} + U_{fj}A_{fj} + F_sP_s + F_{sr}P_{sr} + U_{ds}A_{ds} + U_{dr}A_{dr} + U_{vg}A_{vg} + U_{vgmf}A_{vgmf} + U_{vgmo}A_{vgmo} + U_{vgd}A_{vgd} + U_{og}A_{og}$

~~Where:~~

~~UA_p~~	=	~~The combined proposed specific heat transfer of the gross exterior wall, floor and roof/ceiling assembly area.~~
~~U_{rad}~~	=	~~The thermal transmittance of the roof area where the insulation is entirely above the roof deck.~~
~~A_{rad}~~	=	~~Opaque roof area where the insulation is entirely above the roof deck.~~
~~U_{mr}~~	=	~~The thermal transmittance of the metal building roof area.~~
~~A_{mr}~~	=	~~Opaque metal building roof area.~~
~~U_{ra}~~	=	~~The thermal transmittance of the roof over attic and other roof area.~~
~~A_{ra}~~	=	~~Opaque roof over attic and other roof area.~~
~~U_{mw}~~	=	~~The thermal transmittance of the opaque mass wall area.~~
~~A_{mw}~~	=	~~Opaque mass wall area (not including opaque doors).~~
~~U_{mbw}~~	=	~~The thermal transmittance of the opaque metal building wall area.~~
~~A_{mbw}~~	=	~~Opaque metal building wall area (not including opaque doors).~~
~~U_{sfw}~~	=	~~The thermal transmittance of the opaque steel framed wall area.~~
~~A_{sfw}~~	=	~~Opaque steel framed wall area (not including opaque doors).~~
~~U_{wfw}~~	=	~~The thermal transmittance of the opaque wood framed and other wall area.~~
~~A_{wfw}~~	=	~~Opaque wood framed and other wall area (not including opaque doors).~~
~~U_{fm}~~	=	~~The thermal transmittance of the mass floor over unconditioned space area.~~
~~A_{fm}~~	=	~~Mass floor area over unconditioned space.~~
~~U_{fj}~~	=	~~The thermal transmittance of the joist floor over unconditioned space area.~~
~~A_{fj}~~	=	~~Joist floor area over unconditioned space.~~
~~F_s~~	=	~~Slab-on-grade floor component F-factor.~~
~~P_s~~	=	~~Linear feet of slab-on-grade floor perimeter.~~
~~F_{sr}~~	=	~~Radiant floor component F-factor.~~
~~P_{sr}~~	=	~~Lineal feet of radiant floor perimeter.~~
~~U_{ds}~~	=	~~The thermal transmittance value of the opaque swinging door area.~~
~~A_{ds}~~	=	~~Opaque swinging door area.~~
~~U_{dr}~~	=	~~The thermal transmittance value of the opaque roll-up or sliding door area.~~
~~A_{dr}~~	=	~~Opaque roll-up or sliding door area.~~
~~U_{vg}~~	=	~~The thermal transmittance of the vertical fenestration area with nonmetal framing.*~~
~~A_{vg}~~	=	~~Vertical fenestration area with nonmetal framing.*~~
~~U_{vgmf}~~	=	~~The thermal transmittance of the vertical fenestration area with fixed metal framing.~~
~~A_{vgmf}~~	=	~~Vertical fenestration area with fixed metal framing.*~~
~~U_{vgmo}~~	=	~~The thermal transmittance of the vertical fenestration area with operable metal framing.*~~
~~A_{vgmo}~~	=	~~Vertical fenestration area with operable metal framing.*~~
~~U_{vgd}~~	=	~~The thermal transmittance of the vertical fenestration area for entrance doors.~~
~~A_{vgd}~~	=	~~Vertical fenestration area for entrance doors.~~
~~U_{og}~~	=	~~The thermal transmittance for the skylights.~~
~~A_{og}~~	=	~~Skylight area.~~

~~NOTE: Where more than one type of wall, window, roof/ceiling, door and skylight is used, the U- and A-terms for those items shall be expanded into subelements as:~~

~~$U_{mw1}A_{mw1} + U_{mw2}A_{mw2} + U_{sfw1}A_{sfw1} + ...$etc.~~

~~*NOTE: The vertical fenestration area does not include opaque doors and opaque spandrel panels.~~))

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402133 ((~~Equation C402-3 Target $SHGCA_t$~~)) Reserved.

((~~**Equation C402-3**~~
~~**Target $SHGCA_t$**~~

~~$SHGCA_t = SHGC_{ogt}(A_{ogort} + SHGC_{vgt}$~~
~~$(A_{ogt} + A_{vgt} + A_{vgmt} + A_{vgmot} + A_{vgdt})$~~

~~Where:~~

~~$SHGCA_t$ = The target combined solar heat gain of the target fenestration area.~~

~~$SHGC_{ogt}$ = The solar heat gain coefficient for skylight fenestration found in Table C402.3, and A_{ogt}, as defined in Equation C402-1.~~

~~$SHGC_{vgt}$ = The solar heat gain coefficient for vertical fenestration found in Table C402.3 which corresponds to the proposed total fenestration area as a percent of gross exterior wall area, and A_{vgt}, A_{vgmt}, A_{vgmot} and A_{vgdt} are defined under Equation C402-1. Buildings utilizing Section C402.3.1.3 shall use the SHGC value specified there. The SHGC may be adjusted for projection factors per the requirements of Section C402.3.3.~~

~~NOTE: The vertical fenestration area does not include opaque doors and opaque spandrel panels.~~))

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402134 ((~~Equation C402-4 Proposed $SHGCA_p$~~)) Reserved.

((~~**Equation C402-4**~~
~~**Proposed $SHGCA_p$**~~

~~$SHGCA_p = SHGC_{og}A_{og} + SHGC_{vg}A_{vg}$~~

~~Where:~~

~~$SHGCA_t$ = The combined proposed solar heat gain of the proposed fenestration area.~~

~~$SHGC_{og}$ = The solar heat gain coefficient of the skylights.~~

~~A_{og} = The skylight area.~~

~~$SHGC_{vg}$ = The solar heat gain coefficient of the vertical fenestration.~~

~~A_{vg} = The vertical fenestration area.~~

~~NOTE: The vertical fenestration area does not include opaque doors and opaque spandrel panels.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40214 Section C402.1.4—((~~Semi-heated spaces~~)) Assembly *U*-factor, *C*-factor, or *F*-factor-based method.

C402.1.4 ((~~**Semi-heated spaces.** All spaces shall comply with the requirements in Section C402 unless they meet the definition for semi-heated spaces. For semi-heated spaces, the building envelope shall comply with the same requirements as that for conditioned spaces in Section C402; however, for semi-heated spaces heated by other than electric resistance heating equipment, wall insulation is not required for those walls that separate semi-heated spaces from the exterior provided that the space meets all the requirements of semi-heated space. Semi-heated spaces shall be calculated separately from other conditioned spaces for compliance purposes. Building envelope assemblies separating conditioned space from semi-heated space shall comply with exterior envelope insulation requirements. When choosing the uninsulated wall option, the wall shall not be included in Component Performance Building Envelope Option calculation.~~)) **Assembly *U*-factor, *C*-factor, or *F*-factor-based method.** 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 *C*-factor for the below-grade exterior walls of the building envelope, as required in accordance with Table C402.1.4, shall extend to the level of the lowest conditioned floor. Opaque swinging doors shall comply with Table C402.1.4 and opaque nonswinging doors shall comply with Table C402.1.3 or 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 Thermal resistance of cold-formed steel 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.

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-402141 Table C402.1.4—Opaque thermal envelope requirements, *U*-factor method.

OPTION 1:

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		
Mass	U-0.090	U-0.080
Mass transfer deck slab edge	U-0.20	U-0.20
Metal building	U-0.052	U-0.052
Steel framed	U-0.055	U-0.055
Wood framed and other	U-0.054	U-0.054
Walls, Below Grade		
Below-grade wall[b]	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		
Swinging	U-0.37	U-0.37
Nonswinging	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 C402.1.2.

[b] Where heated slabs are below grade, below-grade walls 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] Reserved.

[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 from the original test design.

OPTION 2:

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 and single rafter	U-0.027	U-0.027
Walls, Above Grade		
Mass	U-0.078	U-0.078
Mass transfer deck slab edge	U-0.20	U-0.20
Metal building	U-0.052	U-0.052
Steel framed	U-0.055	U-0.055
Wood framed and other	U-0.054	U-0.054
Walls, Below Grade		
Below-grade wall[b]	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		
Swinging	U-0.37	U-0.37
Nonswinging	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 C402.1.2.

[b] Where heated slabs are below grade, below-grade walls 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] Reserved.

[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 from the original test design.

NEW SECTION

WAC 51-11C-402142 Table C402.1.4.1—Effective *R-values* for steel stud wall assemblies.

Table C402.1.4.1
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 x *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

NEW SECTION

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.

Equation 4-2

$$A + B + C + D = \leq \text{Zero}$$

Where:

A = Sum of the (UA Dif) values for each distinct assembly type of the building thermal envelope, other than slabs on grade and below-grade walls

- UA Dif = UA Dif = UA Proposed - UA Table
- UA Proposed = UA Proposed = Proposed *U*-value x Area
- UA Table = (*U*-factor from Table C402.1.4 or C402.4 or Section C402.1.3) x Area

B = Sum of the (FL Dif) values for each distinct slab on grade perimeter condition of the building thermal envelope

- FL Dif = FL Dif = FL Proposed - FL Table
- FL Proposed = FL Proposed = Proposed *F*-value x Perimeter length
- FL Table = (*F*-factor specified in Table C402.1.4) x Perimeter length

The maximum allowed prescriptive vertical fenestration area as a percent of the gross above-grade wall area ratio is either:

1. 30%
2. 40% if the building complies with Section C402.4.1.1; or
3. 40% if the *U*-values used in calculating A for vertical fenestration are taken from Section C402.4.1.3 rather than Table C402.4

Where the proposed vertical fenestration area is less than or equal to the maximum allowed prescriptive vertical fenestration area, the value of D (Excess Vertical Glazing Value) shall be zero. Otherwise:

C = (CA x UV) - (CA x U_{Wall}), but not less than zero

- CA = (Proposed Vertical Fenestration Area) - (Vertical Fenestration Area allowed)

UA Wall	=	Sum of the (UA Proposed) values for each opaque assembly of the exterior wall
UAW	=	Sum of the (UA proposed) values for each above-grade wall assembly
U_{Wall}	=	UAW/sum of wall area (excludes vertical fenestration area)
UAV	=	Sum of the (UA Proposed) values for each vertical fenestration assembly
UV	=	UAV/total vertical fenestration area

Where the proposed skylight area is less than or equal to the skylight area allowed by Section C402.4.1, the value of E (Excess Skylight Value) shall be zero. Otherwise:

D = (DA x US) - (DA x U_{Roof}), but not less than zero

DA	=	(Proposed Skylight Area) - (Allowable Skylight Area from Section C402.4.1)
UAR	=	Sum of the (UA Proposed) values for each roof assembly
U_{Roof}	=	UAR/sum of roof area (excludes skylight area)
UAS	=	Sum of the (UA Proposed) values for each skylight assembly
US	=	UAS/total skylight area

C402.1.5.1 Component *U*-factors. The *U*-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 90.1-2010 Normative Appendix A.

C402.1.5.2 SHGC rate calculations. Solar heat gain coefficient shall comply with Table C402.4. The target $SHGCA_t$ and the proposed $SHGCA_p$ shall be calculated using Equations 4-3 and 4-4 and the corresponding areas and SHGCs from Table C402.4.

Equation 4-3—Target $SHGCA_t$

Equation C402-3
Target $SHGCA_t$

$$SHGCA_t = SHGC_{ogt}(A_{ogort} + SHGC_{vgt}(A_{ogt} + A_{vgt} + A_{vgmt} + A_{vgmot} + A_{vgdt})$$

Where:

$SHGCA_t$	=	The target combined solar heat gain of the target fenestration area.
$SHGC_{ogt}$	=	The solar heat gain coefficient for skylight fenestration found in Table C402.3, and A_{ogt}, as defined in Equation C402-1.
$SHGC_{vgt}$	=	The solar heat gain coefficient for vertical fenestration found in Table C402.3 which corresponds to the proposed total fenestration area as a percent of gross exterior wall area, and A_{vgt}, A_{vgmt}, A_{vgmot} and A_{vgdt} are defined under Equation C402-1. Buildings utilizing Section C402.3.1.3 shall use the SHGC value specified there. The SHGC may be adjusted for projection factors per the requirements of Section C402.3.3.
NOTE:		The vertical fenestration area does not include opaque doors and opaque spandrel panels.

Equation 4-4
Proposed $SHGCA_p$

$$SHGCA_p = SHGC_{og}A_{og} + SHGC_{vg}A_{vg}$$

Where:

$SHGCA_t$	=	The combined proposed solar heat gain of the proposed fenestration area.
$SHGC_{og}$	=	The solar heat gain coefficient of the skylights.
A_{og}	=	The skylight area.
$SHGC_{vg}$	=	The solar heat gain coefficient of the vertical fenestration.
A_{vg}	=	The vertical fenestration area.
NOTE:		The vertical fenestration area does not include opaque doors and opaque spandrel panels.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40220 Section C402.2—Specific insulation requirements.

C402.2 Specific building thermal envelope insulation requirements (Prescriptive). ((~~Opaque assemblies shall comply with Table C402.2. Where two or more layers of continuous insulation board are used in a construction assembly, the continuous insulation boards shall be installed in accordance with Section C303.2. If the continuous insulation board manufacturer's installation instructions do not address installation of two or more layers, the edge joints between each layer of continuous insulation boards shall be staggered.~~)) Insulation in building thermal envelope opaque assemblies shall comply with Sections C402.2.1 through C402.2.6 and Table C402.1.3.

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402200 ((~~Table C402.2—Opaque thermal envelope requirements.~~)) Reserved.

((~~**Table C402.2**~~
~~**Opaque Thermal Envelope Requirements**[a, f]~~

~~CLIMATE ZONE~~	~~5 AND MARINE 4~~		~~6~~	
	~~All Other~~	~~Group R~~	~~All Other~~	~~Group R~~
~~**Roofs**~~				
~~Insulation entirely above deck~~	~~R-30ci~~	~~R-38ci~~	~~R-30ci~~	~~R-38ci~~
~~Metal buildings (with R-3.5 thermal blocks)[a, b]~~	~~R-25 + R-11 LS~~	~~R-25 + R-11 LS~~	~~R-25 + R-11 LS~~	~~R-30 + R-11 LS~~
~~Attic and other~~	~~R-49~~	~~R-49~~	~~R-49~~	~~R-49~~
~~**Walls, Above Grade**~~				
~~Mass[e]~~	~~R-9.5ci~~	~~R-13.3ci~~	~~R-11.4ci~~	~~R-15.2ci~~
~~Metal building~~	~~R-13 + R-13ci~~	~~R-13 + R-13ci~~	~~R-13 + R-13ci~~	~~R-19 + R-16ci~~
~~Steel framed~~	~~R-13 + R-10ci~~	~~R-19 + R-8.5ci~~	~~R-13 + R-12.5ci~~	~~R-19 + R-14ci~~
~~Wood framed and other~~	~~R-21 int~~	~~R-21 int~~	~~R-13 + R-7.5ci or R-20 + R-3.8ci~~	~~R-21 + R-5ci~~
~~**Walls, Below Grade**~~				
~~Below-grade wall[d]~~	~~Same as above-grade~~	~~Same as above-grade~~	~~Same as above-grade~~	~~Same as above-grade~~
~~**Floors**~~				
~~Mass~~	~~R-30ci~~	~~R-30ci~~	~~R-30ci~~	~~R-30ci~~
~~Joist/framing~~	~~R-30[e]~~	~~R-30[e]~~	~~R-38[e]~~	~~R-38[e]~~
~~**Slab-on-Grade Floors**~~				
~~Unheated slabs~~	~~R-10 for 24" below~~	~~R-10 for 24" below~~	~~R-10 for 48" below~~	~~R-15 for 48" below~~
~~Heated slabs[d]~~	~~R-10 perimeter & under entire slab~~	~~R-10 perimeter & under entire slab~~	~~R-10 perimeter & under entire slab~~	~~R-10 perimeter & under entire slab~~
~~**Opaque Doors**~~				
~~Swinging~~	~~U-0.37~~	~~U-0.37~~	~~U-0.37~~	~~U-0.37~~
~~Roll-up or sliding~~	~~R-4.75~~	~~R-4.75~~	~~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 shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.2.~~

~~e **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-factor from Table C402.2 or U-factor from Table C402.1.2.

d Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.

e Steel floor joist systems shall be insulated to R-38 + R-10ci.

f For roof, wall or floor assemblies where the proposed assembly would not be continuous insulation, an alternate nominal *R*-value compliance options for assemblies with isolated metal penetrations of otherwise continuous insulation is:

Assemblies with continuous insulation (see definition)	**Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%**
R-11.4ci	R-14.3ci
R-13.3ci	R-16.6ci
R-15.2ci	R-19.0ci
R-30ci	R-38ci
R-38ci	R-48ci
R-13 + R-7.5ci	R-13 + R-9.4ci
R-13 + R-10ci	R-13 + R-12.5ci
R-13 + R-12.5ci	R-13 + R-15.6ci
R-13 + R-13ci	R-13 + R-16.3ci
R-19 + R-8.5ci	R-19 + R-10.6ci
R-19 + R-14ci	R-19 + R-17.5ci
R-19 + R-16ci	R-19 + R-20ci
R-20 + R-3.8ci	R-20 + R-4.8ci
R-21 + R-5ci	R-21 + R-6.3ci

This alternate nominal R-value compliance option is allowed for projects complying with all of the following:

1. 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%).

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 C402.1.2 for determination of U-factors for assemblies that include metal other than screws and nails.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40221 Section C402.2.1—((~~Roof assembly~~)) Multiple layers of continuous insulation.

((**~~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 C402.2, based on construction materials used in the roof assembly. Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.

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 C402.2.

2. Unit skylight curbs included as a component of an NFRC 100 rated assembly shall not be required to be insulated.

Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.

~~C402.2.1.1 Roof solar reflectance and thermal emittance.~~ Low-sloped roofs, with a slope less than 2 units vertical in 12 horizontal, directly above cooled *conditioned spaces* in Climate Zones 1, 2, and 3 shall comply with one or more of the options in Table C402.2.1.1.

EXCEPTIONS: The following roofs and portions of roofs are exempt from the requirements in Table C402.2.1.1:

1. Portions of roofs that include or are covered by:

1.1. Photovoltaic systems or components.

1.2. Solar air or water heating systems or components.

1.3. Roof gardens or landscaped roofs.

1.4. Above-roof decks or walkways.

1.5. Skylights.

1.6. HVAC systems, components, and other opaque objects mounted above the roof.

2. Portions of roofs shaded during the peak sun angle on the summer solstice by permanent features of the building, or by permanent features of adjacent buildings.

3. Portions of roofs that are ballasted with a minimum stone ballast of 17 pounds per square foot (psf) (74 kg/m^2) or 23 psf (117 kg/m^2) pavers.

4. Roofs where a minimum of 75 percent of the roof area meets a minimum of one of the exceptions above.))

C402.2.1 Multiple layers of continuous insulation. Where two or more layers of continuous insulation board are used in a construction assembly, the continuous insulation boards shall be installed in accordance with Section C303.2. If the continuous insulation board manufacturer's installation instructions do not address installation of two or more layers, the edge joints between each layer of continuous insulation boards shall be staggered.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-402211 ((~~Table C402.2.1.1 Reflectance and emittance options.~~)) Reserved.

((~~**Table C402.2.1.1**~~
~~**Reflectance and Emittance Options**~~[a]

~~Three-year aged solar reflectance[b] of 0.55 and three-year aged thermal emittance[c] of 0.75~~
~~Initial solar reflectance[b] of 0.70 and initial thermal emittance[c] of 0.75~~
~~Three-year-aged solar reflectance index[d] of 64 initial solar reflectance index[d] of 82~~

[a] ~~The use of area-weighted averages to meet these requirements shall be permitted. Materials lacking initial tested values for either solar reflectance or thermal emittance, shall be assigned both an initial solar reflectance of 0.10 and an initial thermal emittance of 0.90. Materials lacking three-year aged tested values for either solar reflectance or thermal emittance shall be assigned both a three-year aged solar reflectance of 0.10 and a three-year aged thermal emittance of 0.90.~~

[b] ~~Solar reflectance tested in accordance with ASTM C 1549, ASTM E 903 or ASTM E 1918.~~

[c] ~~Thermal emittance tested in accordance with ASTM C 1371 or ASTM E 408.~~

[d] ~~Solar reflectance index (SRI) shall be determined in accordance with ASTM E 1980 using a convection coefficient of 2.1 Btu/h x ft^2 x °F (12W/m^2 x K). Calculation of aged SRI shall be based on aged tested values of solar reflectance and thermal emittance. Calculation of initial SRI shall be based on initial tested values of solar reflectance and thermal emittance.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40222 Section C402.2.2—((~~Classification of walls~~)) Roof assembly.

C402.2.2 ((~~**Classification of walls.** Walls associated with the building envelope shall be classified in accordance with Section C202.~~)) **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. Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.

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. 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. 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.

Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40223 Section C402.2.3—Above-grade walls.

C402.2.3 Thermal resistance of above-grade walls. The minimum thermal resistance (*R*-value) of ((~~the insulating~~)) materials installed in the wall cavity between the framing members and continuously on the walls shall be as specified in Table ((~~C402.2~~)) 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 ((~~C402.2~~)) C402.1.3.

"Mass walls" shall include walls ((~~weighing not less than~~)):

1. Weighing not less than 35 psf (170 kg/m^2) of wall surface area((~~; or~~)).

2. Weighing not less than 25 psf (120 kg/m^2) of wall surface area ((~~if~~)) where the material weight is not more than 120 pounds per cubic foot (pcf) (1,900 kg/m^3).

3. Having a heat capacity exceeding 7 Btu/ft^2 x °F (144 kJ/m^2 x K).

4. Having 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).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40224 Section C402.2.4—Below-grade walls.

C402.2.4 Thermal resistance of below-grade walls. The minimum thermal resistance (*R*-value) of the insulating material installed in, or continuously on, the below-grade walls shall be as specified in Table ((~~C402.2~~)) C402.1.3.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40225 Section C402.2.5—Floors ((~~over unconditioned space~~)).

((~~**C402.2.5 Floors over outdoor air or unconditioned space.** The minimum thermal resistance (*R*-value) of the insulating material installed either between the floor framing or continuously on the floor assembly shall be as specified in~~

~~Table C402.2, based on construction materials used in the floor assembly.~~

~~"Mass floors" shall include floors weighing not less than:~~

~~1. 35 psf (170 kg/m²) of floor surface area; or~~

~~2. 25 psf (120 kg/m²) of floor surface area if the material weight is not more than 120 pcf (1,900 kg/m³).~~)) **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 installed to maintain permanent contact with the underside of the subfloor decking or structural slabs.

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 framing where combined with insulation that meets or exceeds the minimum *R*-value in Table C401.1.4 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*.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40226 Section C402.2.6—Slab-on-grade perimeter insulation.

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 ((~~C402.2~~)) 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40227 ((~~Section C402.2.7 Opaque doors.~~)) Reserved.

((~~**C402.2.7 Opaque doors.** Opaque doors (doors having less than 50 percent glass area) shall meet the applicable requirements for doors as specified in Table C402.2 and be considered as part of the gross area of above-grade walls that are part of the building envelope.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40228 Section C402.2.8—Insulation of radiant heating systems.

C402.2.8 Insulation of radiant heating systems. *Radiant heating system* panels, and their associated ((~~U bends and headers, designed for sensible heating of an indoor space through heat transfer from the thermally effective panel surfaces to the occupants or indoor space by thermal radiation and natural convection and the bottom surfaces of floor structures incorporating radiant heating shall be insulated with a minimum of R-3.5 (0.62 m²/K × W)~~)) components that are installed in interior or exterior assemblies shall be insulated with a minimum of R-3.5 (0.62 m²/K × W) on all surfaces not facing the space being heated. *Radiant heating systems* 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 C402.2.5.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40230 Section ((~~C402.3~~)) C402.4—Fenestration (Prescriptive).

C402.3 Reserved.

C402.4 Fenestration (Prescriptive). Fenestration shall comply with ((~~Table C402.3. Automatic daylighting controls specified by this section shall comply with Section C405.2.2.3.2~~)) 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-402300 Table ((~~C402.3~~)) C402.4—Building envelope requirements—Fenestration.

Table ((~~C402.3~~)) C402.4

Building Envelope ((~~Requirements—~~))Fenestration Maximum *U*-factor and SHGC Requirements

CLIMATE ZONE	5 AND MARINE 4	((~~6~~))
Vertical Fenestration		
***U*-factor**		
Nonmetal framing (all)[a]	0.30	((~~0.30~~))

CLIMATE ZONE	5 AND MARINE 4	((6))
Metal framing (fixed)[b]	0.38	((0.36))
Metal framing (operable)[c]	0.40	((0.40))
Metal framing (entrance doors)[d]	0.60	((0.60))
SHGC		
((SHGC	0.40	0.40))
Orientation	SEW	N
PF < 0.2	0.40	0.53
0.2 < PF < 0.5	0.48	0.58
PF > 0.5	0.64	0.64
Skylights		
***U*-factor**	0.50	((0.50))
SHGC	0.35	((0.35))

NR = No requirement.

[a] "Nonmetal framing" includes framing materials other than metal, with or without metal reinforcing or cladding.

[b] "Metal framing" includes metal framing, with or without thermal break. "Fixed" includes curtain wall, storefront, picture windows, and other fixed windows.

[c] "Metal framing" includes metal framing, with or without thermal break. "Operable" includes openable fenestration products other than "entrance doors."

[d] "Metal framing" includes metal framing, with or without thermal break. "Entrance door" includes glazed swinging entrance doors. Other doors which are not entrance doors, including sliding glass doors, are considered "operable."

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-40231 Section ((~~C402.3.1~~)) C402.4.1—Maximum area.

((~~C402.3.1~~)) C402.4.1 Maximum area. The vertical fenestration area (not including opaque doors and opaque spandrel panels) shall not exceed 30 percent of the gross above-grade wall area. The skylight area shall not exceed ((~~3~~)) 5 percent of the gross roof area.

((~~C402.3.1.1~~)) C402.4.1.1 Increased vertical fenestration area with ((~~daylighting~~)) daylight responsive controls. ((~~In Climate Zones 1 through 6,~~)) A maximum of 40 percent of the gross above-grade wall area shall be permitted to be vertical fenestration for the purpose of prescriptive compliance with Section C402.1.4 or for the component performance alternative in Section C402.1.5, provided all of the following requirements are met:

1. In buildings not greater than two stories above grade, no less than 50 percent of the conditioned floor area is within a *daylight zone*((~~;~~)).

2. ((~~Automatic daylighting~~)) In buildings three or more stories above grade, not less than 25 percent of the net floor area is within a *daylight zone*.

3. *Daylight responsive controls* complying with Section C402.2.3.1 are installed in daylight zones((~~; and~~

~~3~~)).

4. Visible transmittance (VT) of vertical fenestration is greater than or equal to 1.1 times solar heat gain coefficient (SHGC).

EXCEPTION: Fenestration that is outside the scope of NFRC 200 is not required to comply with Item ((~~3~~)) 4.

((~~**C402.3.1.2 Increased skylight area with daylighting controls.** The skylight area shall be permitted to be a maximum of 5 percent of the roof area provided automatic daylighting controls are installed in daylight zones under skylights.~~

~~**C402.3.1.3**~~)) **C402.4.1.2 Reserved.**

C402.4.1.3 Increased vertical fenestration area with high-performance fenestration. The vertical fenestration area (not including opaque doors and opaque spandrel panels) 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 ((~~C402.1.2 or for the target UA calculation in Equation C402-1,~~)) C402.1.3 provided that each of the following conditions are met:

1. The vertical fenestration shall have the following U-factors:

a. Nonmetal framing (all) = 0.28

b. Metal framing (fixed) = 0.34

c. Metal framing (operable) = 0.36

d. Metal framing (entrance doors) = 0.60

2. The SHGC of the vertical fenestration shall be less than or equal to 0.35, adjusted for projection factor in compliance with ((~~C402.3.3.1~~)) C402.4.3.1.

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.

The compliance path described in this section is not permitted to be used for the total building performance compliance path in Section C407. The compliance path described in this section is permitted to be used for the component performance alternative in Section C402.1.5, provided that the requirements of Section C402.1.5 are met.

C402.4.1.4 Increased vertical fenestration area with high-performance mechanical systems. The vertical fenestration area (not including opaque doors and opaque spandrel panels) 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 or for the component performance alternative in Section C402.1.5, provided that the mechanical system complies with all requirements of Section C403.2.6.1 Dedicated outdoor air systems (DOAS). This increased glazing fraction is not permitted to be used to establish the reference case for the Total Building Performance compliance path in Section C407.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40232 Section ((~~C402.3.2~~)) C402.4.2—Minimum skylight fenestration area.

((~~C402.3.2~~)) C402.4.2 Minimum skylight fenestration area. For single story buildings only, in an enclosed space greater than ((~~10,000~~)) 2,500 square feet (((~~929~~)) 232 m^2) in floor area, directly under a roof with not less than 75 percent of the ceiling area with a ceiling height((~~s~~)) greater than 15 feet (4572 mm), and used as an office, lobby, atrium, concourse, corridor, gymnasium/exercise center, convention center, automotive service, manufacturing, nonrefrigerated warehouse, retail store, distribution/sorting area, transportation, or workshop, the total daylight zone under skylights shall be not less than half the floor area and shall provide ((~~a minimum skylight area to daylight zone under skylights of either~~)) one of the following:

1. A minimum skylight area to *daylight zone* under skylights of not less than 3 percent ((~~with a~~)) where all skylights have a VT of at least 0.40((~~, or~~)) as determined in accordance with Section C303.1.3.

2. ((~~Provide~~)) A minimum skylight effective aperture of at least 1 percent determined in accordance with Equation ((~~C4-1~~)) 4-5.

$$\text{Skylight Effective Aperture} = (085 \times \text{Skylight Area} \times \text{Skylight VT} \times \text{WF})/\text{Daylight zone under skylight}$$

(Equation ((~~C4-1~~)) 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.

Light well depth = Measure vertically from the underside of the lowest point of the skylight glazing to the ceiling plane under the skylight.

EXCEPTION: Skylights above daylight zones of enclosed spaces are not required in:

1. ((~~Buildings in Climate Zones 6 through 8.~~)) Reserved.
2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft^2 (5.4 W/m^2).
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.
4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.
5. Spaces where the total floor area minus the area of daylight zones adjacent to vertical fenestration is less than 2,500 square feet (232 m^2), and where the lighting is controlled according to Section C405.2.5.

((~~C402.3.2.1~~)) C402.4.2.1 Lighting controls in daylight zones under skylights. ((~~All lighting in the daylight zone shall be controlled by automatic daylighting controls that comply with Section C405.2.2.3.2.~~

~~EXCEPTION: Skylights above daylight zones of enclosed spaces are not required in:~~

~~1. Buildings in Climate Zones 6 through 8.~~

~~2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft^2 (5.4 W/m^2).~~

~~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.~~

~~4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.~~

~~C402.3.2.2~~)) Daylight responsive controls complying with Section C405.2.4.1 shall be provided to control all electric lights within 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 ((~~measured~~)) haze factor greater than 90 percent when tested in accordance with ASTM D 1003.

EXCEPTION: Skylights 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 ((~~need not comply with Section C402.3.2.2~~)).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40233 Section ((~~C402.3.3~~)) C402.4.3—Maximum *U*-factor and SHGC.

((~~C402.3.3~~)) C402.4.3 Maximum *U*-factor and SHGC. ((~~For vertical fenestration,~~)) The maximum *U*-factor and solar heat gain coefficient (SHGC) for fenestration shall be as specified in Table ((~~C402.3, based on the window projection factor. For skylights, the maximum *U*-factor and solar heat gain coefficient (SHGC) shall be as specified in Table C402.3~~)) C402.4.

The window projection factor shall be determined in accordance with Equation ((~~C4-2~~)) 4-6.

$$PF = A/B$$

(Equation ((~~C4-2~~)) 4-6)

Where:

PF = Projection factor (decimal).

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.

B = Distance measured vertically from the bottom of the glazing to the underside of the overhang, eave, or permanently attached shading device.

Where different windows or glass doors have different *PF* values, they shall each be evaluated separately.

((~~**C402.3.3.1 SHGC adjustment.** Where the fenestration projection factor for a specific vertical fenestration product is greater than or equal to 0.2, the required maximum SHGC from Table C402.3 shall be adjusted by multiplying the required maximum SHGC by the multiplier specified in Table C402.3.3.1 corresponding with the orientation of the fenestration product and the projection factor.~~

~~**Table C402.3.3.1**~~

~~**SHGC Adjustment Multipliers**~~

~~PROJECTION FACTOR~~	~~ORIENTED WITHIN 45 DEGREES OF TRUE NORTH~~	~~ALL OTHER ORIENTATION~~
~~0.2 ≤ PF < 0.5~~	~~1.1~~	~~1.2~~
~~PF ≥ 0.5~~	~~1.2~~	~~1.6~~

~~**C402.3.3.2 Increased vertical fenestration SHGC.** In Climate Zones 1, 2 and 3, vertical fenestration entirely located not less than 6 feet (1729 mm) above the finished floor shall be permitted a maximum SHGC of 0.40.~~

~~**C402.3.3.3 Reserved.**~~

~~**C402.3.3.4 Reserved.**~~

~~**C402.3.3.5 Dynamic glazing.** For compliance with Section C402.3.3, the SHGC for dynamic glazing shall be determined using the manufacturer's lowest rated SHGC, and the VT/SHGC ratio shall be determined using the maximum VT and maximum SHGC. Dynamic glazing shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted.~~)) **C402.4.3.1 Reserved.**

C402.4.3.2 Reserved.

C402.4.3.3 Dynamic glazing. Where *dynamic glazing* is intended to satisfy the SHGC and VT requirements of Table C402.4, the ratio of the higher to lower labeled SHGC shall be greater than or equal to 2.4, and the dynamic glazing shall be automatically controlled to modulate the amount of solar gain into the space in multiple steps. Dynamic glazing shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted.

EXCEPTION: Dynamic glazing is not required to comply with this section where both the lower and higher labeled SHGC already comply with the requirements of Table C402.4.

C402.4.3.4 Area-weighted *U*-factor. An area-weighted average shall be permitted to satisfy the *U*-factor requirements for each fenestration product category listed in Table C402.4. Individual fenestration products from different fenestration product categories listed in Table C402.4 shall not be combined in calculating area-weighted average *U*-factor.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40234 Section ((~~C402.3.4 Area-weighted *U*-factor~~)) C402.4.4—Doors.

((~~**C402.3.4 Area-weighted *U*-factor.** An area-weighted average shall be permitted to satisfy the *U*-factor requirements for each fenestration product category listed in Table C402.3. Individual fenestration products from different fenestration product categories listed in Table C402.3 shall not be combined in calculating area-weighted average *U*-factor.~~)) **C402.4.4 Doors.** *Opaque doors* shall comply with the applicable requirements for doors as specified in Tables C402.1.3 and C402.1.4 and be considered part of the gross area of above grade walls that are part of the building *thermal envelope*. Other doors shall comply with the provisions of Section C402.4.3 for vertical fenestration.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40240 Section ((~~C402.4~~)) C402.5—Air leakage-thermal envelope.

((~~C402.4~~)) C402.5 Air leakage-thermal envelope (Mandatory). The thermal envelope of buildings shall comply with Sections ((~~C402.4.1 through C402.4.8~~)) C402.5.1 through C402.5.8.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40241 Section ((~~C402.4.1~~)) C402.5.1—Air barriers.

((~~C402.4.1~~)) C402.5.1 Air barriers. A continuous air barrier shall be provided throughout the building thermal envelope. The air barriers shall be permitted to be located on the inside or outside of the building envelope, located within the assemblies composing the envelope, or any combination thereof. The air barrier shall comply with Sections ((~~C402.4.1.1 and C402.4.1.2~~)) C402.5.1.1 and C402.5.1.2.

((~~EXCEPTION: Air barriers are not required in buildings located in Climate Zones 1, 2 and 3.~~

~~**C402.4.1.1**~~)) **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. ((~~Air barrier penetrations shall be sealed in accordance with Section C402.4.2.~~)) 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. Joints and seals associated with penetrations shall be sealed in the same manner or taped or covered with moisture vapor-permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed and 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 ((~~C404.2.8~~)) 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.

((~~EXCEPTION: Buildings that comply with Section C402.4.1.2.3 are not required to comply with Items 1 and 3.~~

~~C402.4.1.2 Air barrier compliance options.~~ ~~A continuous air barrier for the opaque building envelope shall comply with Section C402.4.1.2.3.~~

~~C402.4.1.2.1 Materials.~~ ~~Materials with an air permeability no greater than 0.004 cfm/ft² (0.02 L/s • m²) under a pressure differential of 0.3 inches water gauge (w.g.) (75 Pa) when tested in accordance with ASTM E 2178 shall comply with this section. Materials in Items 1 through 15 shall be deemed to comply with this section provided joints are sealed and materials are installed as air barriers in accordance with the manufacturer's instructions.~~

~~1. Plywood with a thickness of not less than 3/8 inch (10 mm).~~

~~2. Oriented strand board having a thickness of not less than 3/8 inch (10 mm).~~

~~3. Extruded polystyrene insulation board having a thickness of not less than 1/2 inch (12 mm).~~

~~4. Foil-back polyisocyanurate insulation board having a thickness of not less than 1/2 inch (12 mm).~~

~~5. Closed cell spray foam a minimum density of 1.5 pcf (2.4 kg/m³) having a thickness of not less than 1 1/2 inches (36 mm).~~

~~6. Open cell spray foam with a density between 0.4 and 1.5 pcf (0.6 and 2.4 kg/m³) and having a thickness of not less than 4.5 inches (113 mm).~~

~~7. Exterior or interior gypsum board having a thickness of not less than 1/2 inch (12 mm).~~

~~8. Cement board having a thickness of not less than 1/2 inch (12 mm).~~

~~9. Built up roofing membrane.~~

~~10. Modified bituminous roof membrane.~~

~~11. Fully adhered single-ply roof membrane.~~

~~12. A Portland cement/sand parge, or gypsum plaster having a thickness of not less than 5/8 inch (16 mm).~~

~~13. Cast-in-place and precast concrete.~~

~~14. Fully grouted concrete block masonry.~~

~~15. Sheet steel or aluminum.~~

~~C402.4.1.2.2 Assemblies.~~ ~~Assemblies of materials and components with an average air leakage not to exceed 0.04 cfm/ft² (0.2 L/s • m²) under a pressure differential of 0.3 inches of water gauge (w.g.)(75 Pa) when tested in accordance with ASTM E 2357, ASTM E 1677 or ASTM E 283 shall comply with this section. Assemblies listed in Items 1 and 2 shall be deemed to comply provided joints are sealed and requirements of Section C402.4.1.1 are met.~~

~~1. Concrete masonry walls coated with one application either of block filler and two applications of a paint or sealer coating;~~

~~2. A Portland cement/sand parge, stucco or plaster minimum 1/2 inch (12 mm) in thickness.~~

~~C402.4.1.2.3~~)) 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 0.40 cfm/ft² at a pressure differential of 0.3 inches water gauge (2.0 L/s • m² 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, 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.

1. Test shall be accomplished using either (1) both pressurization and depressurization or (2) pressurization alone, but not depressurization alone. If both pressurization and depressurization are not tested, the air leakage shall be plotted against the corrected P for pressurization in accordance with Section 9.4.

2. The test pressure range shall be from 25 Pa to 80 Pa per Section 8.10, 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, the test shall be rerun with additional readings over a longer time interval.

C402.5.1.2.1 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.X. Alternatively, it is permissible to test the air barrier of the

entire building according to Section C402.5.1.2, provided that the tested air leakage rate does not exceed the rate specified in Section C402.5.1.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40242 ((~~Section C402.4.2 Air barrier penetrations.~~)) Reserved.

((~~**C402.4.2 Air barrier penetrations.** Penetrations of the air barrier and paths of air leakage shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Joints and seals shall be sealed in the same manner or taped or covered with a moisture vapor permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed. 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.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40243 Section ((~~C402.4.3 Air leakage of fenestration~~)) C402.5.3—Rooms containing fuel-burning appliances.

((~~**C402.4.3 Air leakage of fenestration.** The air leakage of fenestration assemblies shall meet the provisions of Table C402.4.3. Testing shall be in accordance with the applicable reference test standard in Table C402.4.3 by an accredited, independent testing laboratory and *labeled* by the manufacturer.~~

~~EXCEPTIONS: 1. Field-fabricated fenestration assemblies that are sealed in accordance with Section C402.4.1.~~

~~2. Fenestration in buildings that comply with Section C402.4.1.2.3 are not required to meet the air leakage requirements in Table C402.4.3.~~

~~3. Custom exterior windows and doors manufactured by a *small business* provided they meet the applicable provisions of Chapter 24 of the *International Building Code*. Once visual inspection has confirmed the presence of a gasket, operable windows and doors manufactured by *small business* shall be permitted to be sealed off at the frame prior to the test.~~

~~**Table C402.4.3**~~
~~**Maximum Air Infiltration Rate for Fenestration Assemblies**~~

~~FENESTRATION ASSEMBLY~~	~~MAXIMUM RATE (CFM/FT^2)~~	~~TEST PROCEDURE~~
~~Windows~~	~~0.20[a]~~	~~AAMA/WDMA/CSA101/I.S.2/A440 or NFRC 400~~
~~Sliding doors~~	~~0.20[a]~~	
~~Swinging doors~~	~~0.20[a]~~	
~~Skylights - With condensation weepage openings~~	~~0.30~~	
~~Skylights - All other~~	~~0.20[a]~~	
~~Curtain walls~~	~~0.06~~	~~NFRC 400 or~~
~~Storefront glazing~~	~~0.06~~	~~ASTM E 283 at~~
~~Commercial glazed swinging entrance doors~~	~~1.00~~	~~1.57 psf (75 Pa)~~
~~Revolving doors~~	~~1.00~~	
~~Garage doors~~	~~0.40~~	~~ANSI/DASMA 105, NFRC 400, or~~
~~Rolling doors~~	~~1.00~~	~~ASTM E 283 at 1.57 psf (75 Pa)~~

~~For SI: 1 cubic foot per minute = 0.47 L/s, 1 square foot = 0.093 m^2.~~

~~[a] The maximum rate for windows, sliding and swinging doors, and skylights is permitted to be 0.3 cfm per square foot of fenestration or door area when tested in accordance with AAMA/WDMA/CSA101/I.S.2/A440 at 6.24 psf (300 Pa).~~))

C402.5.3 Rooms containing fuel-burning appliances. Where open combustion air ducts provide combustion air to open combustion space conditioning fuel-burning appliances, the appliances and combustion air openings shall be located outside of the *building thermal envelope* or enclosed in a room isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table C402.1.3 or C402.1.4, where the walls, floors and ceilings shall meet the minimum of the below-grade wall *R*-value requirement. The door into the room shall be fully gasketed, and any water lines and ducts in the room insulated in accordance with Section C403. The combustion air duct shall be insulated, where it passes through conditioned space, to a minimum of R-8.

EXCEPTIONS: 1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.

2. Fireplaces and stoves complying with Sections 901 through 905 of the *International Mechanical Code*, and Section 2111.13 of the *International Building Code*.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40244 Section ((~~C402.4.4~~)) C402.5.4—Doors and access openings.

((~~C402.4.4~~)) C402.5.4 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 either meet the requirements of~~)) not within the scope of the fenestration assemblies covered by Section ((~~C402.4.3 or~~)) C402.5.2 shall be gasketed, weatherstripped or sealed.

EXCEPTIONS: 1. Door openings required to comply with Section 715 or 715.4 of the *International Building Code*((~~; or doors and door openings required by the *International Building Code* to comply with UL 1784 shall not be required to comply with Section C402.4.4~~)).

2. Doors and door openings required to comply with UL 1784 by the *International Building Code*.

AMENDATORY SECTION (Amending WSR 14-24-054, filed 11/25/14, effective 5/1/15)

WAC 51-11C-40245 Section ((~~C402.4.5~~)) C402.5.5—Air intakes, exhaust openings, stairways and shafts.

((~~C402.4.5~~)) C402.5.5 Air intakes, exhaust openings, stairways and shafts. Stairway enclosures ((~~and~~)), 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((~~s C402.4.5.1 and C402.4.5.2.~~

~~**C402.4.5.1 Stairway and shaft vents.** Stairway and shaft vents shall be provided with Class I motorized dampers with a maximum leakage rate of 4 cfm/ft² (20.3 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~Stairway and shaft vent dampers shall be installed with controls so that they are capable of automatically opening upon:~~

~~1. The activation of any fire alarm initiating device of the building's fire alarm system; or~~

~~2. The interruption of power to the damper.~~

~~**C402.4.5.2 Outdoor air intakes, exhaust outlets, relief outlets, and return openings.** *Outdoor air* supply, exhaust openings and relief outlets shall be provided with Class I motorized dampers which close automatically when the system is off. Dampers shall have a maximum leakage rate of 4 cfm/ft² (20.3 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~Return air openings used for airside economizer operation shall be equipped with Class I motorized dampers. Dampers shall have a maximum leakage rate of 4 cfm/ft² (20.3 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~See also section C403.2.4.4 for additional requirements from damper shut-off controls.~~

~~EXCEPTIONS: 1. Gravity (nonmotorized) dampers having a maximum leakage rate of 20 cfm/ft² (101.6 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D are permitted to be used for relief openings in buildings less than three stories in height above grade if equipment has less than 5,000 cfm total supply flow. Gravity (nonmotorized) dampers for ventilation air intakes shall be protected from direct exposure to wind.~~

~~2. Gravity dampers smaller than 24 inches (610 mm) in either dimension shall be permitted to have a leakage of 40 cfm/ft² (203.2 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~3. Gravity (nonmotorized) dampers in Group R occupancies where the design outdoor air intake or exhaust capacity does not exceed 400 cfm (189 L/s).~~

~~4. Motorized dampers on return air openings in unitary packaged equipment that have the minimum leakage rate available from the manufacturer shall be deemed to comply.~~))

C403.2.4.3.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40246 Section ((~~C402.4.6~~)) C402.5.6—Loading dock weatherseals.

((~~C402.4.6~~)) C402.5.6 Loading dock weatherseals. Cargo doors and loading dock doors shall be equipped with weatherseals to restrict infiltration when vehicles are parked in the doorway.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40247 Section ((~~C402.4.7~~)) C402.5.7—Vestibules.

((~~C402.4.7~~)) C402.5.7 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.

((~~EXCEPTIONS: 1. Buildings in Climate Zones 1 and 2.~~

~~2. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for employee use.~~

~~3. Doors opening directly from a *sleeping unit* or dwelling unit.~~

~~4. Doors that open directly from a space less than 3,000 square feet (298 m^2) in area and are separate from the building entrance.~~

~~5. Revolving doors.~~

~~6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.~~

~~7. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in area.~~

~~8. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.~~))

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 a 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 entrance paths to the remainder of the building.

5. Revolving doors.

6. 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.

7. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in area.

8. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.

9. Entrances to semi-heated spaces.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40248 Section ((~~C402.4.8~~)) C402.5.8—Recessed lighting.

((~~C402.4.8~~)) C402.5.8 Recessed lighting. Recessed luminaires installed in the *building thermal envelope* shall be ((~~sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and~~)) 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.

((~~All recessed luminaires shall be~~)) 3. Sealed with a gasket or caulk between the housing and interior wall or ceiling covering.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40250 ((~~Section C402.5—Walk-in coolers and walk-in freezers.~~)) Reserved.

((~~**C402.5 Walk-in coolers and walk-in freezers.** Walk-in coolers and walk-in freezers shall comply with all of the following:~~

~~1. Shall be equipped with automatic door closers that firmly close walk-in doors that have been closed to within 1 inch of full closure.~~

~~EXCEPTION: Doors wider than 3 feet 9 inches or taller than 7 feet.~~

~~2. Doorways shall have strip doors (curtains), spring-hinged doors, or other method of minimizing infiltration when doors are open.~~

~~3. *Walk-in coolers* shall contain wall, ceiling, and door insulation of at least R-25 and *walk-in freezers* at least R-32.~~

~~EXCEPTION: Glazed portions of doors or structural members.~~

~~4. *Walk-in freezers* shall contain floor insulation of at least R-28.~~

~~5. Transparent reach-in doors for *walk-in freezers* and windows in *walk-in freezer* doors shall be of triple-pane glass, either filled with inert gas or with heat-reflective treated glass.~~

~~6. Transparent reach-in doors for *walk-in coolers* and windows in *walk-in cooler* doors shall be double-pane glass with heat-reflective treated glass and gas filled; or triple-pane glass, either filled with inert gas or with heat-reflective treated glass.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40260 ((~~Section C402.6—Refrigerated warehouse coolers and freezers.~~)) Reserved.

((~~**C402.6 Refrigerated warehouse coolers and refrigerated warehouse freezers.** Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with all of the following:~~

~~1. Shall be equipped with automatic door closers that firmly close walk-in doors that have been closed to within 1 inch of full closure.~~

~~EXCEPTION: Doors wider than 3 feet 9 inches or taller than 7 feet.~~

~~2. Doorways shall have strip doors (curtains), spring-hinged doors, or other method of minimizing infiltration when doors are open.~~

~~3. *Refrigerated warehouse coolers* shall contain wall, ceiling, and door insulation of at least R-25 and *refrigerated warehouse freezers* at least R-32.~~

~~EXCEPTION: Glazed portions of doors or structural members.~~

~~4. *Refrigerated warehouse* freezers shall contain floor insulation of at least R-28.~~

~~5. Transparent reach-in doors for *refrigerated warehouse freezers* and windows in *refrigerated warehouse freezer* doors shall be of triple-pane glass, either filled with inert gas or with heat-reflective treated glass.~~

6. Transparent reach-in doors for *refrigerated warehouse coolers* and windows in *refrigerated warehouse cooler* doors shall be double-pane glass with heat-reflective treated glass and gas filled; or triple-pane glass, either filled with inert gas or with heat-reflective treated glass.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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 Section C403.2 (((referred to as the mandatory provisions) and either:

1. Section C403.3 (Simple systems); or

2. Section C403.4 (Complex systems).)) and shall comply with Sections C403.3 and C403.4 based on the equipment and systems provided.

EXCEPTION: 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 C403.2.3, Tables((C403.2.1)) C403.2.3 (1) through (((9))) (10) inclusive, C403.2.4.5, ((C403.2.5.4, C403.2.8, C403.2.13, C403.4.6, C403.5, C403.6, C404.2, or Table C404.2)) C403.2.4.6, C403.2.7, C403.2.9, C403.5.4, C404.2, Table C404.2, C405.8 and C410. Data center HVAC equipment is not covered by this exception.

((Walk-in coolers and walk-in freezers shall comply with Section C403.5. Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with Section C403.6.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40320 Section C403.2—Provisions applicable to all mechanical systems.

C403.2 Provisions applicable to all mechanical systems (Mandatory). Mechanical systems and equipment serving the building heating, cooling or ventilating needs shall comply with Sections C403.2.1 through ((C403.2.11)) C403.2.13.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40321 Section C403.2.1—Calculation of heating and cooling loads.

C403.2.1 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((. The design loads shall account for the building envelope, lighting, ventilation and occupancy loads based on the project design)) 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*((. Alternatively, design loads shall be determined by an *approved* equivalent computation procedure, using the design parameters specified in Chapter 3)) by an *approved* equivalent computational procedure.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40322 Section C403.2.2—Equipment and systems sizing.

C403.2.2 Equipment and system sizing. The output capacity of heating and cooling equipment ((and systems shall not)) shall be no greater than that of the smallest available equipment size that exceeds the loads calculated in accordance with Section C403.2.1. A single piece of equipment providing both heating and cooling shall satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.

EXCEPTIONS: 1. Required standby equipment and systems provided with controls and devices that allow such systems or equipment to operate automatically only when the primary equipment is not operating.

2. Multiple units of the same equipment type with combined capacities exceeding the design load and provided with controls that ((have the capability)) are configured to sequence the operation of each unit based on load.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40323 Section C403.2.3—HVAC equipment performance requirements.

C403.2.3 HVAC equipment performance requirements. Equipment shall meet the minimum efficiency requirements of Tables C403.2.3(1), C403.2.3(2), C403.2.3(3), C403.2.3(4), C403.2.3(5), C403.2.3(6), C403.2.3(7) ((and)), C403.2.3(8) and C403.2.3(9) 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 C403.2.3(((9))) (10). 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.

Gas-fired and oil-fired 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.

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 C403.2.3(7).

3. Replacement of existing equipment.

C403.2.3.1 Water-cooled centrifugal chilling packages. Equipment not designed for operation at AHRI Standard 550/590 test conditions of 44°F (7°C) leaving chilled-water temperature and 2.4 gmp/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 shall have maximum full-load kW/ton (FL) and ~~((NPLV))~~ *part-load* ratings adjusted using Equations ((~~C4-3 and C4-4~~)) 4-7 and 4-8.

((~~Adjusted minimum full-load COP ratings = (Full-load COP from Table 6.8.1C of AHRI Standard 550/590) × K_{adj}~~

~~**(Equation C4-3)**~~

~~Adjusted minimum NPLV rating = (IPLV from Table 6.8.1C of AHRI Standard 550/590) × K_{adj}~~

~~**(Equation C4-4)**~~))

$FL_{adj} = FL/K_{adj}$

(Equation 4-7)

$PLV_{adj} = IPLV/K_{adj}$

(Equation 4-8)

Where:

K_{adj} = A × B

FL = Full-load kW/ton values as specified in Table C403.2.3(7)

FL_{adj} = Maximum full-load kW/ton rating, adjusted for nonstandard conditions

IPLV = Value as specified in Table C403.2.3(7)

PLV_{adj} = Maximum NPLV rating, adjusted for nonstandard conditions

A = ((~~0.0000015318~~)) 0.00000014592 × $(LIFT)^4$ - ((~~0.000202076~~)) 0.0000346496 × $(LIFT)^3$ + ((~~0.0101800~~)) 0.00314196 × $(LIFT)^2$ - ((~~0.264958~~)) 0.147199 × LIFT + ((~~3.930196~~)) 3.9302

B = ((~~0.0027~~)) 0.0015 × L_{vg}^{Evap} (°C) + ((~~0.982~~)) 0.934

LIFT = $L_{vg}^{Cond} - L_{vg}^{Evap}$

L_{vg}^{Cond} = Full-load condenser leaving ((~~water~~)) fluid temperature ((~~(°C)~~)) (°F)

L_{vg}^{Evap} = Full-load ((~~leaving~~)) evaporator leaving temperature ((~~(°C)~~)) (°F)

((~~SI units shall be used in the K_{adj} equation.~~))

The ((~~adjusted full-load and *NPLV* values shall only be~~)) FL_{adj} and PLV_{adj} values are only applicable for centrifugal chillers meeting all of the following full-load design ranges:

1. ((~~The leaving evaporator fluid temperature is not less than 36°F (2.2°C).~~

~~2. The leaving condenser fluid temperature is not greater than 115°F (46.1°C).~~)) 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).

((~~EXCEPTION: Centrifugal chillers designed to operate outside of these ranges need not comply with this code.~~))

C403.2.3.2 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 C403.2.3(7) when tested or certified with water at standard rating conditions, in accordance with the referenced test procedure.

C403.2.3.3 Packaged electric heating and cooling equipment. Packaged electric equipment providing both heating and cooling with a total cooling capacity greater than ((~~20,000~~)) 6,000 Btu/h shall be a heat pump.

EXCEPTION: Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

C403.2.3.4 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 ((~~WAC 246-320-525 allows only~~)) 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% outside air systems with no provisions for air recirculation to the central supply fan.

4. Nonadiabatic humidifiers cumulatively serving no more than 10% 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.

Reviser's note: The typographical error in the above section occurred in the copy filed by the agency and appears in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403231 Table C403.2.3(1)—Minimum efficiency requirements—Electrically operated unitary air conditioners and condensing units.

Table C403.2.3(1)A
Minimum Efficiency Requirements—Electrically Operated Unitary Air Conditioners and Condensing Units

				((Minimum Efficiency		
Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Before 6/1/2011	As of 6/1/2011	Test Procedure[a]
Air conditioners, air cooled	< 65,000 Btu/h[b]	All	Split System	13.0 SEER	13.0 SEER	AHRI 210/240
			Single Package	13.0 SEER	13.0 SEER	
Through-the-wall (air cooled)	≤ 30,000 Btu/h[b]	All	Split System	12.0 SEER	12.0 SEER	
			Single Package	12.0 SEER	12.0 SEER	
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 11.4 IEER	11.2 EER 11.4 IEER	AHRI 340/360
		All other	Split System and Single Package	11.0 EER 11.2 IEER	11.0 EER 11.2 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.2 IEER	11.0 EER 11.2 IEER	
		All other	Split System and Single Package	10.8 EER 11.0 IEER	10.8 EER 11.0 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.0 EER 10.1 IEER	10.0 EER 10.1 IEER	
		All other	Split System and Single Package	9.8 EER 9.9 IEER	9.8 EER 9.9 IEER	
	≥760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.7 EER 9.8 IEER	9.7 EER 9.8 IEER	
		All other	Split System and Single Package	9.5 EER 9.6 IEER	9.5 EER 9.6 IEER	
Air conditioners, water cooled	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	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	11.5 EER 11.7 IEER	12.1 EER 12.3 IEER	AHRI 340/360
		All other	Split System and Single Package	11.3 EER 11.5 IEER	11.9 EER 12.1 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.2 IEER	12.5 EER 12.7 IEER	
		All other	Split System and Single Package	10.8 EER 11.0 IEER	12.3 EER 12.5 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.1 IEER	12.4 EER 12.6 IEER	
		All other	Split System and Single Package	10.8 EER 10.9 IEER	12.2 EER 12.4 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.1 IEER	12.2 EER 12.4 IEER	
		All other	Split System and Single Package	10.8 EER 10.9 IEER	12.0 EER 12.2 IEER	
	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	12.1 EER 12.3 IEER	AHRI 210/240

				((~~Minimum Efficiency~~		
~~Equipment Type~~	~~Size Category~~	~~Heating Section Type~~	~~Subcategory or Rating Condition~~	~~Before 6/1/2011~~	~~As of 6/1/2011~~	~~Test Procedure*~~
~~Air conditioners, evaporatively cooled~~	~~≥ 65,000 Btu/h and < 135,000 Btu/h~~	~~Electric Resistance (or None)~~	~~Split System and Single Package~~	~~11.5 EER 11.7 IEER~~	~~12.1 EER 12.3 IEER~~	~~AHRI 340/360~~
		~~All other~~	~~Split System and Single Package~~	~~11.3 EER 11.5 IEER~~	~~11.9 EER 12.1 IEER~~	
	~~≥ 135,000 Btu/h and < 240,000 Btu/h~~	~~Electric Resistance (or None)~~	~~Split System and Single Package~~	~~11.0 EER 11.2 IEER~~	~~12.0 EER 12.2 IEER~~	
		~~All other~~	~~Split System and Single Package~~	~~10.8 EER 11.0 IEER~~	~~11.8 EER 12.0 IEER~~	
	~~≥ 240,000 Btu/h and < 760,000 Btu/h~~	~~Electric Resistance (or None)~~	~~Split System and Single Package~~	~~11.0 EER 11.1 IEER~~	~~11.9 EER 12.1 IEER~~	
		~~All other~~	~~Split System and Single Package~~	~~10.8 EER 10.9 IEER~~	~~12.2 EER 11.9 IEER~~	
	~~≥ 760,000 Btu/h~~	~~Electric Resistance (or None)~~	~~Split System and Single Package~~	~~11.0 EER 11.1 EER~~	~~11.7 EER 11.9 EER~~	
		~~All other~~	~~Split System and Single Package~~	~~10.8 EER 10.9 EER~~	~~11.5 EER 11.7 EER~~	
~~Condensing units, air cooled~~	~~≥ 135,000 Btu/h~~			~~10.1 EER 11.4 IEER~~	~~10.5 EER 11.8 IEER~~	
~~Condensing units, water cooled~~	~~≥ 135,000 Btu/h~~			~~13.1 EER 13.6 IEER~~	~~13.5 EER 14.0 IEER~~	~~AHRI 365~~
~~Condensing units, evaporatively cooled~~	~~≥ 135,000 Btu/h~~			~~13.1 EER 13.6 IEER~~	~~13.5 EER 14.0 IEER~~))	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[Δ]
Air conditioners, air cooled	< 65,000 Btu/h[b]	All	Split System	13.0 SEER	
			Single Package	14.0 SEER	
Through-the-wall (air cooled)	≤ 30,000 Btu/h[b]	All	Split system	12.0 SEER	
			Single Package	12.0 SEER	
Small duct high velocity, air cooled	< 65,000 Btu/h[b]	All	Split system	11.0 SEER	
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	
		All other	Split System and Single Package	11.0 EER 12.7 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 12.4 IEER	
		All other	Split System and Single Package	10.8 EER 12.2 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.0 EER 11.6 IEER	
		All other	Split System and Single Package	9.8 EER 11.4 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.7 EER 11.2 IEER	
		All other	Split System and Single Package	9.5 EER 11.6 IEER	

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	
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.1 EER 13.9 IEER	
		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 of the referenced standard contains a complete specification of the referenced test procedure, including the reference year version of the test procedure.

[b] Single-phase, air-cooled air conditioners less than 65,000 Btu/h are regulated by NAECA. SEER values are those set by NAECA.

Table C403.2.3(1)B
((**Minimum Efficiency Requirements – Air Conditioners and Condensing Units Serving Computer Rooms**

Equipment Type	Net Sensible Cooling Capacity[a]	Minimum Scop-127[b] Efficiency Downflow Units/ upflow Units	Test Procedure
Air conditioners, air cooled	< 65,000 Btu/h (< 19 kW)	2.20/2.09	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	1.90/1.79	
Air conditioners, water cooled	< 65,000 Btu/h (< 19 kW)	2.60/2.49	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.50/2.39	
	≥ 240,000 Btu/h (≥ 70 kW)	2.40/2.29	
Air conditioners, water cooled with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.55/2.44	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.45/2.34	
	≥ 240,000 Btu/h (≥ 70 kW)	2.35/2.24	
Air conditioners, glycol cooled (rated at 40% propylene glycol)	< 65,000 Btu/h (< 19 kW)	2.50/2.39	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.15/2.04	
	≥ 240,000 Btu/h (≥ 70 kW)	2.10/1.99	
Air conditioners, glycol cooled (rated at 40% propylene glycol) with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.45/2.34	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	2.05/1.94	

[a] Net sensible cooling capacity: The total gross cooling capacity less the latent cooling less the energy to the air movement system (Total Gross - Latent - Fan Power).

[b] Sensible coefficient of performance (SCOP-127): A ratio calculated by dividing the net sensible cooling capacity in watts by the total power input in watts (excluding reheaters and humidifiers) at conditions defined in ASHRAE Standard 127. The net sensible cooling capacity is the gross sensible capacity minus the energy dissipated into the cooled space by the fan system.

~~Table C403.2.3(1)C~~))
Minimum Efficiency Requirements—Electrically Operated Variable Refrigerant Flow Air Conditioners

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
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 13.1 IEER (before 1/1/2017) 15.5 IEER (as of 1/1/2017)	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	11.0 EER 12.9 IEER (before 1/1/2017) 14.9 IEER (as of 1/1/2017)	
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System	10.0 EER 11.6 IEER (before 1/1/2017) 13.9 IEER (as of 1/1/2017)	

Table ((~~C403.2.3(1)D~~)) C403.2.3(1)C
Minimum Efficiency Requirements—Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
VRF Air Cooled (cooling mode)	< 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	11.0 EER 12.9 IEER (before 1/1/2017) 14.6 IEER (as of 1/1/2017)	
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	10.8 EER 12.7 IEER (before 1/1/2017) 14.4 IEER (as of 1/1/2017)	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	10.6 EER 12.3 IEER (before 1/1/2017) 13.9 IEER (as of 1/1/2017)	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	10.4 EER 12.1 IEER (before 1/1/2017) 13.7 IEER (as of 1/1/2017)	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	9.5 EER 11.0 IEER (before 1/1/2017) 12.7 IEER (as of 1/1/2017)	
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	9.3 EER 10.8 IEER (before 1/1/2017) 12.5 IEER (as of 1/1/2017)	
VRF Water Source (cooling mode)	< 65,000 Btu/h	All	VRF Multi-Split System *86ºF entering water*	12.0 EER	AHRI 1230
	< 65,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *86ºF entering water*	11.8 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	VRF Multi-Split System *86ºF entering water*	12.0 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *86ºF entering water*	11.8 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System *86ºF entering water*	10.0 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *86ºF entering water*	9.8 EER	
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

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
	< 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *77ºF entering water*	13.2 EER	
	≥ 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)	< 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *68ºF entering water*	4.2 COP	AHRI 1230
	≥ 135,000 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	

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403232 Table C403.2.3(2)—Minimum efficiency requirements—Electrically operated unitary and applied heat pumps.

Table C403.2.3(2)

Minimum Efficiency Requirements—Electrically Operated Unitary and Applied Heat Pumps

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air cooled (cooling mode)	< 65,000 Btu/h[b]	All	Split System	((~~13.0~~)) 14.0 SEER	AHRI 210/240
			Single Packaged	((~~13.0~~)) 14.0 SEER	
Through-the-wall, air cooled (cooling mode)	≤ 30,000 Btu/h[b]	All	Split System	12.0 SEER	
			Single Packaged	12.0 SEER	
Small duct high velocity, air cooled	< 65,000 Btu/h[b]	All	Split System	11.0 SEER	
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 ((~~11.2~~)) 12.2 IEER	AHRI 340/360
		All Other	Split System and Single Package	10.8 EER ((~~11.0~~)) 12.0 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.6 EER ((~~10.7~~)) 11.6 IEER	
		All Other	Split System and Single Package	10.4 EER ((~~10.5~~)) 11.4 IEER	
	≥ 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.5 EER ((~~9.6~~)) 10.6 IEER	
		All Other	Split System and Single Package	9.3 EER ((~~9.4~~)) 10.4 IEER	
Water source (cooling mode)	< 17,000 Btu/h	All	86°F entering water	((~~11.2~~)) 12.2 EER	ISO 13256-1
	≥ 17,000 Btu/h and < 65,000 Btu/h	All	86°F entering water	((~~12.0~~)) 13.0 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	86°F entering water	((~~12.0~~)) 13.0 EER	
Ground water source (cooling mode)	< 135,000 Btu/h	All	59°F entering water	((~~16.2~~)) 18.0 EER	
Ground water source (cooling mode)	< 135,000 Btu/h	All	77°F entering water	((~~13.4~~)) 14.1 EER	
Water-source water to water (cooling mode)	< 135,000 Btu/h	All	86°F entering water	10.6 EER	ISO 13256-2
			59°F entering water	16.3 EER	
Ground water source brine to water (cooling mode)	< 135,000 Btu/h	All	77°F entering fluid	12.1 EER	
Air cooled (heating mode)	< 65,000 Btu/h[b]	—	Split System	((~~7.7~~)) 8.2 HSPF	AHRI 210/240
		—	Single Package	((~~7.7~~)) 8.0 HSPF	
Through-the-wall, (air cooled, heating mode)	≤ 30,000 Btu/hb (cooling capacity)	—	Split System	7.4 HSPF	
		—	Single Package	7.4 HSPF	
Small-duct high velocity (air cooled, heating mode)	< 65,000 Btu/h[b]	—	Split System	6.8 HSPF	
Air cooled (heating mode)	≥ 65,000 Btu/h and < 135,000 Btu/h (cooling capacity)	—	47°F db/43ºF wb Outdoor Air	3.3 COP	AHRI 340/360
			17ºF db/15ºF wb Outdoor Air	2.25 COP	
	≥ 135,000 Btu/h (cooling capacity)	—	47°F db/43ºF wb Outdoor Air	3.2 COP	
			17ºF db/15ºF wb Outdoor Air	2.05 COP	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Water source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	68°F entering water	((~~4.2~~)) 4.3 COP	ISO 13256-1
Ground water source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	50°F entering water	((~~3.6~~)) 3.7 COP	
Ground source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	32°F entering fluid	((~~3.1~~)) 3.2 COP	
Water-source water to water (heating mode)	< 135,000 Btu/h (cooling capacity)	—	68°F entering water	3.7 COP	ISO 13256-2
		—	50°F entering water	3.1 COP	
Ground source brine to water (heating mode)	< 135,000 Btu/h (cooling capacity)	—	32°F entering fluid	2.5 COP	

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.

[a] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the reference year version of the test procedure.

[b] Single-phase, air-cooled air conditioners less than 65,000 Btu/h are regulated by NAECA. SEER values are those set by NAECA.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403233 Table C403.2.3(3)—Minimum efficiency requirements—Electrically operated PTAC, PTHP, SPVAC, SPVHP, room air conditioners.

Table C403.2.3(3)
Minimum Efficiency Requirements—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

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency		Test Procedure[a]
			((~~Before 10/08/2012~~	~~As of 10/08/2012~~))	
PTAC (cooling mode) new construction	All Capacities	95°F db outdoor air	((~~12.5 - (0.213 × Cap/1000) EER~~))	((~~13.8~~)) 14.0 - (0.300 × Cap/1000) EER	AHRI 310/380
PTAC (cooling mode) replacements[b]	All Capacities	95°F db outdoor air	((~~10.9 - (0.213 × Cap/1000) EER~~))	10.9 - (0.213 × Cap/1000) EER	
PTHP (cooling mode) new construction	All Capacities	95°F db outdoor air	((~~12.3 - (0.213 × Cap/1000) EER~~))	14.0 - (0.300 × Cap/1000) EER	
PTHP (cooling mode) replacements[b]	All Capacities	95°F db outdoor air	((~~10.8 - (0.213 × Cap/1000) EER~~))	10.8 - (0.213 × Cap/1000) EER	
PTHP (heating mode) new construction	All Capacities	—	((~~3.2 - (0.026 × Cap/1000) COP~~))	3.7 - (0.052 × Cap/1000) COP	
PTHP (heating mode) replacements[b]	All Capacities	—	((~~2.9 - (0.026 × Cap/1000) COP~~))	2.9 - (0.026 × Cap/1000) COP	
SPVAC (cooling mode)	< 65,000 Btu/h	95°F db/75°F wb outdoor air	((~~9.0 EER~~	~~9.0~~)) 10.0 EER	AHRI 390
	≥ 65,000 Btu/h and < 135,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.9 EER~~	~~8.9~~)) 10.0 EER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.6 EER~~	~~8.6~~)) 10.0 EER	
SPVHP (cooling mode)	< 65,000 Btu/h	95°F db/75°F wb outdoor air	((~~9.0 EER~~	~~9.0~~)) 10.0 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.9 EER~~	~~8.9~~)) 10.0 EER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.6 EER~~	~~8.6~~)) 10.0 EER	

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency ((~~Before 10/08/2012~~	Minimum Efficiency ~~As of 10/08/2012~~))	Test Procedure[a]
SPVHP (heating mode)	<65,000 Btu/h	47°F db/43°F wb outdoor air	((~~3.0 COP~~))	3.0 COP	AHRI 390
	≥ 65,000 Btu/h and < 135,000 Btu/h	47°F db/43°F wb outdoor air	((~~3.0 COP~~))	3.0 COP	
	≥ 135,000 Btu/h and < 240,000 Btu/h	47°F db/43°F wb outdoor air	((~~2.9 COP~~	~~2.9~~)) 3.0 COP	
Room air conditioners, with louvered sides	< 6,000 Btu/h	—	((~~9.7 SEER~~))	9.7 SEER	ANSI/AHA-MRAC-1
	≥ 6,000 Btu/h and < 8,000 Btu/h	—	((~~9.7 EER~~))	9.7 ((~~EER~~)) SEER	
	≥ 8,000 Btu/h and < 14,000 Btu/h	—	((~~9.8 EER~~))	9.8 EER	
	≥ 14,000 Btu/h and < 20,000 Btu/h	—	((~~9.7 SEER~~))	9.7 SEER	
	≥ 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
Room air conditioners, without louvered sides	< 8,000 Btu/h	—	((~~9.0 EER~~))	9.0 EER	
	≥ 8,000 Btu/h and < 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
	≥ 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
Room air-conditioner heat pumps with louvered sides	< 20,000 Btu/h	—	((~~9.0 EER~~))	9.0 EER	
	≥ 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
Room air-conditioner heat pumps without louvered sides	< 14,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
	≥ 14,000 Btu/h	—	((~~8.0 EER~~))	8.0 EER	
Room air conditioner casement only	All capacities	—	((~~8.7 EER~~))	8.7 EER	
Room air conditioner casement-slider	All capacities	—	((~~9.5 EER~~))	9.5 EER	

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 7000 Btu/h, use 7000 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 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b Replacement unit shall be factory labeled as follows: "MANUFACTURED FOR NONSTANDARD SIZE APPLICATIONS ONLY; NOT TO BE INSTALLED IN NEW STANDARD PROJECTS" or "MANUFACTURED FOR REPLACEMENT APPLICATIONS ONLY: NOT TO BE INSTALLED IN NEW CONSTRUCTION PROJECTS." Replacement efficiencies apply only to units with existing sleeves less than 16 inches (406 mm) in height and less than 42 inches (1067 mm) in width.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403235 Table C403.2.3(5)—Minimum efficiency requirements—Gas- and oil-fired boilers.

Table C403.2.3(5)
Minimum Efficiency Requirements—Gas- and Oil-Fired Boilers

Equipment Type[a]	Subcategory or Rating Condition	Size Category (Input)	Minimum Efficiency	Test Procedure
Boilers, hot water	Gas-fired	< 300,000 Btu/h	((~~80~~)) 82% AFUE	10 C.F.R. Part 430
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	80% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	82% E_c	
	Oil-fired[c]	< 300,000 Btu/h	((~~80~~)) 84% AFUE	10 C.F.R. Part 430

Equipment Type[a]	Subcategory or Rating Condition	Size Category (Input)	Minimum Efficiency	Test Procedure
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	82% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	84% E_c	
Boilers, steam	Gas-fired	< 300,000 Btu/h	((~~75~~)) 80% AFUE	10 C.F.R. Part 430
	Gas-fired - All, except natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	79% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	79% E_t	
	Gas-fired-natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	77% E_t	
		> 2,500,000 Btu/h[a]	77% E_t	
	Oil-fired[c]	< 300,000 Btu/h	((~~80~~)) 82% AFUE	10 C.F.R. Part 430
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	81% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	81% E_t	

For SI: 1 British thermal unit per hour = 0.2931 W.

E_c = Combustion efficiency (100 percent less flue losses).

E_t = Thermal efficiency. See referenced standard document for detailed information.

a 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.

b Maximum capacity minimum and maximum ratings as provided for and allowed by the unit's controls.

c Includes oil-fired (residual).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403237 Table C403.2.3(7)—Minimum efficiency requirements—Water chilling packages.

Table C403.2.3(7)
Minimum Efficiency Requirements—Water Chilling Packages[a]

~~Equipment Type~~	~~Size Category~~	~~Units~~	~~Before 1/1/2010~~		((~~As of 1/1/2010[b]~~ ~~Path A~~		~~Path B~~		~~Test Procedure[e]~~
			~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	
~~Air cooled chillers~~	~~< 150 tons~~	~~EER~~	~~≥ 9.562~~	~~≥10.416~~	~~≥ 9.562~~	~~≥ 12.500~~	~~NA~~	~~NA~~	~~AHRI 550/590~~
	~~≥ 150 tons~~	~~EER~~			~~≥ 9.562~~	~~≥ 12.750~~	~~NA~~	~~NA~~	
~~Air cooled without condenser, electrical operated~~	~~All capacities~~	~~EER~~	~~≥ 10.586~~	~~≥ 11.782~~	~~Air cooled chillers without condensers shall be rated with matching condensers and comply with the air cooled chiller efficiency requirements~~				
~~Water cooled, electrically operated, reciprocating~~	~~All capacities~~	~~kW/ton~~	~~≤ 0.837~~	~~≤ 0.696~~	~~Reciprocating units shall comply with water cooled positive displacement efficiency requirements~~				
~~Water cooled, electrically operated, positive displacement~~	~~< 75 tons~~	~~kW/ton~~	~~≤ 0.790~~	~~≤ 0.676~~	~~≤ 0.780~~	~~≤ 0.630~~	~~≤ 0.800~~	~~≤ 0.600~~	
	~~≥75 tons and < 150 tons~~	~~kW/ton~~			~~≤ 0.775~~	~~≤ 0.615~~	~~≤ 0.790~~	~~≤ 0.586~~	
	~~≥ 150 tons and < 300 tons~~	~~kW/ton~~	~~≤ 0.717~~	~~≤ 0.627~~	~~≤ 0.680~~	~~≤ 0.580~~	~~≤ 0.718~~	~~≤ 0.540~~	
	~~≥ 300 tons~~	~~kW/ton~~	~~≤ 0.639~~	~~≤ 0.571~~	~~≤ 0.620~~	~~≤ 0.540~~	~~≤ 0.639~~	~~≤ 0.490~~	
~~Water cooled, electrically operated, centrifugal~~	~~< 150 tons~~	~~kW/ton~~	~~≤ 0.703~~	~~≤ 0.669~~	~~≤ 0.634~~	~~≤ 0.596~~	~~≤ 0.639~~	~~≤ 0.450~~	
	~~≥ 150 tons and < 300 tons~~	~~kW/ton~~	~~≤ 0.634~~	~~≤ 0.596~~					
	~~≥ 300 tons and < 600 tons~~	~~kW/ton~~	~~≤ 0.576~~	~~≤ 0.549~~	~~≤ 0.576~~	~~≤ 0.549~~	~~≤ 0.600~~	~~≤ 0.400~~	
	~~≥600 tons~~	~~kW/ton~~	~~≤ 0.576~~	~~≤ 0.549~~	~~≤ 0.570~~	~~≤ 0.539~~	~~≤ 0.590~~	~~≤ 0.400~~	

~~Equipment Type~~	~~Size Category~~	~~Units~~	~~Before 1/1/2010~~		((~~As of 1/1/2010[b]~~				~~Test Procedure[c]~~
					~~Path A~~		~~Path B~~		
			~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	
~~Air cooled, absorption single effect~~	~~All capacities~~	~~COP~~	~~≥ 0.600~~	~~NR~~	~~≥ 0.600~~	~~NR~~	~~NA~~	~~NA~~	~~AHRI 560~~
~~Water cooled, absorption single effect~~	~~All capacities~~	~~COP~~	~~≥ 0.700~~	~~NR~~	~~≥ 0.700~~	~~NR~~	~~NA~~	~~NA~~	
~~Absorption double effect, indirect fired~~	~~All capacities~~	~~COP~~	~~≥ 1.000~~	~~≥ 1.050~~	~~≥1.000~~	~~≥ 1.050~~	~~NA~~	~~NA~~	
~~Absorption double effect, direct fired~~	~~All capacities~~	~~COP~~	~~≥ 1.000~~	~~≥ 1.000~~	~~≥ 1.000~~	~~≥ 1.000~~	~~NA~~	~~NA~~))	

Equipment Type	**Size Category**	**Units**	**As of 1/1/2015[b]**				**Test Procedure[c]**
			Path A		**Path B**		
			Full Load	**IPLV**	**Full Load**	**IPLV**	
Air-cooled chillers	< 150 tons	EER	≥ 10.100	≥ 13.700	≥ 9.700	≥ 15.800	AHRI 550/590
	≥ 150 tons	EER	≥ 10.100	≥ 14.000	≥ 9.700	≥ 16.100	
Air cooled without condenser, electrically operated	All capacities	EER	Air-cooled chillers without condensers shall be rated with matching condensers and comply with the air-cooled chiller efficiency requirements				
Water cooled, electrically operated, reciprocating	All capacities	kW/ton	Reciprocating units shall comply with water cooled positive displacement 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	
Water cooled, electrically operated, centrifugal	< 150 tons	kW/ton	0.610	≤ 0.550	≤ 0.695	≤ 0.440	
	≥ 150 tons and < 300 tons	kW/ton					
	≥ 300 tons and < 400 tons	kW/ton	≤ 0.560	≤ 0.520	≤ 0.595	≤ 0.390	
	≥ 400 tons	kW/ton	≤ 0.560	≤ 0.500	≤ 0.585	≤ 0.380	
Air cooled, absorption single effect	All capacities	COP	≥ 0.600	NR	NA	NA	AHRI 560
Water cooled, absorption single effect	All capacities	COP	≥ 0.700	NR	NA	NA	
Absorption double effect, indirect fired	All capacities	COP	≥ 1.000	≥ 1.050	NA	NA	
Absorption double effect, direct fired	All capacities	COP	≥ 1.000	≥ 1.000	NA	NA	

For SI: 1 ton = 3517 W, 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.

NA = Not applicable, not to be used for compliance;

NR = No requirement.

[a] The centrifugal chiller equipment requirements, after adjustment in accordance with Section C403.2.3.1 or Section C403.2.3.2, do not apply to chillers used in low-temperature applications where the design leaving fluid temperature is less than 36ºF. The requirements do not apply to positive displacement chillers with leaving fluid temperatures less than or equal to 32ºF. The requirements do not apply to absorption chillers with design leaving fluid temperatures less than 40ºF.

[b] Compliance with this standard can be obtained by meeting the minimum requirements of Path A or B. However, both the full load and IPLV shall be met to fulfill the requirements of Path A or B.

[c] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403238 Table C403.2.3(8)—Minimum efficiency requirements—Heat rejection equipment.

Table C403.2.3(8)
Minimum Efficiency Requirements—Heat Rejection Equipment

Equipment Type[a]	Total System Heat Rejection Capacity at Rated Conditions	Subcategory or Rating Condition	Performance Required[b,c,d,g,h]	Test Procedure[e,f]
Propeller or axial fan open circuit cooling towers	All	95°F Entering Water 85°F Leaving Water 75°F Entering wb	≥ 38.2 gpm/hp	CTI ATC-105 and CTI STD-201
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
Propeller or axial fan closed circuit cooling towers	All	102°F Entering Water 90°F Leaving Water 75°F Entering wb	≥ 14.0 gpm/hp	CTI ATC-105S and CTI STD-201
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
Propeller or axial fan evaporative condensers	All	R-507A Test Fluid 165°F Entering Gas Temperature 105°F Condensing Temperature 75°F Entering wb	≥□b5°F Enterin□□□□	CTI ATC-160
Propeller or axial fan evaporative condensers	All	Ammonia Test Fluid 140°F Entering Gas Temperature 96.3°F Condensing Temperature 75°F Entering wb	≥□b5°F Enterin□□□□	CTI ATC-160
Centrifugal fan evaporative condensers	All	R-507A Test Fluid 165°F Entering Gas Temperature 105°F Condensing Temperature 75°F Entering wb	≥□b5°F Enterin□□□□	CTI ATC-160
Centrifugal fan evaporative condensers	All	Ammonia Test Fluid 140°F Entering Gas Temperature 96.3°F Condensing Temperature 75°F Entering wb	≥□b5°F Enterin□□□□	CTI ATC-160
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 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 wet and dry heat exchange sections.

a 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 Table 403.2.3(8) divided by the fan nameplate rated motor 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 listed in Table 403.2.3(8) divided by the sum of the fan nameplate rated motor power and the spray pump nameplate rated motor power.

d For purposes of this table, air cooled condenser performance is defined as the heat rejected from the refrigerant divided by the fan nameplate rated motor power.

e Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

f ((If)) Where a certification program exists for a covered product, and it includes provisions for verification and challenge of equipment efficiency ratings, then the product shall be listed in the certification program, or, ((if)) where a certification program exists for a covered product, and it includes provisions for verification and challenge of equipment efficiency ratings, but the product is not listed in the existing certification program, the ratings shall be verified by an independent laboratory test report.

g 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.

h 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.

i Requirements for evaporative condensers are listed with ammonia (R-717) and R-507A as test fluids in this table. Evaporative condensers intended for use with halocarbon refrigerants other than R-507A must meet the minimum efficiency requirements listed above with R-507A as the test fluid.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403239 Table C403.2.3(9) and Table C403.2.3(10)—Minimum efficiency requirements((—Heat transfer equipment)).

Table C403.2.3(9)
Minimum Efficiency Requirements—Air Conditioners and Condensing Units Serving Computer Rooms

Equipment Type	Net Sensible Cooling Capacity[a]	Minimum SCOP-127[b] Efficiency Downflow units/Upflow units	Test Procedure
Air conditioners, air cooled	< 65,000 Btu/h (< 19 kW)	2.20/2.09	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (> 70 kW)	1.90/1.79	
Air conditioners, water cooled	< 65,000 Btu/h (< 19 kW)	2.60/2.49	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (> 19 kW and < 70 kW)	2.50/2.39	
	≥ 240,000 Btu/h (> 70 kW)	2.40/2.29	

Equipment Type	Net Sensible Cooling Capacity[a]	Minimum SCOP-127[b] Efficiency Downflow units/Upflow units	Test Procedure
Air conditioners, water cooled with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.55/2.44	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19kW and < 70 kW)	2.45/2.34	
	≥ 240,000 Btu/h (≥ 70 kW)	2.35/2.24	
Air conditioners, glycol cooled (rated at 40% propylene glycol)	< 65,000 Btu/h (< 19 kW)	2.50/2.39	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (> 19 kW and < 70 kW)	2.15/2.04	
	≥ 240,000 Btu/h (≥ 70 kW)	2.10/1.99	
Air conditioners, glycol cooled (rated at 40% propylene glycol) with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.45/2.34	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	2.05/1.94	

[a] Net sensible cooling capacity: The total gross cooling capacity less the latent cooling less the energy to the air movement system. (Total Gross - Latent - Fan Power.)

[b] Sensible coefficient of performance (SCOP-127): A ratio calculated by dividing the net sensible cooling capacity in watts by the total power input in watts (excluding reheaters and humidifiers) at conditions defined in ASHRAE Standard 127. The net sensible cooling capacity is the gross sensible capacity minus the energy dissipated into the cooled space by the fan system.

Table C403.2.3((~~(9)~~)) (10)

Minimum Efficiency Requirements—Heat Transfer Equipment

Equipment Type	Subcategory	Minimum Efficiency	Test Procedure[a]
Liquid-to-liquid heat exchangers	Plate type	NR	AHRI 400

NR = No requirement.

[a] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40324 Section C403.2.4—HVAC system controls.

C403.2.4 HVAC system controls. Each heating and cooling system shall be provided with thermostatic controls as specified in Section C403.2.4.1, C403.2.4.1.3, C403.2.4.2, C403.2.4.3, ((~~C403.2.4.4~~)) C403.2.4.5, C403.3.1, C403.4, C403.4.1, C403.4.2, C403.4.3, or C403.4.4((~~, C403.4.5, C403.4.6, C403.4.7, C403.4.8, C403.4.9, or C403.4.10~~)).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403241 Section C403.2.4.1—Thermostatic controls.

C403.2.4.1 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 C403.3.1 ((~~or C403.4.1~~)) 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.~~)) 1.1. 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); ((~~and~~))

((~~2.~~)) 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. Controls capable of and configured to prevent simultaneous heating and cooling for all *zones* with area within 15 feet of the perimeter unless separated by an interior wall.

3. Any nonperimeter zones not separated from perimeter zones by an interior wall with openings no larger than 10 percent of the perimeter floor zone area shall have setpoints and deadbands coordinated so that cooling in adjacent zones shall not operate until the adjacent zone temperature is 5°F (2.8°C) higher than the perimeter zone temperature.

C403.2.4.1.1 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.

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.

C403.2.4.1.2 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.*

C403.2.4.1.3 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 set point from exceeding the cooling setpoint and to maintain a deadband in accordance with Section C403.2.4.1.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403242 Section C403.2.4.2—((~~Setpoint overlap restriction~~)) Off-hour controls.

((~~**C403.2.4.2 Setpoint overlap restriction.** Where used to control both heating and cooling, *zone* thermostatic controls shall 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 capable of being shut off or reduced to a minimum.~~

EXCEPTION: ~~Thermostats requiring manual changeover between heating and cooling modes.~~))

C403.2.4.2 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 readily accessible manual shutoff switch.

C403.2.4.2.1 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).

C403.2.4.2.2 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.

C403.2.4.2.3 Automatic start capabilities. Automatic start controls shall be provided for each HVAC system. The controls shall be capable of automatically adjusting the daily start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403243 Section C403.2.4.3—((~~Off-hour controls~~)) Shutoff dampers.

((~~**C403.2.4.3 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 readily accessible manual shutoff switch.~~

~~**C403.2.4.3.1 Thermostatic setback capabilities.** Thermostatic setback controls shall have the capability 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).~~

~~**C403.2.4.3.2 Automatic setback and shutdown capabilities.** 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 capable of being adjusted to operate the system for up to 2 hours; or an occupancy sensor.~~

~~**C403.2.4.3.3 Automatic start capabilities.** Automatic start controls shall be provided for each HVAC system. The controls shall be capable of automatically adjusting the daily start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy.~~)) **C403.2.4.3 Shutoff dampers.** Outdoor air supply, exhaust openings and relief outlets and stairway and shaft vents shall be provided with Class I motorized dampers.

Return air openings used for airside economizer operation shall be equipped with Class I motorized dampers.

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 such purpose.

EXCEPTION: Motorized dampers on return air openings in unitary packaged equipment that have the minimum leakage rate available from the manufacturer shall be deemed to comply.

Outdoor air intake and exhaust 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 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.

EXCEPTIONS:
1. Gravity (nonmotorized) dampers shall be permitted to be used 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 in Group R occupancies where the design outdoor air intake or exhaust capacity does not exceed 400 cfm (189 L/s).
2. Combustion air intakes.

Gravity (nonmotorized) dampers shall have an air leakage rate not greater than 20 cfm/ft^2 (101.6 L/s x m^2) where not less than 24 inches (610 mm) in either dimension and 40 cfm/ft^2 (203.2 L/s x m^2) where less than 24 inches (610 mm) in either dimension. The rate of air leakage shall be determined at 1.0 inch water gauge (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.

AMENDATORY SECTION (Amending WSR 14-24-054, filed 11/25/14, effective 5/1/15)

WAC 51-11C-403244 Section C403.2.4.4—((~~Shutoff damper controls~~)) Zone isolation.

((~~**C403.2.4.4 Shutoff damper controls.** Both outdoor air supply and exhaust ducts shall be equipped with motorized dampers that will automatically shut when the systems or spaces served are not in use or during building warm-up, cooldown, and setback.~~

~~See also section C402.4.5 for additional damper requirements and maximum leakage rates.~~

~~EXCEPTIONS:~~
~~1. Gravity relief dampers serving systems less than 5,000 cfm total supply shall be permitted in buildings less than three stories in height.~~
~~2. Gravity dampers shall be permitted for buildings of any height located in Climate Zones 1, 2 and 3.~~
~~3. Gravity (nonmotorized) dampers in Group R occupancies where the design outdoor air intake or exhaust capacity does not exceed 400 cfm (189 L/s).~~
~~4. Systems serving areas which require continuous operation.~~
~~5. Combustion air intakes.~~
~~6. Operation of dampers shall be allowed during ventilation prepurge one hour before expected occupancy and for unoccupied period precooling during the cooling season.~~
~~7. Dampers are not required in systems where specifically prohibited by the *International Mechanical Code*.~~))

C403.2.4.4 Zone isolation. HVAC systems serving *zones* that are over 25,000 square feet (2323 m^2) in floor area or that span more than one floor and are designed to operate or be occupied nonsimultaneously shall be divided into isolation areas. 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 C403.2.4.2.2. 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403245 Section C403.2.4.5—Snowmelt ((~~system~~)) and freeze protection controls.

C403.2.4.5 Snow- and ice-melt system controls. Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls ((~~capable of shutting~~)) configured to shut off the system when the pavement temperature is above 50°F (10°C) and no precipitation is falling and an automatic or manual control that ((~~will allow~~)) is configured to shutoff when the outdoor temperature is above 40°F (4°C) so that the potential for snow or ice accumulation is negligible.

C403.2.4.6 Freeze protection system controls. Freeze protection systems, such as heat tracing of outdoor piping and heat exchangers, including self-regulating heat tracing, shall

include automatic controls configured to shut off the systems when outdoor air temperatures are above 40°F (4°C) or when the conditions of the protected fluid will prevent freezing.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403246 Section ((~~C403.2.4.6~~)) C403.2.4.7—Economizer fault detection and Section C403.2.4.8—Combustion heating equipment controls.

((~~C403.2.4.6~~)) **C403.2.4.7 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 C403.2.3(1) through C403.2.3(3) that are equipped with an economizer in accordance with Section C403.3 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 accessible 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.

C403.2.4.8 Combustion heating equipment controls. Combustion heating equipment with a capacity over 225,000 Btu/h shall have modulating or staged combustion control.

EXCEPTIONS: 1. Boilers.
2. Radiant heaters.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403247 Sections ((~~C403.2.4.7 Hotel/motel~~)) C403.2.4.9 through C403.2.4.11—Group R controls.

((~~C403.2.4.7~~)) C403.2.4.9 Group R-1 hotel/motel guest rooms. For hotel and motel guest rooms, a minimum of one of the following control technologies shall be required in hotels/motels with over 50 guest rooms such that the space temperature would automatically setback (winter) or set up (summer) by no less than 5°F (3°C) when the occupant is not in the room:

1. Controls that are activated by the room occupant via the primary room access method - Key, card, deadbolt, etc.

2. Occupancy sensor controls that are activated by the occupant's presence in the room.

C403.2.4.10 Group R-2 and R-3 dwelling units. The primary space conditioning system within each dwelling unit shall be provided with at least one programmable thermostat for the regulation of space temperature. The thermostat shall allow for, at a minimum, a 5-2 programmable schedule (weekdays/weekends) and be capable of providing at least two programmable setback periods per day.

Each additional system provided within the dwelling unit shall be provided with at least one adjustable thermostat for the regulation of temperature.

EXCEPTIONS:
1. Systems controlled by an occupant sensor that is configured to shut the system off when no occupant is sensed for a period of up to 30 minutes.
2. Systems controlled solely by a manually operated timer configured to operate the system for no more than two hours.
3. Ductless heat pumps.

Each thermostat shall be capable of being set by adjustment or selection of sensors and configured as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.

C403.2.4.11 Group R-2 sleeping units. The primary space conditioning system within each sleeping unit shall be provided with at least one programmable thermostat for the regulation of space temperature. The thermostat shall allow for, at a minimum, a 5-2 programmable schedule (weekdays/weekends) and be capable of providing at least two programmable setback periods per day.

Each additional system provided within the sleeping unit shall be provided with at least one adjustable thermostat for the regulation of temperature.

EXCEPTIONS:
1. Systems controlled by an occupant sensor that is configured to shut the system off when no occupant is sensed for a period of up to 30 minutes.
2. Systems controlled solely by a manually operated timer configured to operate the system for no more than two hours.
3. *Zones* with a full HVAC load demand not exceeding 3,400 Btu/h (1 kW) and having a readily accessible manual shutoff switch.
4. Ductless heat pumps.

Each thermostat shall be capable of being set by adjustment or selection of sensors and configured as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403248 Section ((~~C403.2.4.8 Residential occupancy~~)) C403.2.4.12—Direct digital control((~~s~~)) systems.

((~~**C403.2.4.8 Group R-2 and R-3 dwelling units.** The primary space conditioning system within each dwelling unit shall be provided with at least one programmable thermostat for the regulation of space temperature. The thermostat shall allow for, at a minimum, a 5-2 programmable schedule (weekdays/weekends) and be capable of providing at least two programmable setback periods per day.~~

~~Each additional system provided within the dwelling unit shall be provided with at least one adjustable thermostat for the regulation of temperature.~~

~~EXCEPTIONS: 1. Systems controlled by an occupant sensor that is capable of shutting the system off when no occupant is sensed for a period of up to 30 minutes.~~
~~2. Systems controlled solely by a manually operated timer capable of operating the system for no more than two hours.~~
~~3. Ductless heat pumps.~~

~~Each thermostat shall be capable of being set by adjustment or selection of sensors as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.~~

~~**C403.2.4.9 Group R-2 sleeping units.** The primary space conditioning system within each sleeping unit shall be provided with at least one programmable thermostat for the regulation of space temperature. The thermostat shall allow for, at a minimum, a 5-2 programmable schedule (weekdays/weekends) and be capable of providing at least two programmable setback periods per day.~~

~~Each additional system provided within the sleeping unit shall be provided with at least one adjustable thermostat for the regulation of temperature.~~

~~EXCEPTIONS: 1. Systems controlled by an occupant sensor that is capable of shutting the system off when no occupant is sensed for a period of up to 30 minutes.~~
~~2. Systems controlled solely by a manually operated timer capable of operating the system for no more than two hours.~~
~~3. *Zones* with a full HVAC load demand not exceeding 3,400 Btu/h (1 kW) and having a readily accessible manual shutoff switch.~~
~~4. Ductless heat pumps.~~

~~Each thermostat shall be capable of being set by adjustment or selection of sensors as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.~~)) **C403.2.4.12 Direct digital control systems.** Direct digital control (DDC) shall be required as specified in Sections C403.2.4.12.1 through C403.2.4.12.3.

C403.2.4.12.1 DDC applications. DDC shall be provided in the applications and qualifications listed in Table C403.2.4.12.1.

C403.2.4.12.2 DDC controls. Where DDC is required by Section C403.2.4.12.1, the DDC system shall be capable of all of the following, as required to provide the system and zone control logic required in Sections C403.2, C403.3, and C403.4:

1. Monitoring zone and system demand for fan pressure, pump pressure, heating and cooling.

2. Transferring zone and system demand information from zones to air distribution system controllers and from air distribution systems to heating and cooling plant controllers.

C403.2.4.12.3 DDC display. Where DDC is required by Section C403.2.12.1 for new buildings, the DDC system shall be capable of trending and graphically displaying input and output points.

Table C403.2.4.12.1
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

Building Status	Application	Qualifications
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% 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

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403249 Section ((~~C403.2.4.9—Direct digital control system capabilities~~)) C403.2.5—Hot water boiler controls.

((~~**C403.2.4.10 Direct digital control system capabilities.** All complex systems equipped with direct digital control (DDC) systems and all buildings with total cooling capacity exceeding 780,000 Btu/h (2,662 kW) shall have the following capability:~~

~~1. Trending: All control system input and output points shall be accessible and programmed for trending, and a graphic trending package shall be provided with the control system.~~

~~2. Demand Response Setpoint Adjustment: Control logic shall increase the cooling zone set points by at least 2°F (1°C) and reduce the heating zone set points 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.~~)) **C403.2.5 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40325 Section ((~~C403.2.5~~)) C403.2.6—Ventilation.

((~~C403.2.5~~)) C403.2.6 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 ((~~provide the capability to reduce the outdoor air supply to~~)) 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 economizer, 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 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 C403.5.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403251 Section ((~~C403.2.5.1—Demand control ventilation~~)) C403.2.6.1—Dedicated outdoor air systems (DOAS).

((~~**C403.2.5.1 Demand controlled ventilation.** Demand control ventilation (DCV) shall be provided for spaces larger than 500 square feet (50 m²) and with an occupant load greater than 25 people per 1000 square feet (93 m²) of floor area (as established in Table 403.3 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 (1400 L/s).~~

EXCEPTION:
~~Demand control ventilation is not required for systems and spaces as follows:~~
~~1. Systems with energy recovery complying with Section C403.2.6.~~
~~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 1,000 cfm (472 L/s).~~
~~4. Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1,200 cfm (600 L/s).~~
~~5. Ventilation provided for process loads only.~~))

C403.2.6.1 Dedicated outdoor air systems (DOAS). For office, retail, education, libraries and fire stations, outdoor air shall be provided to each zone by a dedicated outdoor air system (DOAS) which delivers 100 percent outside air without requiring operation of the heating and cooling system fans for ventilation air delivery. The DOAS shall include either *energy recovery ventilation* and/or *demand control ventilation*. If the DOAS includes heating or cooling coils, the system shall be configured to deliver supply air within 5°F (3°C) of the space conditioning setpoint, except that DOAS greater than 500 cfm shall not use heating or heat recovery to warm supply air above 60ºF (16ºC) when representative building loads or outdoor air temperature indicate the majority of zones require cooling.

C403.2.6.1.1 Impracticality. In cases where full compliance with all the requirements of Section C403.2.6.1 is impractical, the applicant is permitted to arrange a predesign conference with the design team and the *code official* to seek modifications. The applicant shall identify specific requirements that are impractical, and shall identify design solutions and modifications that achieve a comparable level of energy efficiency. The *code official* is authorized to waive specific requirements in this code to the extent that the *code official* determines those requirements to be impractical.

C403.2.6.1.2 Heating/cooling system fan controls. For systems meeting the requirements of Section C403.2.6.1 dedicated outdoor air systems, equipment and controls shall be configured to cycle off zone heating and cooling equipment fans and/or pumps, primary cooling air, heating and cooling coils, and parallel heating fans when there is no call for heating or cooling in the zone.

EXCEPTION: Fans used for heating and cooling using less than 0.1 watts per cfm may operate when space temperatures are within the setpoint deadband (Section 403.2.4.1.2) to provide destratification and air mixing in the space.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403252 Section ((~~C403.2.5.2 Occupancy sensors~~)) C403.2.6.2—Demand control ventilation.

((~~**C403.2.5.2 Occupancy sensors.** Classrooms, gyms, auditoriums and conference rooms larger than 500 square feet of floor area shall have occupancy sensor control that will either close outside air dampers or turn off serving equipment when the space is unoccupied except where equipped with another means to automatically reduce outside air intake below design rates when spaces are partially occupied.~~)) **C403.2.6.2 Demand controlled ventilation.** Demand control ventilation (DCV) shall be provided for spaces larger than 500 square feet (50 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 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 (1400 L/s).

EXCEPTION: Demand control ventilation is not required for systems and spaces as follows:

1. Systems with energy recovery complying with Section C403.5.1.

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 (472 L/s).

4. Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1,200 cfm (600 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403253 Section ((~~C403.2.5.3 Loading dock and parking garage ventilation system controls~~)) C403.2.6.3—Occupancy sensors.

((~~**C403.2.5.3 Enclosed loading dock and parking garage exhaust ventilation system control.** Mechanical ventilation systems for enclosed loading docks 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 upon detection of vehicle operation or the presence of occupants by approved automatic detection devices. Each of the following types of controllers shall be capable of shutting off fans or modulating fan speed. Control devices shall not reduce airflow rates below the minimum requirement in accordance with the *International Mechanical Code* during scheduled periods of occupied operation.~~

~~1. 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. 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.~~

~~2. Occupant detection sensors used to activate the system shall detect entry into the parking garage along both the vehicle and pedestrian pathways.~~

~~**C403.2.5.3.1 System activation devices for enclosed loading docks.** Ventilation systems for enclosed loading docks shall be activated 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.~~

~~**C403.2.5.3.2 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.~~))

C403.2.6.3 Occupancy sensors. Classrooms, gyms, auditoriums and conference rooms larger than 500 square feet of floor area shall have occupancy sensor control that will either close outside air dampers or turn off serving equipment when the space is unoccupied except where equipped with another means to automatically reduce outside air intake below design rates when spaces are partially occupied.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403254 Section ((~~C403.2.5.4—Exhaust systems~~)) C403.2.6.4—Loading dock and parking garage ventilation system controls.

((~~**C403.2.5.4 Exhaust systems.**~~

~~**C403.2.5.4.1 Kitchen hoods.** Each kitchen area with total exhaust capacity larger than 2,000 cfm shall be provided with make-up air sized so that at least 50% of exhaust air volume be (a) unheated or heated to no more than 60°F and (b) uncooled or cooled without the use of mechanical cooling.~~

~~EXCEPTIONS: 1. Where hoods are used to exhaust ventilation air which would otherwise exfiltrate or be exhausted by other fan systems. A detailed accounting of exhaust airflows shall be provided on the plans that accounts for the impact of any required demand controlled ventilation.~~
~~2. Certified grease extractor hoods that require a face velocity no greater than 60 fpm.~~

~~**C403.2.5.4.2 Laboratory exhaust systems.** Buildings with laboratory exhaust systems having a total exhaust rate greater than 5,000 cfm (2,360 L/s) shall include heat recovery systems to precondition makeup 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) in Climate Zones 4C/5B and 35°F (19.4°C) in Climate Zone 6B. A provision shall be made to bypass or control the heat recovery system to permit air economizer operation as required by Section C403.4.~~

~~EXCEPTIONS: 1. Variable air volume laboratory exhaust and room supply systems capable of reducing exhaust and make-up air volume to 50% or less of design values; or~~
~~2. Direct make-up (auxiliary) air supply equal to at least 75% of the exhaust rate, heated no warmer than 2°F (1.1°C) below room set point, cooled to no cooler than 3°F (1.7°C) above room set point, 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 capable of reducing 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% 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% 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~~))

C403.2.6.4 Enclosed loading dock and parking garage exhaust ventilation system control. Mechanical ventilation systems for enclosed loading docks 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 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.

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. 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.

C403.2.6.4.1 System activation devices for enclosed loading docks. Ventilation systems for enclosed loading docks shall be activated 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.

C403.2.6.4.2 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.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40326 Section ((~~C403.2.6—Energy recovery~~)) C403.2.7—Exhaust systems.

((~~**C403.2.6 Energy recovery.**~~

~~**C403.2.6.1 Energy recovery ventilation systems.** Any system with minimum outside air requirements at design conditions greater than 5,000 CFM or any system required by Table C403.2.6 shall include an energy recovery system. 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, at design conditions. Where an air economizer is required, the energy recovery system shall include a bypass or controls which permit operation of the economizer as required by Section C403.4. 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.~~

~~EXCEPTION: An energy recovery ventilation system shall not be required in any of the following conditions:~~

~~1. Where energy recovery systems are prohibited by the *International Mechanical Code*.~~

~~2. Laboratory fume hood systems that include at least one of the following features:~~

~~2.1. Variable-air-volume hood exhaust and room supply systems capable of reducing 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 heating energy is provided from site-recovered or site solar energy.~~

~~5. Heating energy recovery in Climate Zones 1 and 2.~~

~~6. Cooling energy recovery in Climate Zones 3C, 4C, 5B, 5C, 6B, 7 and 8.~~

~~7. Systems requiring dehumidification that employ energy recovery in series with the cooling coil.~~

~~8. Multi-zone systems with cold deck supply air and zone reheat where the minimum outdoor air is less than 70 percent of total supply air.~~

~~9. Systems serving Group R 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.~~

~~**C403.2.6.2 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 condensate water heat recovery.~~

~~**C403.2.6.3 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 ft² 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.~~)) **C403.2.7 Exhaust systems.**

C403.2.7.1 Kitchen exhaust systems. Replacement air introduced directly into the exhaust hood cavity shall not be greater than 10 percent of the hood exhaust airflow rate. Conditioned supply air delivered to any space shall not exceed the greater of the following:

1. The ventilation rate required to meet the space heating or cooling load.

2. The hood exhaust flow minus the available transfer air from adjacent space where available transfer air is considered that portion of outdoor ventilation air not required to satisfy other exhaust needs, such as restrooms, and not required to maintain pressurization of adjacent spaces.

Where total kitchen hood exhaust airflow rate is greater than 2,000 cfm each hood shall be a factory built commercial exhaust hood listed by a nationally recognized testing laboratory in compliance with UL 710. Each hood shall have a max-

imum exhaust rate as specified in Table C403.2.7.1 and 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 exhaust air 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 airflow.

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.

EXCEPTIONS: 1. Where not less than 75 percent of all the replacement air is transfer air that would otherwise be exhausted.

2. Certified grease extractor hoods that require a face velocity no greater than 60 fpm.

Table C403.2.7.1
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

C403.2.7.2 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 makeup 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 C403.3.

EXCEPTIONS: 1. Variable air volume laboratory exhaust and room supply systems configured to reduce exhaust and make-up air volume to 50 percent or less of design values; or

2. Direct make-up (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) below room set point, cooled to no cooler than 3°F (1.7°C) above room set point, 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

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403261 ((~~Table C403.2.6—Energy recovery requirement.~~)) Reserved.

((~~**Table C403.2.6**~~
~~**Energy Recovery Requirement**~~

~~Climate Zone~~	~~Percent (%) Outdoor Air at Full Design Airflow Rate~~					
	~~≥ 30% and < 40%~~	~~≥ 40% and < 50%~~	~~≥ 50% and < 60%~~	~~≥ 60% and < 70%~~	~~≥ 70% and < 80%~~	~~≥ 80%~~
	~~Design Supply Fan Airflow Rate (cfm)~~					
~~3B, 3C, 4B, 4C, 5B~~	~~NR~~	~~NR~~	~~NR~~	~~NR~~	~~≥5000~~	~~≥ 5000~~
~~1B, 2B, 5C~~	~~NR~~	~~NR~~	~~≥ 26000~~	~~≥ 12000~~	~~≥ 5000~~	~~≥ 4000~~
~~6B~~	~~≥ 11000~~	~~≥ 5500~~	~~≥ 4500~~	~~≥ 3500~~	~~≥ 2500~~	~~≥ 1500~~
~~1A, 2A, 3A, 4A, 5A, 6A~~	~~≥ 5500~~	~~≥ 4500~~	~~≥ 3500~~	~~≥ 2000~~	~~≥ 1000~~	~~> 0~~
~~7, 8~~	~~≥ 2500~~	~~≥ 1000~~	~~> 0~~	~~> 0~~	~~> 0~~	~~> 0~~

~~NR = Not required.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40327 Section ((~~C403.2.7~~)) C403.2.8 Duct and plenum insulation and sealing.

((~~C403.2.7~~)) C403.2.8 Duct and plenum insulation and sealing.

((~~C403.2.7.1~~)) C403.2.8.1 Ducts, shafts and plenums conveying ((~~outside~~)) 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 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 meet the requirements for metal framed walls per Table ((~~C402.1.2~~)) C402.1.4. Duct surfaces included as part of the building envelope shall not be used in the calculation of maximum glazing area as described in Section ((~~402.3.1~~)) C402.4.1.

EXCEPTIONS: 1. Outside air ducts serving individual supply air units with less than 2,800 cfm of total supply air capacity, provided these are insulated to R-7.

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.

((~~C403.2.7.2~~)) C403.2.8.2 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 ((~~where located outside the building~~)) in Climate Zone 4 and R-12 insulation in Climate Zone 5. 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 ((~~C402.2.3~~)) C402.1.3.

EXCEPTIONS: 1. Where located within equipment.

2. Where the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15°F (8°C).

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 of R-3.3 insulation ((~~where located within conditioned space~~)).

EXCEPTION: Ductwork exposed to view within a zone that serves that zone is not required to be insulated.

All ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the *International Mechanical Code*.

((~~C403.2.7.3~~)) C403.2.8.3 Duct construction. Ductwork shall be constructed and erected in accordance with the *International Mechanical Code*.

((~~C403.2.7.3.1~~)) C403.2.8.3.1 Low-pressure duct systems. All 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.

((~~C403.2.7.3.2~~)) C403.2.8.3.2 Medium-pressure duct systems. All 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 C403.2.7. Pressure classifications specific to the duct system shall be clearly indicated on the

construction documents in accordance with the *International Mechanical Code*.

((~~C403.2.7.3.3~~)) C403.2.8.3.3 High-pressure duct systems. Ducts designed to operate at static pressures in excess of 3 inches water gauge (w.g.) (750 Pa) shall be insulated and sealed in accordance with Section ((~~C403.2.7~~)) C403.2.8. In addition, ducts and plenums shall be leak-tested in accordance with the SMACNA *HVAC Air Duct Leakage Test Manual* ((~~with the~~)) and shown to have a rate of air leakage (*CL*) less than or equal to ((~~6.0~~)) 4.0 as determined in accordance with Equation ((~~C4-5~~)) 4-9.

(Equation ((~~C4-5~~)) 4-9)

$$CL = F/P0.65$$

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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40328 Section ((~~C403.2.8~~)) C403.2.9—Piping insulation.

((~~C403.2.8~~)) C403.2.9 Piping insulation. All piping serving as part of a heating or cooling system shall be thermally insulated in accordance with Table ((~~C403.2.8~~)) C403.2.9.

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).

((~~C403.2.8.1~~)) C403.2.9.1 Protection of piping insulation. Piping insulation exposed to weather shall be protected from damage, including that due to sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesives tape shall not be permitted.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403281 Table ((~~C403.2.8~~)) C403.2.9—Minimum pipe insulation thickness.

Table ((~~C403.2.8~~)) C403.2.9
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
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:

$$T = r\{(1 + t/r)^{K/k} - 1\}$$

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) and

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).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40329 Section ((~~C403.2.9~~)) C403.2.10—Mechanical system commissioning and completion requirements.

((~~C403.2.9~~)) C403.2.10 Mechanical systems commissioning and completion requirements. Mechanical systems shall be commissioned and completed in accordance with Section ((~~C408.2~~)) C408.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403291 Section ((~~C403.2.10~~)) C403.2.11—Air system design and control.

((~~C403.2.10~~)) C403.2.11 Air system design and control. Each HVAC system having a total fan system motor nameplate horsepower (hp) exceeding 5 horsepower (hp) (3.7 kW) shall ((~~meet~~)) comply with the provisions of Sections ((~~C403.2.10.1 through C403.2.10.3~~)) C403.2.11.1 through C403.2.11.3.

The air flow requirements of Section C403.2.11.5 shall apply to all fan motors. Group R occupancy exhaust fans shall also comply with Section C403.2.11.4.

((~~C403.2.10.1~~)) C403.2.11.1 Allowable fan ((~~floor~~)) motor horsepower. Each HVAC system 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 ((~~C403.2.10.1(1)~~)) C403.2.11.1(1). This includes supply fans, exhaust fans, return/relief fans, and fan-powered 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.

EXCEPTIONS: ((~~The following fan systems are exempt from allowable fan floor horsepower requirement.~~))

1. Hospital, vivarium and laboratory systems that utilize flow control devices on exhaust ((~~and/~~))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.

((~~C403.2.10.2~~)) C403.2.11.2 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 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 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.

((~~**C403.2.10.3 Fractional hp fan motors.** Motors for fans that are 1/12 hp or greater and less than 1 hp 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 in the airstream within fan-coils and terminal units that operate only when providing heating to the space served.~~
2. ~~Motors installed in space conditioning equipment certified under Section C403.2.3.~~))

C403.2.11.3 Fan efficiency. Fans shall have a fan efficiency grade (FEG) of not less than 67 when determined in accordance with AMCA 205 by an *approved*, independent testing laboratory and labeled by the manufacturer. 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.

EXCEPTION: The following fans are not required to have a fan efficiency grade:
1. Fans of 5 hp (3.7 kW) or less as follows:
1.1. Single fan with a motor nameplate horsepower of 5 hp (3.7 kW) or less, unless Exception 1.2. applies.
1.2. Multiple fans in series or parallel 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.
2. Fans that are part of equipment covered under Section C403.2.3.
3. Fans included in an equipment package certified by an *approved agency* for air or energy performance.
4. Powered wall/roof ventilators.
5. Fans outside the scope of AMCA 205.
6. Fans that are intended to operate only during emergency conditions.

C403.2.11.4 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 in capacity shall meet the efficacy requirements of Table C403.2.11.4.

EXCEPTION: Where mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor where required by Section C405.8.

C403.2.11.5 Fan airflow control. Each cooling system listed in Table C403.2.11.5 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 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 C403.3 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 speed defined in Section C403.4.1, the minimum speed shall be selected to provide the required ventilation air.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403292 ((~~Table C403.2.10.1 Fan power limitation.~~)) Tables for Section C403.2.11

Table ((~~C403.2.10.1(1)~~)) C403.2.11.1(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	$bhp \leq CFM_S \times 0.00094 + A$	$bhp \leq CFM_S \times 0.0013 + A$

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 $[PD \times CFM_D/4131]$

For SI: 1 cfm = 0.471 L/s.

Where:

PD = Each applicable pressure drop adjustment from Table C403.2.10.1(2) in. w.c.

CFM_D = The design airflow through each applicable device from Table C403.2.10.1(2) in cubic feet per minute.

For SI: 1 bhp = 735.5 W, 1 hp = 745.5 W.

Table ((~~C403.2.10.1(2)~~)) C403.2.11.1(2)
Fan Power Limitation Pressure Drop Adjustment

Device	Adjustment
Credits	
Fully ducted return and/or exhaust air systems	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	(2.2 × energy recovery effectiveness) - 0.5 inch w.c. for each airstream
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.

w.c. = water column.
For SI: 1 inch w.c.= 249 Pa, 1 inch= 25.4 mm.

Table C403.2.11.4
Mechanical Ventilation System Fan Efficacy

Fan Location	Air Flow Rate Minimum (cfm)	Minimum Efficacy (cfm/watt)	Air Flow Rate Maximum (cfm)
Exhaust fan: Bathroom, utility room, whole house	10	1.4 cfm/watt	≤ 90
Exhaust fan: Bathroom, utility room, whole house	90	2.8 cfm/watt	Any

Table C403.2.11.5
Fan Control

Cooling System Type	Fan Motor Size	Mechanical Cooling Capacity
DX cooling	Any	≥ 65,000 Btu/h
Chilled water and evaporative cooling	≥ 5 hp	Any
	≥ 1/4 hp	Any

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403293 Section ((~~C403.2.11~~)) C403.2.12—Heating outside a building.

((~~C403.2.11~~)) C403.2.12 Heating outside a building. Systems installed to provide heat outside a building shall be radiant systems.

Such heating systems shall be controlled by an occupancy sensing device or a timer switch, so that the system is automatically deenergized when no occupants are present.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403294 Section ((~~C403.2.12~~)) C403.2.13—System criteria.

((~~C403.2.12 System criteria.~~)) C403.2.13 Variable flow capability. 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 boosting 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.).

((~~C403.2.12.1~~)) C403.2.13.1 Heat rejection equipment. The requirements of this section apply to heat rejection equipment used in comfort cooling systems such as air-cooled condensers, open cooling towers, closed-circuit cooling towers, and evaporative condensers.

EXCEPTION: Heat rejection devices included as an integral part of equipment listed in Tables C403.2.3(1) through C403.2.3(3).

Heat rejection equipment shall have a minimum efficiency performance not less than values specified in Table C403.2.3(8). These requirements apply to all propeller, axial fan and centrifugal fan cooling towers. Table C403.2.3(8) specifies requirements for air-cooled condensers that are within rating conditions specified within the table.

((~~C403.2.12.1.1~~)) C403.2.13.1.1 Variable flow controls. Cooling tower fans 7.5 hp and greater shall have control devices that vary flow by controlling the leaving fluid temperature or condenser temperature/pressure of the heat rejection device.

((~~C403.2.12.1.2~~)) C403.2.13.1.2 Limitation on centrifugal fan cooling towers. Open cooling towers with a combined rated capacity of 1,100 gpm and greater at 95°F condenser water return, 85°F condenser water supply and 75°F outdoor wet-bulb temperature shall meet the energy efficiency requirement for axial fan open circuit cooling towers.

EXCEPTION: Open circuit cooling towers that are ducted (inlet or discharge) or have external sound attenuation that requires external static pressure capability.

((~~**C403.2.12.2 Large volume fan systems.** Single or multiple fan systems serving a zone or adjacent zones without separating walls with total air flow over 10,000 cfm (3,540 L/s) are required to reduce airflow based on space thermostat heating and cooling demand. A variable speed drive shall reduce airflow to a maximum 75 percent of peak airflow or minimum~~

~~ventilation air requirement as required by Section 403 of the *International Mechanical Code*, whichever is greater.~~

~~EXCEPTIONS: 1. Systems where the function of the supply air is for purposes other than temperature control, such as maintaining specific humidity levels or supplying an exhaust system.~~

~~2. Dedicated outdoor air supply unit(s) with heat recovery where airflow is equal to the minimum ventilation requirements and other fans cycle off unless heating or cooling is required.~~

~~3. An area served by multiple units where designated ventilation units have 50 percent or less of total area airflow and nonventilation unit fans cycle off when heating or cooling is not required.~~

~~All air-conditioning equipment and air-handling units with direct expansion cooling and a cooling capacity at AHRI conditions greater than or equal to 110,000 Btu/h that serve single zones shall have their supply fans controlled by two-speed motors or variable speed drives. At cooling demands less than or equal to 50 percent, the supply fan controls shall be able to reduce the airflow to no greater than the larger of the following:~~

~~1. Two-thirds of the full fan speed; or~~

~~2. The volume of outdoor air required to meet the ventilation requirements of Section 403 of the *International Mechanical Code*.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403295 Section ((~~C403.2.13~~)) C403.2.14—Electric motor efficiency.

((~~C403.2.13~~)) C403.2.14 Electric motor efficiency. ((~~Design A and B squirrel-cage, T-frame induction permanently wired polyphase motors of 1 hp or more having synchronous speeds of 3,600, 1,800 and 1,200 rpm shall have a nominal full-load motor efficiency no less than the corresponding values for energy efficient motors provided in NEMA Standard MG-1.~~

~~EXCEPTIONS: 1. Motors used in systems designed to use more than one speed of a multi-speed motor.~~

~~2. Motors used as a component of the equipment meeting the minimum equipment efficiency requirements of Section C403.2.3 and Tables C403.2.3(1) through C403.2.3(9) provided that the motor input is included when determining the equipment efficiency.~~

~~3. Motors that are an integral part of specialized process equipment.~~

~~4. Where the motor is integral to a listed piece of equipment for which no complying motor has been approved.~~

~~Fan motors less than 1 hp in series terminal units shall be electronically commutated motors, or shall have a minimum motor efficiency of 65 percent when rated in accordance with NEMA Standard MG-1 at full-load rating conditions.~~)) Electric motors, including fractional hp motors, shall comply with the provisions of Section C405.8.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40330 Section C403.3—((~~Simple HVAC systems and equipment~~)) Economizers.

C403.3 ((~~**Simple HVAC systems and equipment (Prescriptive).** This section applies to unitary or packaged HVAC systems listed in Tables C403.2.3(1) through C403.2.3(8), each serving one *zone* and controlled by a single thermostat in the *zone* served. It also applies to two-pipe heating systems serving one or more *zones*, where no cooling system is installed.~~

~~To qualify as a simple system, systems shall have no active humidification or simultaneous heating and cooling and shall be one of the following:~~

~~1. Air-cooled, constant volume packaged equipment, which provide heating, cooling or both, and require only external connection to duct work and energy services with cooling capacity of 135,000 Btu/h or less.~~

~~2. Air cooled, constant volume split systems, which provide heating, cooling or both, with cooling capacity of 84,000 Btu/h or less.~~

~~3. Heating only systems which have a capacity of less than 1,000 cfm or which have a minimum outside air supply of less than 30 percent of the total air circulation.~~

~~The combined airflow rate of all simple systems serving single rooms must be less than 10,000 cfm or they do not qualify as simple systems.~~)) **Economizers.** Air economizers shall be provided on all new systems including those serving computer server rooms, electronic equipment, radio equipment, and telephone switchgear. Economizers shall comply with Sections C403.3.1.1 through C403.3.1.4.

EXCEPTIONS:

1. Systems complying with Section C403.2.6.1 Dedicated outdoor air systems (DOAS) 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 C403.2.3.4.
3. Unitary or packaged systems serving one zone where the cooling efficiency meets or exceeds the efficiency requirements in Table C403.3.1(2).
4. Water-cooled refrigeration equipment serving chilled beams and chilled ceiling space cooling systems only which are provided with a water economizer meeting the requirements of Section C403.3.4.
5. Systems complying with all of the following criteria:

5.1. Consist of multiple water source heat pumps connected to a common water loop;

5.2. Have a minimum of 60 percent air economizer;

5.3. Have water source heat pumps with an EER at least 15 percent higher for cooling and a COP at least 15 percent higher for heating than that specified in Section C403.2.3;

5.4. Where provided, have a central boiler or furnace efficiency of 90 percent minimum for units up to 199,000 Btu/h; and

5.5. Provide heat recovery with a minimum 50 percent heat recovery effectiveness as defined in Section C403.5 to preheat the outside air supply.

6. For Group R occupancies, cooling units installed outdoors 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, SEER, and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.2.3 (1) through (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. For split systems, compliance is based on the cooling capacity of individual fan coil units.

7. Variable refrigerant flow (VRF) systems, multiple-zone split-system heat pumps, consisting of multiple, individually metered indoor units with multi-speed fan motors, served on a single common refrigeration circuit with an exterior reverse-cycle heat pump with variable speed compressor(s) and variable speed condenser fan(s). These systems shall also be capable of providing simultaneous heating and cooling operation, where recovered energy from the indoor units operating in one mode can be transferred to one or more indoor units operating in the other mode, and shall serve at least 20 percent internal (no perimeter wall within 12') and 20 percent perimeter zones (as determined by conditioned floor area) and the outdoor unit shall be at least 65,000 Btu/h in total capacity. Systems utilizing this exception shall have 50 percent heat recovery effectiveness as defined by Section C403.2.6 on the outside air. For the purposes of this exception, dedicated server rooms, electronic equipment rooms or telecom switch rooms are not considered perimeter zones.

8. 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 C403.2.3 (1), (3) and (7).

9. Equipment used to cool any spaces with year-round cooling loads from lights and equipment of greater than 5 watts per square foot, where it can be demonstrated through calculations, to the satisfaction of the *code official*, that the heat rejection load of the equipment will be recovered and used for on-site space heating or service water heating demands such that the energy use of the building is decreased in comparison to a baseline of the same equipment provided with an air economizer complying with Section C403.3.

10. 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 capacity of all 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.

	Equipment Type	**Higher Equipment Efficiency**	**Part-Load Control**	**Economizer**
Option a	Tables C403.2.3(1) and C403.2.3(2)[a]	+15%[b]	Required over 85,000 Btu/h[c]	None Required
Option b	Tables C403.2.3(1) and C403.2.3(2)[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 10:

[a]For a system where all of the cooling equipment is subject to the AHRI standards listed in Tables C403.2.3(1) and C403.2.3(2), 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 C403.2.3(1) or C403.2.3(2), or if the system contains any cooling equipment that is not included in Table C403.2.3(1) or C403.2.3(2), 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 C403.2.3(1) and C403.2.3(2).

[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 C403.2.3(1) and C403.2.3(2).

[e] The system shall include a water economizer in lieu of air economizer. Water economizers shall meet the requirements of C403.4.1.2 through C403.4.1.4 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.

[g] The cooling equipment subject to the ASHRAE Standard 127 shall have an EER value and an IPLV value that is equal or greater than the value listed in Tables C403.2.3(1) and C403.2.3(2) 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.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40331 Section C403.3.1—((~~Economizers~~)) Integrated economizer control.

((~~**C403.3.1 Economizers.** Each cooling system that has a fan shall include an air economizer meeting the requirements of Sections C403.3.1.1 through C403.3.1.1.4.~~

EXCEPTION: ~~Economizers are not required for the systems listed below:~~

~~1. Qualifying small equipment: This exception shall not be used for unitary cooling equipment installed outdoors or in a mechanical room adjacent to the outdoors. This exception is allowed to be used for other cooling units and split systems with a total cooling capacity rated in accordance with Section C403.2.3 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 C403.2.3 (1) through (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 qualifying small equipment without economizers shall not exceed 72,000 Btu/h per building, or 5 percent of its air economizer capacity, whichever is greater. That portion of the equipment serving Group R occupancies is not included in determining the total capacity of all units without economizers in a building. Redundant units are not counted in the capacity limitations. This exception shall not be used for the shell-and-core permit or for the initial tenant improvement or for Total Building Performance.~~

~~2. Systems with dehumidification that affect other systems so as to increase the overall building energy consumption. New humidification equipment shall comply with Section C403.2.3.4.~~

~~3. For Group R occupancies, cooling units installed outdoors 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, SEER, and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.2.3 (1) through (10), 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.~~

~~4. Where the cooling *efficiency* meets or exceeds the *efficiency* requirements in Table C403.3.1(2).~~

~~5. Equipment used to cool any dedicated server room, electronic equipment room or telecom switch room provided the system complies with Exception 5 of Section C403.4.1. The total allowance for equipment utilizing Exception 5 of Section C403.4.1 includes the sum of both simple and complex systems.~~

~~**Table C403.3.1(2)**~~
~~**Equipment Efficiency Performance Exception for Economizers**~~

~~Climate Zones~~	~~Cooling Equipment Performance Improvement (EER OR IPLV)~~
~~2B~~	~~10% Efficiency Improvement~~
~~3B~~	~~15% Efficiency Improvement~~
~~4B~~	~~20% Efficiency Improvement~~

~~**C403.3.1.1 Air economizers.** Air economizers shall comply with Sections C403.3.1.1.1 through C403.3.1.1.4.~~

~~**C403.3.1.1.1 Design capacity.** Air economizer systems shall be capable of modulating *outdoor air* and return air dampers to provide up to 100 percent of the design supply air quantity as *outdoor air* for cooling.~~

~~**C403.3.1.1.2 Control signal.** Economizer dampers shall be capable of being sequenced with the mechanical cooling equipment and shall not be controlled by only mixed air temperature. Air economizers on systems with cooling capacity greater than 65,000 Btu/h shall be capable of providing partial cooling even when additional mechanical cooling is required to meet the remainder of the cooling load.~~

~~EXCEPTION: The use of mixed air temperature limit control shall be permitted for systems that are both controlled from space temperature (such as single *zone* systems) and having cooling capacity less than 65,000 Btu/h.~~

~~**C403.3.1.1.3 High-limit shutoff.** Air economizers shall be capable of automatically reducing *outdoor air* intake to the design minimum *outdoor air* quantity when *outdoor air* intake will no longer reduce cooling energy usage. High-limit shutoff control types for specific climates shall be chosen from Table C403.3.1.1.3(1). High-limit shutoff control settings for these control types shall be those specified in Table C403.3.1.1.3(2).~~

~~**C403.3.1.1.4 Relief of excess outdoor air.** Systems shall be capable of relieving excess *outdoor air* during air economizer operation to prevent over-pressurizing the building. The~~

~~relief air outlet shall be located to avoid recirculation into the building.~~)) **C403.3.1 Integrated economizer control.** Economizer systems shall be integrated with the mechanical cooling system and be configured to provide partial cooling even where additional mechanical cooling is required to provide the remainder of the cooling load. Controls shall not be capable of creating a false load in the mechanical cooling system by limiting or disabling the economizer or any other means, such as hot gas bypass, except at the lowest stage of mechanical cooling.

Units that include an air economizer shall comply with the following:

1. Unit controls shall have the mechanical cooling capacity control interlocked with the air economizer controls such that the outdoor air damper is at the 100 percent open position when mechanical cooling is on and the outdoor air damper does not begin to close to prevent coil freezing due to minimum compressor run time until the leaving air temperature is less than 45°F (7°C).

2. Direct expansion (DX) units with cooling capacity 65,000 Btu/h (19 kW) or greater of rated capacity shall comply with the following:

2.1. DX units that control the capacity of the mechanical cooling directly based on occupied space temperature shall have not fewer than two stages of mechanical cooling capacity.

2.2. Other DX units, including those that control space temperature by modulating the airflow to the space, shall be in accordance with Table C403.3.1.

Table C403.3.1
DX Cooling Stage Requirements for Modulating Airflow Units

RATING CAPACITY	MINIMUM NUMBER OF MECHANICAL COOLING STAGES	MINIMUM COMPRESSOR DISPLACEMENT[a]
≥ 65,000 Btu/h and < 240,000 Btu/h	3 stages	≤ 35% of full load
≥ 240,000 Btu/h	4 stages	≤ 25% full load

For SI: 1 British thermal unit per hour = 0.2931 W.

[a] For *mechanical cooling* stage control that does not use variable compressor displacement, the percent displacement shall be equivalent to the mechanical cooling capacity reduction evaluated at the full load rating conditions for the compressor.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-40332 Section C403.3.2—((~~Hydronic system controls~~)) Economizer heating system impact.

((~~**C403.3.2 Hydronic system controls.** Hydronic systems of at least 300,000 Btu/h (87,930 W) design output capacity supplying heated to comfort conditioning systems shall include controls that meet the requirements of Section C403.4.3.~~)) **C403.3.2 Economizer heating system impact.** HVAC system design and economizer controls shall be such that economizer operation does not increase building heating energy use during normal operation.

EXCEPTION: Economizers on VAV systems that cause *zone* level heating to increase due to a reduction in supply air temperature.

NEW SECTION

WAC 51-11C-40333 Section C403.3.3—Air economizers.

C403.3.3 Air economizers. Air economizers shall comply with Sections C403.3.3.1 through C403.3.3.5.

C403.3.3.1 Design capacity. Air economizer systems shall be configured to modulate *outdoor air* and return air dampers to provide up to 100 percent of the design supply air quantity as *outdoor air* for cooling.

C403.3.3.2 Control signal. Economizer controls and dampers shall be configured to sequence the dampers with the mechanical cooling equipment and shall not be controlled by only mixed air temperature. Air economizers on systems with cooling capacity greater than 65,000 Btu/h shall be configured to provide partial cooling even when additional mechanical cooling is required to meet the remainder of the cooling load.

EXCEPTION: The use of mixed air temperature limit control shall be permitted for systems that are both controlled from space temperature (such as single *zone* systems) and having cooling capacity less than 65,000 Btu/h.

C403.3.3.3 High-limit shutoff. Air economizers shall be configured to automatically reduce *outdoor air* intake to the design minimum *outdoor air* quantity when *outdoor air* intake will no longer reduce cooling energy usage. High-limit shutoff control types for specific climates shall be chosen from Table C403.3.3.3. High-limit shutoff control settings for these control types shall be those specified in Table C403.3.3.3.

Table C403.3.3.3
High-limit Shutoff Control Setting for Air Economizers[b]

Device Type	Climate Zone	Required High Limit (economizer off when):	
		Equation	Description
Fixed dry-bulb	4C, 5B	T_{OA} > 75°F	Outdoor air temperature exceeds 75°F

Device Type	Climate Zone	Required High Limit (economizer off when):	
		Equation	Description
Differential dry-bulb	4C, 5B	$T_{OA} > T_{RA}$	Outdoor air temperature exceeds return air temperature
Fixed enthalpy with fixed dry-bulb temperatures	All	$h_{OA} > 28$ Btu/lb[a] or $T_{OA} > 75°F$	Outdoor air enthalpy exceeds 28 Btu/lb of dry air[a] or outdoor air temperature exceeds 75°F
Differential enthalpy with fixed dry-bulb temperature	All	$h_{OA} > h_{RA}$ or $T_{OA} > 75°F$	Outdoor air enthalpy exceeds return air enthalpy or outdoor air temperature exceeds 75°F

For SI: °C = (°F - 32) × 5/9, 1 Btu/lb = 2.33 kJ/kg.

[a]At altitudes substantially different than sea level, the fixed enthalpy limit shall be set to the enthalpy value at 75°F and 50 percent relative humidity. As an example, at approximately 6,000 feet elevation the fixed enthalpy limit is approximately 30.7 Btu/lb.

[b]Devices with selectable setpoints shall be capable of being set to within 2°F and 2 Btu/lb of the setpoint listed.

C403.3.3.4 Relief of excess outdoor air. Systems shall be capable of relieving excess *outdoor air* during air economizer operation to prevent over-pressurizing the building. The relief air outlet shall be located to avoid recirculation into the building.

C403.3.3.5 Economizer dampers. Return, exhaust/relief and outdoor air dampers used in economizers shall comply with Section C403.2.4.3.

NEW SECTION

WAC 51-11C-40334 Section C403.3.4—Water-side economizers.

C403.3.4 Water-side economizers. Water-side economizers shall comply with Sections C403.3.4.1 and C403.3.4.2.

C403.3.4.1 Design capacity. Water economizer systems shall be capable of cooling supply air by indirect evaporation and providing up to 100 percent of the expected system cooling load at *outdoor air* temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) and below.

EXCEPTION: Systems where dehumidification requirements cannot be met using outdoor air temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) and where 100 percent of the expected system cooling load at 45°F dry-bulb (7.2°C dry-bulb)/40°F wet-bulb (4.5°C wet-bulb) is met with evaporative water economizers.

C403.3.4.2 Maximum pressure drop. Precooling coils and water-to-water heat exchangers used as part of a water economizer system shall either have a waterside pressure drop of less than 15 feet (4572 mm) of water or a secondary loop shall be created so that the coil or heat exchanger pressure drop is not seen by the circulating pumps when the system is in the normal cooling (noneconomizer) mode.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40340 Section C403.4—((~~Complex HVAC systems and equipment~~)) Hydronic and multiple-zone HVAC systems.

C403.4 ((~~**Complex HVAC systems and equipment (prescriptive).** This section applies to HVAC equipment and systems not covered in Section C403.3~~)) **Hydronic and multiple-zone HVAC system controls and equipment (prescriptive).** 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.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40341 ((~~Section C403.4.1—Economizers.~~)) Reserved.

((~~**C403.4.1 Economizers.** Air economizers shall be provided on all new systems including those serving computer server rooms, electronic equipment, radio equipment, and telephone switchgear. Economizers shall comply with Sections C403.4.1.1 through C403.4.1.4.~~

EXCEPTIONS:

~~1. Water-cooled refrigeration equipment serving chilled beams and chilled ceiling space cooling systems only which are provided with a water economizer meeting the requirements of Section C403.4.1.1 through C403.4.1.4. Water economizer capacity per building shall not exceed 500 tons. This exception shall not be used for Total Building Performance.~~

~~2. Systems complying with all of the following criteria:~~

~~2.1. Consist of multiple water source heat pumps connected to a common water loop;~~

~~2.2. Have a minimum of 60 percent air economizer;~~

~~2.3. Have water source heat pumps with an EER at least 15 percent higher for cooling and a COP at least 15 percent higher for heating than that specified in Section C403.2.3;~~

~~2.4. Where provided, have a central boiler or furnace efficiency of 90 percent minimum for units up to 199,000 Btu/h; and~~

2.5. Provide heat recovery with a minimum 50 percent heat recovery effectiveness as defined in Section C403.2.6 to preheat the outside air supply.

3. Chilled water terminal units connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than minimum part load efficiencies listed in Table C403.2.3(7), 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 its air economizer capacity, whichever is greater. That portion of the equipment serving Group R Occupancy is not included in determining the total capacity of all units without economizers in a building. This exception shall not be used for the initial permit (this includes any initial permit for the space including, but not limited to, the shell-and-core permit, built-to-suit permit, and tenant improvement permit) or for Total Building Performance Method.

4. For Group R occupancies, cooling units installed outdoors 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 SEER and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.2.3 (1) through (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. For split systems and VRF systems, compliance is based on the cooling capacity of individual fan coil units.

5. Equipment used to cool any dedicated server room, electronic equipment room or telecom switch room provided that they completely comply with Option a, b, or c in the table below. The total capacity of all 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.

	Equipment Type	**Higher Equipment Efficiency**	**Part-Load Control**	**Economizer**
Option a	Tables C403.2.3(1) and C403.2.3(2)[a]	+15%[b]	Required over 85,000 Btu/h[c]	None Required
Option b	Tables C403.2.3(1) and C403.2.3(2)[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 5:

[a] For a system where all of the cooling equipment is subject to the AHRI standards listed in Tables C403.2.3(1) and C403.2.3(2), 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 C403.2.3(1) or C403.2.3(2), or if the system contains any cooling equipment that is not included in Table C403.2.3(1) or C403.2.3(2), 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 C403.2.3(1) and C403.2.3(2) (1.15 x values in Tables C403.2.3(1) and C403.2.3(2)).

[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 C403.2.3(1) and C403.2.3(2) (1.05 x values in Tables C403.2.3(1) and C403.2.3(2)).

[e] The system shall include a water economizer in lieu of air economizer. Water economizers shall meet the requirements of C403.4.1.2 through C403.4.1.4 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.

[g] The cooling equipment subject to the ASHRAE Standard 127 shall have an EER value and an IPLV value that is equal or greater than the value listed in Tables C403.2.3(1) and C403.2.3(2) 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.

6. Variable refrigerant flow (VRF) systems, multiple-zone split-system heat pumps, consisting of multiple, individually metered indoor units with multi-speed fan motors, served on a single common refrigeration circuit with an exterior reverse-cycle heat pump with variable speed compressor(s) and variable speed condenser fan(s). These systems shall also be capable of providing simultaneous heating and cooling operation, where recovered energy from the indoor units operating in one mode can be transferred to one or more indoor units operating in the other mode, and shall serve at least 20 percent internal (no perimeter wall within 12') and 20 percent perimeter zones (as determined by conditioned floor area) and the outdoor unit shall be at least 65,000 Btu/h in total capacity. Systems utilizing this exception shall have 50 percent heat recovery effectiveness as defined by Section C403.2.6 on the outside air. For the purposes of this exception, dedicated server rooms, electronic equipment rooms or telecom switch rooms are not considered perimeter zones. This exception shall be limited to buildings of 60,000 square feet and less.

C403.4.1.1 Design capacity. Water economizer systems shall be capable of cooling supply air by indirect evaporation and providing up to 100 percent of the expected system cooling load at *outdoor air* temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) and below.

~~EXCEPTION: Systems in which a water economizer is used and where dehumidification requirements cannot be met using outdoor air temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) shall satisfy 100 percent of the expected system cooling load at 45°F dry-bulb (7.2°C dry-bulb)/40°F wet-bulb (4.5°C wet-bulb).~~

~~**C403.4.1.2 Maximum pressure drop.** Precooling coils and water-to-water heat exchangers used as part of a water economizer system shall either have a waterside pressure drop of less than 15 feet (4572 mm) of water or a secondary loop shall be created so that the coil or heat exchanger pressure drop is not seen by the circulating pumps when the system is in the normal cooling (noneconomizer) mode.~~

~~**C403.4.1.3 Integrated economizer control.** Economizer systems shall be integrated with the mechanical cooling system and be capable of providing partial cooling even where additional mechanical cooling is required to meet the remainder of the cooling load.~~

~~EXCEPTIONS: 1. Direct expansion systems that include controls that reduce the quantity of *outdoor air* required to prevent coil frosting at the lowest step of compressor unloading, provided this lowest step is no greater than 25 percent of the total system capacity.~~

~~2. Individual direct expansion units that have a rated cooling capacity less than 54,000 Btu/h (15,827 W) and use nonintegrated economizer controls that preclude simultaneous operation of the economizer and mechanical cooling.~~

~~**C403.4.1.4 Economizer heating system impact.** HVAC system design and economizer controls shall be such that economizer operation does not increase the building heating energy use during normal operation.~~

~~EXCEPTION: Economizers on VAV systems that cause *zone* level heating to increase due to a reduction in supply air temperature.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40342 Section ((~~C403.4.2 VAV~~)) C403.4.1—Fan control.

((~~**C403.4.2 Variable air volume (VAV) fan control.** Individual VAV fans with motors of 7.5 horsepower (5.6 kW) or greater shall be:~~

~~1. Driven by a mechanical or electrical variable speed drive;~~

~~2. Driven by a vane-axial fan with variable-pitch blades; or~~

~~3. The fan shall have controls or devices that will result in fan motor demand of no more than 30 percent of their design wattage at 50 percent of design airflow when static pressure set point equals one-third of the total design static pressure, based on manufacturer's certified fan data.~~

~~**C403.4.2.1**~~)) **C403.4.1 Multi-zone system fan control.** Controls shall be provided for fans in accordance with Section C403.4.1.1 through C403.4.1.2.

C403.4.1.1 Static pressure sensor location. Static pressure sensors used to control VAV fans shall be ((~~placed in a position~~)) located such that the controller setpoint is no greater than ((~~one-third the total design fan static pressure, except for systems with *zone* reset control complying with Section C403.4.2.2. For sensors installed~~)) 1.2 inches w.c. (2099 Pa). Where this results in one or more sensors being located downstream of major duct splits, ((~~at least~~)) not less than one sensor shall be located on each major branch to ensure that static pressure can be maintained in each branch.

((~~**C403.4.2.2**~~))

EXCEPTION: Systems complying with Section C403.4.1.2.

C403.4.1.2 Set points for direct digital control. For systems with direct digital control of individual *zones* ((~~boxes~~)) reporting to the central control panel, the static pressure setpoint shall be reset based on the *zone* requiring the most pressure((~~, i.e., the setpoint is reset lower until one *zone* damper is nearly wide open~~)). 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.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-40343 Section ((~~C403.4.3~~)) C403.4.2—Hydronic systems controls.

((~~C403.4.3~~)) C403.4.2 Hydronic systems controls. The heating of fluids that have been previously mechanically cooled and the cooling of fluids that have been previously mechanically heated shall be limited in accordance with Sections ((~~C403.4.3.1 through C403.4.3.3~~)) C403.4.2.1 through C403.4.2.3. Hydronic heating systems comprised of multiple-packaged boilers and designed to deliver conditioned water or steam into a common distribution system shall include automatic controls ((~~capable of sequencing~~)) configured to sequence operation of the boilers. Hydronic heating systems comprised of a single boiler and greater than 500,000 Btu/h (146,550 W) input design capacity shall include either a multi-staged or modulating burner.

((~~C403.4.3.1~~)) C403.4.2.1 Three-pipe system. Hydronic systems that use a common return system for both hot water and chilled water are prohibited.

((~~C403.4.3.2~~)) C403.4.2.2 Two-pipe changeover system. Systems that use a common distribution system to supply both heated and chilled water shall be designed to allow a dead band between changeover from one mode to the other of at least 15°F (8.3°C) outside air temperatures; be designed to and provided with controls that will allow operation in one mode for at least 4 hours before changing over to the other mode; and be provided with controls that allow heating and

cooling supply temperatures at the changeover point to be no more than 30°F (16.7°C) apart.

((~~C403.4.3.3~~)) C403.4.2.3 Hydronic (water loop) heat pump systems. Hydronic heat pump systems shall comply with Sections ((~~C403.4.3.3.1 through C403.4.3.3.3~~)) C403.4.2.3.1 through C403.4.2.3.3.

((~~C403.4.3.3.1~~)) C403.4.2.3.1 Temperature dead band. Hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection and heat addition shall have controls that are ((~~capable of providing~~)) configured to provide a heat pump water supply temperature dead band of at least 20°F (11.1°C) between initiation of heat rejection and heat addition by the central devices.

EXCEPTION: Where a system loop temperature optimization controller is installed and can determine the most efficient operating temperature based on real time conditions of demand and capacity, dead bands of less than 20°F (11°C) shall be permitted.

((~~C403.4.3.3.2~~)) C403.4.2.3.2 Heat rejection. Heat rejection equipment shall comply with Sections ((~~C403.4.3.3.2.1 and C403.4.3.3.2.2~~)) C403.4.2.3.2.1 and C403.4.2.3.2.2.

EXCEPTION: Where it can be demonstrated that a heat pump system will be required to reject heat throughout the year.

((~~C403.4.3.3.2.1~~)) C403.4.2.3.2.1 Climate Zones 3 and 4. For Climate Zones 3 and 4:

1. If a closed-circuit cooling tower is used directly in the heat pump loop, either an automatic valve shall be installed to bypass all but a minimal flow of water around the tower, or lower leakage positive closure dampers shall be provided.

2. If an open-circuit tower is used directly in the heat pump loop, an automatic valve shall be installed to bypass all heat pump water flow around the tower.

3. If an open- or closed-circuit cooling tower is used in conjunction with a separate heat exchanger to isolate the cooling tower from the heat pump loop, then heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop.

((~~C403.4.3.3.2.2~~)) C403.4.2.3.2.2 Climate Zones 5 through 8. For Climate Zones 5 through 8, if an open- or closed-circuit cooling tower is used, then a separate heat exchanger shall be provided to isolate the cooling tower from the heat pump loop, and heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop and providing an automatic valve to stop the flow of fluid.

((~~C403.4.3.3.3~~)) C403.4.2.3.3 Isolation valve. Each hydronic heat pump on the hydronic system having a total pump system power exceeding 10 horsepower (hp) (7.5 kW) shall have a two-way (but not three-way) valve. For the purposes of this section, pump system power is the sum of the nominal power demand (i.e., nameplate horsepower at nominal motor efficiency) of motors of all pumps that are required to operate at design conditions to supply fluid from the heating or cooling source to all heat transfer devices (e.g., coils, heat exchanger) and return it to the source. This converts the system into a variable flow system and, as such, the primary circulation pumps shall comply with the variable flow requirements in Section ((~~C403.4.3.6~~)) C403.4.2.6.

((~~C403.4.3.4~~)) C403.4.2.4 Part load controls. Hydronic systems greater than or equal to 300,000 Btu/h (((~~87,930 W~~))) (88 kW) in design output capacity supplying heated or chilled water to comfort conditioning systems shall include controls that ((~~have the capability~~)) are configured to:

1. Automatically reset the supply-water temperatures ((~~using zone return water temperature, building return water temperature, or outside air temperature as an indicator of building heating or cooling demand~~)) 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 ((~~capable of being~~)) reset by ((~~at least~~)) not less than 25 percent of the design supply-to-return water temperature difference((~~; and~~

~~2. Reduce system pump flow by at least 50 percent of design flow rate utilizing adjustable speed drive(s) on pump(s), or multiple-staged pumps where at least one-half of the total pump horsepower is capable of being automatically turned off or control valves designed to modulate or step down, and close, as a function of load, or other *approved* means.~~

~~Hydronic systems serving hydronic heat pumps are exempt from item 1, and only those hydronic systems with a total pump system power greater than 3 hp (2.2 kw) shall have controls meeting the requirements of item 2, above.~~

~~**C403.4.3.5**~~)).

EXCEPTION: Hydronic systems serving hydronic heat pumps.

2. Automatically vary fluid flow for hydronic systems with a combined motor capacity of 3 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 by designed 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 or chilled-water systems and heat rejection loops serving water-cooled unitary air conditioners with a combined motor capacity of 3 hp or larger by reducing pump design flow by not less than 50 percent utilizing adjustable speed drives or pumps, or multiple-staged pumps where not less than one-half of the total pump horsepower is capable of being automatically turned off. 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 for chilled-water systems supplied by off-site district chilled water or chilled water from ice storage systems.
2. Minimum flow rates other than 50 percent as required by the equipment manufacturer for proper operation of equipment where using flow bypass or end-of-line 3-way valves.
3. Variable pump flow 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.

C403.4.2.5 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 C403.4.2.5.

The system turndown requirement shall be met through the use of multiple single input boilers, one or more *modulat-*

ing boilers or a combination of single input and modulating boilers.

Table C403.4.2.5
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

C403.4.2.6 Pump isolation. Chilled water plants including more than one chiller shall ((~~have the capability~~)) be capable of and configured to reduce flow automatically through the chiller plant when a chiller is shut down and automatically shut off flow to chillers that are shut down. Chillers piped in series for the purpose of increased temperature differential shall be considered as one chiller.

EXCEPTION: Chillers that are piped in series for the purpose of increased temperature differential.

Boiler plants including more than one boiler shall ((~~have the capability~~)) be capable of and configured to reduce flow automatically through the boiler plant when a boiler is shut down ((~~and automatically shut off flow to boilers that are shut down~~)).

((~~C403.4.3.6~~)) C403.4.2.7 Variable flow controls. Individual pumps ((~~requiring variable speed control per Section C403.4.9~~)) required by this code to have variable speed control shall be controlled in one of the following manners:

1. For systems having a combined pump motor horsepower less than or equal to 20 hp (15 kW) and without direct digital control of individual coils, pump speed shall be a function of either:

1.1. Required differential pressure; or

1.2. Reset directly based on zone hydronic demand, or other zone load indicators; or

1.3. Reset directly based on pump power and pump differential pressure.

2. For systems having a combined pump motor horsepower that exceeds 20 hp (15 kW) or smaller systems with direct digital control, pump speed shall be a function of either:

2.1. The static pressure set point as reset based on the valve requiring the most pressure; or

2.2. Directly controlled based on zone hydronic demand.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403431 ((~~Table C403.4.3.1.1.3 High-limit shutoff controls.~~)) Reserved.

((~~**Table C403.3.1.1.3(1)**~~
~~**High-limit Shutoff Control Options for Air Economizers**~~

~~Climate Zones~~	~~Allowed Control Types~~	~~Prohibited Control Types~~
~~1B, 2B, 3B, 3C, 4B, 4C, 5B, 5C, 6B, 7, 8~~	~~Fixed dry-bulb~~ ~~Differential dry-bulb~~ ~~Electronic enthalpy[a]~~ ~~Differential enthalpy~~ ~~Dew-point and dry-bulb temperatures~~	~~Fixed enthalpy~~
~~1A, 2A, 3A, 4A~~	~~Fixed dry-bulb~~ ~~Fixed enthalpy~~ ~~Electronic enthalpy[a]~~ ~~Differential enthalpy~~ ~~Dew-point and dry-bulb temperatures~~	~~Differential dry-bulb~~
~~All other climates~~	~~Fixed dry-bulb~~ ~~Differential dry-bulb~~ ~~Fixed enthalpy~~ ~~Electronic enthalpy[a]~~ ~~Differential enthalpy~~ ~~Dew-point and dry-bulb temperatures~~	~~—~~

~~[a] Electronic enthalpy controllers are devices that use a combination of humidity and dry-bulb temperature in their switching algorithm.~~

Table C403.3.1.1.3(2)
High-limit Shutoff Control Setting for Air Economizers

Device Type	Climate Zone	Required High Limit (Economizer off When): Equation	Description
Fixed dry-bulb	1B, 2B, 3B, 3C, 4B, 4C, 5B, 5C, 6B, 7, 8	$T_{OA} > 75°F$	Outdoor air temperature exceeds 75°F
-	5A, 6A, 7A	$T_{OA} > 70°F$	Outdoor air temperature exceeds 70°F
-	All other zones	$T_{OA} > 65°F$	Outdoor air temperature exceeds 65°F
Differential dry-bulb	1B, 2B, 3B, 3C, 4B, 4C, 5A, 5B, 5C, 6A, 6B, 7, 8	$T_{OA} > T_{RA}$	Outdoor air temperature exceeds return air temperature
Fixed enthalpy	All	$h_{OA} > 28$ Btu/lb[a]	Outdoor air enthalpy exceeds 28 Btu/lb of dry air[a]
Electronic enthalpy	All	$(T_{OA}, RH_{OA}) > A$	Outdoor air temperature/RH exceeds the "A" setpoint curve[b]
Differential enthalpy	All	$h_{OA} > H_{ra}$	Outdoor air enthalpy exceeds return air enthalpy
Dew-point and dry-bulb temperatures	All	$DP_{OA} > 55°F$ or $T_{OA} > 75°F$	Outdoor air dry-bulb exceeds 75°F or outside dew-point exceeds 55°F (65 gr/lb)

For SI: °C = (°F - 32) × 5/9, 1 Btu/lb = 2.33 kJ/kg.

[a] At altitudes substantially different than sea level, the fixed enthalpy limit shall be set to the enthalpy value at 75°F and 50 percent relative humidity. As an example, at approximately 6,000 feet elevation the fixed enthalpy limit is approximately 30.7 Btu/lb.

[b] Setpoint "A" corresponds to a curve on the psychometric chart that goes through a point at approximately 75°F and 40 percent relative humidity and is nearly parallel to dry-bulb lines at low humidity levels and nearly parallel to enthalpy lines at high humidity levels.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40344 Section ((C403.4.4)) C403.4.3—Heat rejection equipment ((fan speed control)).

((C403.4.4)) C403.4.3 Heat rejection equipment ((**fan speed control.** Each fan powered by a motor of 7.5 hp (5.6 kW) or larger shall have controls that automatically change the fan speed to control the leaving fluid temperature or condensing temperature/pressure of the heat rejection device)). Heat rejection equipment such as air-cooled condensers, dry coolers, open-circuit cooling towers, closed-circuit cooling towers and evaporative condensers used for comfort cooling applications shall comply with this section.

EXCEPTION: Heat rejection devices where energy usage is included in the equipment efficiency ratings listed in Tables C403.2.3(1)A, C403.2.3(1)B, C403.2.3(1)C, C403.2.3(2), C403.2.3(3), C403.2.3(7) and C403.2.3(9).

C403.4.3.1 Fan speed control. The fan speed shall be controlled as provided in Sections C403.4.3.2.1 and C403.4.3.2.2.

C403.4.3.1.1 Fan motors not less than 7.5 hp. Each fan powered by a motor of 7.5 hp (5.6 kW) or larger shall have controls that automatically change the fan speed to control the leaving fluid temperature or condensing temperature/pressure of the heat rejection device.

C403.4.3.1.2 Multiple-cell heat rejection equipment. Multiple-cell heat rejection equipment with variable speed fan drives shall be controlled in both of the following manners:

1. To operate the maximum number of fans allowed that comply with the manufacturer's requirements for all system components.

2. So all fans can operate at the same fan speed required for the instantaneous cooling duty, as opposed to staged (on/off) operation. Minimum fan speed shall be the minimum allowable speed of the fan drive system in accordance with the manufacturer's recommendations.

C403.4.3.2 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 C403.2.3(8).

EXCEPTION: Centrifugal open-circuit cooling towers that are designed with inlet or discharge ducts or require external sound attenuation.

C403.4.3.3 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40345 Section ((C403.4.5)) C403.4.4—Requirements for ((complex)) mechanical systems serving multiple zones.

((C403.4.5)) C403.4.4 Requirements for ((complex)) mechanical systems serving multiple zones. Sections ((C403.4.5.1 through C403.4.5.4)) C403.4.4.1 through C403.4.4.4 shall apply to complex mechanical systems serving multiple zones. Supply air systems serving multiple zones shall be VAV systems which, during periods of occupancy, are designed and ((capable of being controlled)) con-

figured to reduce primary air supply to each *zone* to one of the following before reheating, recooling or mixing takes place:

1. Thirty percent of the maximum supply air to each *zone*.

2. Three hundred cfm (142 L/s) or less where the maximum flow rate is less than 10 percent of the total fan system supply airflow rate.

3. The minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.

4. ((~~Minimum flow rates required by applicable codes or standards for occupant health and safety.~~)) 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 define where individual *zones* or where entire air distribution systems are exempted from the requirement for VAV control:

((~~1. Reserved.~~))

((~~2.~~)) 1. *Zones* or supply air systems where at least 75 percent of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered or site-solar energy source.

((~~3.~~)) 2. *Zones* where special humidity levels are required to satisfy process needs.

((~~4.~~)) 3. *Zones* with a peak supply air quantity of 300 cfm (142 L/s) or less and where the flow rate is less than 10 percent of the total fan system supply airflow rate.

((~~5. *Zones* where the volume of air to be reheated, recooled or mixed is no greater than the volume of outside air required to meet the minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.~~))

4. Zones without DDC for which the volume of air that is reheated, recooled or remixed is less than the larger of the following:

4.1. 30 percent of the zone design peak supply rate.

4.2. The outdoor airflow rate required to meet the ventilation requirements of Chapter 4 of the *International Mechanical Code* for the zone.

4.3. Any higher rate that can be demonstrated, to the satisfaction of the code official, to reduce overall system annual energy usage by offsetting reheat/recool energy losses through a reduction in outdoor air intake for the system.

4.4. The airflow rate required to comply with applicable codes or accreditation standards, such as pressure relationships or minimum air change rates.

5. Zones with DDC that comply with all of the following:

5.1. The airflow rate in dead band between heating and cooling does not exceed the larger of the following:

5.1.1. 20 percent of the zone design peak supply rate.

5.1.2. The outdoor airflow rate required to meet the ventilation requirements of Chapter 4 of the *International Mechanical Code* for the zone.

5.1.3. Any higher rate that can be demonstrated, to the satisfaction of the code official, to reduce overall system annual energy usage by offsetting reheat/recool energy losses through a reduction in outdoor air intake for the system.

5.1.4. The airflow rate required to comply with applicable codes or accreditation standards, such as pressure relationships or minimum air change rates.

5.2. The airflow rate that is reheated, recooled, or mixed shall be less than 50 percent of the zone design peak supply rate.

5.3. The first stage of heating consists of modulating the zone supply air temperature setpoint up to a maximum setpoint while the airflow is maintained at the dead band flow rate.

5.4. The second stage of heating consists of modulating the airflow rate from the dead band flow rate up to the heating maximum flow rate.

6. *Zones* or supply air systems with thermostatic and humidistatic controls capable of operating in sequence the supply of heating and cooling energy to the *zones* and which are ((~~capable of preventing~~)) configured to 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.

((~~C403.4.5.1~~)) C403.4.4.1 Single duct variable air volume (VAV) systems, terminal devices. Single duct VAV systems shall use terminal devices capable of ((~~reducing~~)) and configured to reduce the supply of primary supply air before reheating or recooling takes place.

((~~C403.4.5.2~~)) C403.4.4.2 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 ((~~reducing~~)) and configured to reduce the flow from one duct to a minimum before mixing of air from the other duct takes place.

((**~~C403.4.5.3 Reserved.~~**

~~C403.4.5.4~~)) **C403.4.4.3 Multiple-zone VAV system ventilation optimization control.** Multiple-zone VAV systems with direct digital control of individual zone boxed 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 having exhaust air energy recovery complying with Section C403.5.

3. Systems where total design exhaust airflow is more than 70 percent of total design outdoor air intake flow requirements.

C403.4.4.4 Supply-air temperature reset controls. Multiple *zone* HVAC systems shall include controls that automatically reset the supply-air temperature in response to representative building loads, or to outdoor air temperature. The controls shall be capable of resetting the supply air temperature at least 25 percent of the difference between the design supply-air temperature and the design room 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 site-recovered or site solar energy sources.

3. Zones with peak supply air quantities of 300 cfm (142 L/s) or less.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40346 ((~~Section C403.4.6—Heat recovery for service water heating.~~)) Reserved.

((~~**C403.4.6 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 solar or site recovered energy or from other sources.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40350 Section C403.5—((~~Walk-in coolers and freezers~~)) Energy recovery.

((~~**C403.5 Walk-in coolers and walk-in freezers.** Walk-in coolers and walk-in freezers shall comply with all of the following:~~

~~1. Anti-sweat heaters without anti-sweat heater controls shall have a total door rail, glass, and frame heater power draw of less than or equal to 7.1 watts per square foot of door opening for *walk-in freezers*, and 3.0 watts per square foot of door opening for *walk-in coolers*.~~

~~2. Anti-sweat heater controls shall reduce the energy use of the anti-sweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.~~

~~3. Evaporator fan motors that are less than 1 horsepower and less than 460 volts shall use electronically commutated motors (brushless direct current motors) or 3-phase motors.~~

~~4. Condenser fan motors that are less than 1 horsepower shall use electronically commutated motors, permanent split capacitor-type motors or 3-phase motors.~~)) **C403.5 Energy recovery.**

C403.5.1 Energy recovery ventilation systems. Any system 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 C403.5.1(1) and C403.5.1(2), based on the climate zone and percentage of outdoor airflow rate at design conditions, shall include an energy recovery system. Table C403.5.1(1) shall be used for all ventilation systems that operate less than 8,000 hours per year, and Table C403.5.1(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, at design conditions. Where an air economizer is required, the energy recovery system shall include a bypass or controls which permit operation of the economizer as required by Section C403.3. 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 C403.2.7.1.

1.2. Laboratory fume hood systems where they comply with Exception 2 of Section C403.5.1.

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 C403.2.7.2:

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 or site solar energy.

5. Systems exhausting toxic, flammable, paint or corrosive fumes or dust.

6. Cooling energy recovery in Climate Zones 3C, 4C, 5B, 5C, 6B, 7 and 8.

7. Systems requiring dehumidification that employ energy recovery in series with the cooling coil.

8. Multiple-zone systems where the supply airflow rate exceeds the values specified in Tables C403.5.1 (1) and (2) minimum outdoor air is less than 70 percent of total supply air.

9. Systems serving Group R 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 C403.5.1(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 C403.5.1(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	≥ 0
5B	≥ 2500	≥ 2000	≥ 1000	≥ 500	≥ 0	≥ 0	≥ 0	≥ 0

NR = Not required.

C403.5.2 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 condensate water heat recovery.

C403.5.3 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.

C403.5.4 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 solar or site recovered energy or from other sources.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40360 ((~~Section C403.6—Refrigerated warehouse coolers and freezers.~~)) Reserved.

((~~**C403.6 Refrigerated warehouse coolers and refrigerated warehouse freezers.** Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with all of the following:~~

~~1. Evaporator fan motors that are less than 1 horsepower and less than 460 volts shall use electronically commutated motors (brushless direct current motors) or 3-phase motors.~~

~~2. Condenser fan motors that are less than 1 horsepower shall use electronically commutated motors, permanent split capacitor-type motors or 3-phase motors.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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 sup-

ported by data furnished by the manufacturer. Water-heating equipment also 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. Gas-fired water-heating equipment installed in new buildings shall be in compliance with this section. Where a singular piece of water-heating equipment serves the entire building and the input rating of the equipment is 1,000,000 Btu/h (293 kW) or greater, such equipment shall have a thermal efficiency, E_t, of not less than 90 percent. Where multiple pieces of water-heating equipment serve the building and the combined input rating of the water-heating equipment is 1,000,000 Btu/h (293 kW) or greater, the combined input-capacity-weighted-average thermal efficiency, E_t, shall not be less than 90 percent.

EXCEPTIONS:
1. Where 25 percent of the annual service water-heating requirement is provided by site-solar or site-recovered energy, the minimum thermal efficiency requirements of this section shall not apply.
2. The input rating of water heaters installed in individual dwelling units shall not be required to be included in the total input rating of service water-heating equipment for a building.
3. The input rating of water heaters with an input rating of not greater than 100,000 Btu/h (29.3 kW) shall not be required to be included in the total input rating of service water-heating equipment for a building.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

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]	Resistance ≥ 20 gal and ≥ 55 gal	((0.97 - 0.00 132V, EF)) 0.96 - 0.000V, EF	DOE 10 C.F.R. Part 430
	≤ 12 kW[d]	Heat pump ≥ 55 gal and ≥ 120 gal	2.057 - 0.00113V, EF	DOE 10 C.F.R. Part 430
	> 12 kW	Resistance	((1.73V +155 SL, Btu/h)) (0.3 + 27/V_m,%/h	ANSI Z21.10.3
	((≤ 24 amps and ≤ 250 volts	Heat pump	0.93 - 0.00 132V, 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	((0.67 - 0.0019V, EF)) 0.675 - 0.0012V, EF	DOE 10 C.F.R. Part 430
	≤ 75,000 Btu/h	≥ 55 gal and ≥ 100 gal	0.8012 - 0.00078V, EF	
	> 75,000 Btu/h and ≤ 155,000 Btu/h	< 4,000 Btu/h/gal	80% E_t (Q/((800)) 799 + ((110)) 16.6$\sqrt{V}$) SL, Btu/h	ANSI Z21.10.3
	> 155,000 Btu/h	< 4,000 Btu/h/gal	80% E_t (Q/((800)) 799 + ((110)) 16.6$\sqrt{V}$) SL, Btu/h	
Instantaneous water heaters, gas	> 50,000 Btu/h and < 200,000 Btu/h	≥ 4,000 (Btu/h)/gal and < 2 gal	((0.62 - 0.00 19V, EF)) 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	ANSI Z21.10.3
	≥ 200,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	80% E_t (Q/((800)) 799 + ((110)) 16.6$\sqrt{V}$) SL, Btu/h	
Storage water heaters, oil	≤ 105,000 Btu/h	((≥ 20 gal)) ≤ 50 gal	((0.59 - 0.0019V, EF)) 0.68 - 0.0016V, EF	DOE 10 C.F.R. Part 430
	> 105,000 Btu/h	< 4,000 Btu/h/gal	78% E_t (Q/((800)) 799 + ((110)) 16.6$\sqrt{V}$) SL, Btu/h	ANSI Z21.10.3
Instantaneous water heaters, oil	≤ 210,000 Btu/h	≥ 4,000 Btu/h/gal and < 2 gal	0.59 - ((0.0019)) 0.0005V, EF	DOE 10 C.F.R. Part 430
	> 210,000 Btu/h	≥ 4,000 Btu/h/gal and < 10 gal	80% E_t	ANSI Z21.10.3
	> 210,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	78% E_t (Q/((800)) 799 + ((110)) 16.6$\sqrt{V}$) SL, Btu/h	

Equipment Type	Size Category (input)	Subcategory or Rating Condition	Performance Required[a, b]	Test Procedure
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	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~~)) 799 + ((~~110~~)) 16.6$\sqrt{V}$) 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~~)) 799 + ((~~110~~)) 16.6$\sqrt{V}$) SL, Btu/h	
Pool heaters, gas and oil	All	—	78% E_t	ASHRAE 146
Heat pump pool heaters	All	—	4.0 COP	AHRI 1160
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 ((~~must~~)) 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).

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40403 Section C404.3—((~~Temperature controls~~)) Efficient heated water supply piping.

((~~**C404.3 Temperature controls.** Service water-heating equipment shall be provided with controls to allow a setpoint of 110°F (43°C) for equipment serving dwelling units and 90°F (32°C) for equipment serving other occupancies. The outlet temperature of lavatories in public facility rest rooms shall be limited to 110°F (43°C).~~)) **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 C404.6.1.

Table C404.6.1
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	43
5/8	2	1	32
3/4	3	0.5	21
7/8	4	0.5	16

Nominal Pipe Size (inches)	Volume (liquid ounces per foot length)	Maximum Piping Length (feet)	
		Public lavatory faucets	Other fixtures and appliances
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. 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40406 Section C404.6—Pipe insulation.

((~~**C404.6 Pipe insulation.** For automatic-circulating hot water and heat-traced systems, piping shall be insulated with not less than 1 inch (25 mm) of insulation having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K). The first 8 feet (2438 mm) of piping in nonhot-water-supply temperature maintenance systems served by equipment without integral heat traps shall be insulated with 0.5 inch (12.7 mm) of material having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K).~~

EXCEPTIONS: ~~1. Heat-traced piping systems shall meet the insulation thickness requirements per the manufacturer's installation instructions. Untraced piping within a heat traced system shall be insulated with not less than 1 inch (25 mm) of insulation having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K).~~

~~2. Hot water piping that is part of the final pipe run to the plumbing fixture and is not part of the automatic-circulating hot water recirculation path is not required to meet the minimum insulation requirements of C404.6.~~))

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 C403.2.9. 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 C403.2.9 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 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40407 Section C404.7—((~~Hot water system controls~~)) Heated-water circulating and temperature maintenance systems.

((~~**C404.7 Hot water system controls.** Circulating hot water system pumps or heat trace shall be arranged to be turned off either automatically or manually when there is limited hot water demand. Ready access shall be provided to the operating controls.~~)) **C404.7 Heated-water circulating and temperature maintenance systems.** Heated-water circulation systems shall be in accordance with Section C404.7.1. Heat trace temperature maintenance systems 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 *accessible*. Manual controls shall be *readily accessible*.

C404.7.1 Circulation systems. Heated-water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermo-syphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40408 Section C404.8—((~~Shut-off controls~~)) Demand recirculation controls.

((~~**C404.8 Shut-off controls.** Systems designed to maintain usage temperatures in hot water pipes, such as circulating hot water systems or heat traced pipes, shall be equipped with automatic time switches or other controls to turn off the system during periods of nonuse.~~)) **C404.8 Demand recirculation controls.** 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 shall be a *demand recirculation water system*. Pumps shall have controls that comply with both of the following:

1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance.

2. The control shall limit the temperature of the water entering the cold-water piping to 104°F (40°C).

NEW SECTION

WAC 51-11C-404091 Section C404.10—Drain water heat recovery units.

C404.10 Drain water heat recovery units. Drain water heat recovery units shall comply with CSA B55.2. Potable water-side pressure loss shall be less than 10 psi (69 kPa) at maximum design flow. For Group R occupancies, the efficiency of drain water heat recovery unit efficiency shall be in accordance with CSA B55.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40410 Section ((~~C404.10~~)) C404.11—Pools and ((~~in-ground~~)) spas.

((~~C404.10 Pools and in-ground permanently installed spas~~)) C404.11 Energy consumption of pools and permanent spas (mandatory). ((~~Pools and in-ground permanently installed spas shall comply with Sections C404.10.1 through C404.10.4~~)) The energy consumption of pools and permanent spas shall be controlled by the requirements in Sections C404.11.1 through C404.11.4.

((~~C404.10.1~~)) C404.11.1 Heaters. Heat pump pool heaters shall have a minimum COP of 4.0 determined in accordance with ASHRAE Standard 146. Other pool heating equipment shall comply with the applicable efficiencies in Section ((~~C404.2.3~~)) C404.2.

((~~All heaters shall be equipped with a readily *accessible* on-off switch that is mounted outside of the heater to allow shutting off the heater without adjusting the thermostat setting.~~)) The electric power to all heaters shall be controlled by a *readily accessible* 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. 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.

((~~C404.10.2~~)) C404.11.2 Time switches. Time switches or other control method that can automatically turn off and on heaters and pump((~~s~~)) motors according to a preset schedule shall be installed ((~~on all~~)) for heaters and pump((~~s~~)) motors. Heaters((~~, pumps~~)) and pump motors that have built-in ((~~timers~~)) time switches shall be ((~~deemed~~)) in compliance with this ((~~requirement~~)) section.

EXCEPTIONS: 1. Where public health standards require 24-hour pump operation.

2. ((~~Where pumps are required to~~)) Pumps that operate solar- and waste-heat-recovery pool heating systems.

((~~C404.10.3~~)) C404.11.3 Covers. Heated pools and ((~~in-ground permanently installed~~)) 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.

((~~C404.10.4~~)) 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 ((~~capable of decreasing~~)) configured to decrease the exhaust air temperature at design heating conditions (80°F indoor) by 36°F (10°C) ((~~in Climate Zones 4C and 5B and 48°F (26.7°C) in Climate Zone 6B~~)).

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. Renewable energy;
2. Dehumidification heat recovery;
3. Waste heat recovery; or
4. A combination of these system sources capable of ((~~providing~~)) and configured to provided at least 70 percent of the heating energy required over an operating season.

C404.12 Energy consumption of portable spas (mandatory). The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP 14.

NEW SECTION

WAC 51-11C-40413 Section C404.13—Service water-heating system commissioning and completion requirements.

C404.13 Service water-heating system commissioning and completion requirements. Service water-heating systems, swimming pool water-heating systems, spa water-heating systems and the controls for those systems shall be commissioned and completed in accordance with Section C408.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40501 Section C405.1—General.

C405.1 General (mandatory). This section covers lighting system controls, ((~~the connection of ballasts,~~)) the maximum lighting power for interior applications, electrical energy consumption, ((~~minimum acceptable lighting equipment for exterior applications~~)) vertical and horizontal transportation systems, and minimum efficiencies for motors and transformers.

EXCEPTION: Dwelling units within commercial buildings shall not be required to comply with Sections C405.2 through ((~~C405.5~~)) C405.6 provided that ((~~a minimum of 75 percent of the lamps in permanently installed light fixtures shall be high efficacy lamps~~)) they comply with Section R404.1.

((~~Walk in coolers and walk in freezers shall comply with C405.10. Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with C405.11.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40502 Section C405.2—Electrical power and lighting systems.

C405.2 Lighting controls (mandatory). Lighting systems shall be provided with controls as specified in Sections C405.2.1((~~, C405.2.2, C405.2.3, C405.2.4 and C405.2.5~~)) through C405.2.8.

EXCEPTION: ((~~Industrial or manufacturing process areas, as may be required for production and safety.~~)) Except for specific application controls required by Section C405.2.5:
1. Areas designated as security or emergency areas that are required to be continuously lighted.
2. Interior exit stairways, interior exit ramps, and exit passageways.
3. Emergency egress lighting that is normally off.
4. Industrial or manufacturing process areas, as may be required for production and safety.
5. Luminaire-level lighting controls that control interior lighting. The LLLC luminaire shall be independently configured to:
5.1. Monitor occupant activity to brighten or dim its lighting when occupied or unoccupied, respectively.
5.2. Monitor ambient light (both electric light and daylight) and brighten or dim electric light to maintain desired light level.
5.3. Configuration and reconfiguration of performance parameters, including bright and dim setpoints, timeouts, dimming fade rates, sensor sensitivity adjustments, and wireless zoning configurations, for each control strategy.
5.4. Meet the operational and commissioning requirements of Sections C405.2.1, C405.2.2, C405.2.3, C405.2.4 and C408.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405021 Section C405.2.1—((~~Manual lighting~~)) Occupant sensor controls.

((~~**C405.2.1 Manual lighting controls.** All buildings shall include manual lighting controls that meet the requirements of Sections C405.2.1.1 and C405.2.1.2.~~

~~**C405.2.1.1 Interior lighting controls.** Each area enclosed by walls or floor-to-ceiling partitions shall have at least one manual control for the lighting serving that area. The required controls shall be located within the area served by the controls or be a remote switch that identifies the lights served and indicates their status.~~

~~EXCEPTIONS: 1. Areas designated as security or emergency areas that need to be continuously lighted.~~
~~2. Lighting in stairways or corridors that are elements of the means of egress.~~

~~**C405.2.1.2 Light reduction controls.** Each area that is required to have a manual control shall also allow the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 percent. Lighting reduction shall be achieved by one of the following or other *approved* method:~~

~~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; or~~

~~4. Switching each luminaire or each lamp.~~

~~EXCEPTION: Light reduction controls need not be provided in the following areas and spaces:~~
~~1. Areas that have only one luminaire, with rated power less than 100 watts.~~
~~2. Areas that are controlled by an occupant-sensing device.~~

~~3. Corridors, equipment rooms, storerooms, restrooms, public lobbies, electrical or mechanical rooms.~~

~~4. *Sleeping unit* (see Section C405.2.3).~~

~~5. Spaces that use less than 0.6 watts per square foot (6.5 W/m^2).~~

~~6. Daylight spaces complying with Section C405.2.2.3.2.~~))

C405.2.1 Occupant sensor controls. Occupant sensor controls shall be installed to control lights in the following space types:

1. Classrooms/lecture/training rooms.
2. Conference/meeting/multipurpose rooms.
3. Copy/print rooms.
4. Lounges.
5. Employee lunch and break rooms.
6. Private offices.
7. Restrooms.
8. Storage rooms.
9. Janitorial closets.
10. Locker rooms.
11. Other spaces 300 square feet (28 m^2) or less that are enclosed by floor-to-ceiling height partitions.
12. Warehouses.

C405.2.1.1 Occupant sensor control function. Occupant sensor controls shall comply with the following:

1. Automatically turn off lights within 30 minutes of all occupants leaving the space.

2. Be manual on or controlled 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. Shall incorporate a manual control to allow occupants to turn lights off.

C405.2.1.2 Occupant sensor control function in warehouses. In warehouses, the lighting in aisleways and open areas shall be controlled with occupancy sensors that automatically reduce lighting power by not less than 50 percent when the areas are unoccupied. The occupancy sensor shall control lighting in each aisleway independently, and shall not control lighting beyond the aisleway being controlled by the sensor.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405022 Section C405.2.2—((~~Additional lighting~~)) Time switch controls.

C405.2.2 ((~~Additional lighting~~)) Time switch controls. Each area of the building that is ((~~required to have a manual control shall also have controls that meet the requirements of Sections C405.2.2.1, C405.2.2.2 and C405.2.2.3~~)) not provided with *occupant sensor controls* complying with Section C405.2.1.1 shall be provided with time switch controls complying with Section C405.2.2.1.

EXCEPTION: ((~~Additional lighting controls need not be provided in the following spaces:~~)) Where a manual control provides light reduction in accordance with Section C405.2.2.2, automatic controls shall not be required for the following:

1. *Sleeping units*.
2. Spaces where patient care is directly provided.
3. Spaces where an automatic shutoff would endanger occupant safety or security.
4. Lighting intended for continuous operation.
5. Shop and laboratory classrooms.

C405.2.2.1 ((~~Automatic~~)) Time switch control ((~~devices~~)) function. ((~~Automatic time switch controls shall be installed to control lighting in all areas of the building. Automatic time switches shall have a minimum 7 day clock and be capable of being set for 7 different day types per week and incorporate an automatic holiday "shut-off" feature, which turns off all loads for at least 24 hours and then resumes normally scheduled operations. Automatic time switches shall also have program back-up capabilities, which prevent the loss of program and time settings for at least 10 hours, if power is interrupted.~~

~~EXCEPTIONS: 1. Emergency egress lighting does not need to be controlled by an automatic time switch.~~

~~2. Lighting in spaces controlled by occupancy sensors does not need to be controlled by automatic time switch controls.~~

~~The automatic time switch control device shall include an override switching device that complies with the following:~~

~~1. The override switch shall be in a readily accessible location;~~

~~2. The override switch shall be located where the lights controlled by the switch are visible; or the switch shall provide a mechanism which announces the area controlled by the switch;~~

~~3. The override switch shall permit manual operation;~~

~~4. The override switch, when initiated, shall permit the controlled lighting to remain on for a maximum of 2 hours; and~~

~~5. Any individual override switch shall control the lighting for a maximum area of 5,000 square feet (465 m^2).~~

~~EXCEPTION: Within malls, arcades, auditoriums, single tenant retail spaces, industrial facilities and arenas:~~

~~1. The time limit shall be permitted to exceed 2 hours provided the override switch is a captive key device; and~~

~~2. The area controlled by the override switch is permitted to exceed 5,000 square feet (465 m^2), but shall not exceed 20,000 square feet (1860 m^2).~~

~~**C405.2.2.2 Occupancy sensors.** Occupancy sensors shall be installed in all classrooms, conference/meeting rooms, employee lunch and break rooms, private offices, restrooms, warehouse spaces, storage rooms and janitorial closets, and other spaces 300 square feet (28 m^2) or less enclosed by floor-to-ceiling height partitions. These automatic control devices shall be installed to automatically turn off lights within 30 minutes of all occupants leaving the space, and shall either be manual on or shall be controlled 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 entrance areas and lobbies, and areas where manual-on operation would endanger the safety or security of the room or building occupants.~~

~~**C405.2.2.3 Daylight zone control.** Daylight zones shall be designed such that lights in the daylight zone are controlled independently of general area lighting and are controlled in accordance with Section C405.2.2.3.2. Each daylight control zone shall not exceed 2,500 square feet (232 m^2). Contiguous daylight zones adjacent to vertical fenestration are allowed to be controlled by a single controlling device provided that they do not include zones facing more than two adjacent cardinal orientations (i.e., north, east, south, west). The primary daylight zone shall be controlled separately from the secondary daylight zone. Daylight zones under skylights more than 15 feet (4572 mm) from the perimeter shall be controlled separately from daylight zones adjacent to vertical fenestration. Controls shall:~~

~~1. Control only luminaires within the daylit area.~~

~~2. Incorporate time-delay circuits to prevent cycling of light level changes of less than three minutes.~~

~~EXCEPTION: Daylight zones enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.~~

~~**C405.2.2.3.1 Reserved.**~~

~~**C405.2.2.3.2 Automatic daylighting controls.** Setpoint and other controls for calibrating the lighting control device shall be readily accessible.~~

~~Daylighting controls device shall be capable of automatically reducing the lighting power in response to available daylight by either one of the following methods:~~

~~1. Continuous dimming using dimming ballasts and daylight-sensing automatic controls that are capable of reducing the power of general lighting in the daylit zone continuously to less than 20 percent of rated power at maximum light output.~~

~~2. Stepped dimming using multi-level switching and daylight-sensing controls that are capable of reducing lighting power automatically. The system shall provide a minimum of two control channels per zone and be installed in a manner such that at least one control step is between 50 percent and 70 percent of design lighting power and another control step is no greater than 35 percent of design power, and the system is capable of automatically turning the system off.~~

~~**C405.2.2.3.3 Reserved.**~~)) Each space provided with time switch controls shall also be provided with a manual control for light reduction in accordance with Section C405.2.2.2. 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. 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).

EXCEPTIONS:
1. Within malls, arcades, auditoriums, single tenant retail spaces, industrial facilities and arenas:
1.1. The time limit shall be permitted to be greater than 2 hours provided the override switch is a captive key device.
1.2. The area controlled by the override switch is permitted to be greater than 5,000 square feet (465 m^2), but shall not exceed 20,000 square feet (1860 m^2).
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. Corridors, equipment rooms, public lobbies, electrical or mechanical rooms.

C405.2.2.2 Light reduction controls. Spaces required to have light-reduction controls shall have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 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.

EXCEPTION: Light reduction controls are not required in daylight zones with *daylight responsive controls* complying with Section C405.2.4.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405023 Section C405.2.3—((~~Specific application~~)) Manual controls.

C405.2.3 ((~~Specific application~~)) Manual controls. ((~~Specific application controls shall be provided for the following:~~

~~1. Display and accent light shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~2. Lighting in cases used for display case purposes shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~3. Hotel and motel sleeping units and guest suites shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles. Where a hotel/motel includes more than 50 rooms, controls shall be automatic to ensure all power to the lights~~

~~and switched outlets are turned off when the occupant is not in the room.~~

~~4. Supplemental task lighting, including permanently installed under-shelf or under-cabinet lighting, shall be automatically shut off whenever that space is unoccupied and shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided the control device is readily accessible.~~

~~5. Lighting for nonvisual applications, such as plant growth and food warming, shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~6. Lighting equipment that is for sale or for demonstrations in lighting education shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~7. Luminaires serving the exit access and providing means of egress illumination required by Section 1006.1 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 0.05 watts per square foot of building area is exempt from this requirement.~~))

Manual controls for lights shall comply with the following:

1. Shall be readily accessible to occupants.

2. Shall be located where the controlled lights are visible, or shall identify the area served by the lights and indicate their status.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405024 Section C405.2.4—((~~Exterior lighting~~)) Daylight responsive controls.

C405.2.4 ((~~Exterior lighting~~)) Daylight responsive controls. ((~~Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and a time switch, or an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. All time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.~~)) *Daylight responsive controls* complying with Section C405.2.3.1 shall be provided to control the lighting within *daylight zones* in the following spaces:

1. Sidelight daylight zones as defined in Section C405.2.4.2 with more than two *general lighting* fixtures within the primary and secondary sidelight daylight zones.

2. Toplight daylight 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. Dwelling units and sleeping units.

3. Lighting that is required to have specific application control in accordance with Section C405.2.4.

4. Sidelight daylight zones on the first floor above grade in Group A-2 and Group M occupancies.

5. 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 sidelight *daylight zones* shall be controlled independently of lights in secondary sidelight daylight 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 toplight *daylight zones* in accordance with Section C405.2.4.3 shall be controlled independently of lights in sidelight daylight 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 readily accessible.

5. *Daylight responsive controls* shall be configured to completely shut off all controlled lights in that zone.

6. Lights in sidelight *daylight 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 150 watts of lighting in each space is 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).

C405.2.4.1.1 Dimming. *Daylight responsive controls* shall be capable of automatically reducing 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 Sidelight daylight zone. The sidelight *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 sidelight *daylight 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 the *fenestration* is located in a rooftop monitor, the sidelight *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 C405.2.4.2(2) and C405.2.4.2(3).

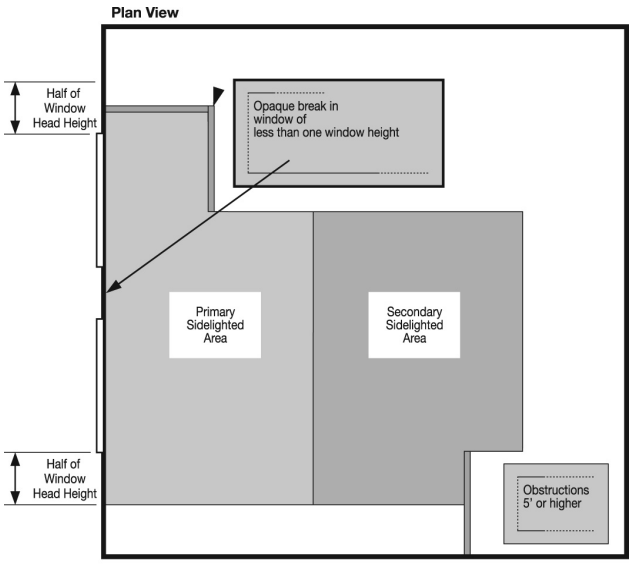
3. Where *clerestory fenestration* is located in a wall, the sidelight *daylight zone* includes a lateral area twice the depth of the clerestory fenestration height, projected upon the floor at a 45 degree angle from the center of the clerestory fenestration. The longitudinal width of the daylight zone 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 daylight zone shall remain the same lateral area but be located between the clerestory and the obstruction, as indicated in Figure C405.2.4.2(4).

4. If the rough opening area of a vertical fenestration assembly is less than 10 percent of the calculated primary daylight zone area for this fenestration, it does not qualify as a daylight zone.

5. Where located in existing buildings, the visible transmittance of the fenestration is no less than 0.20.

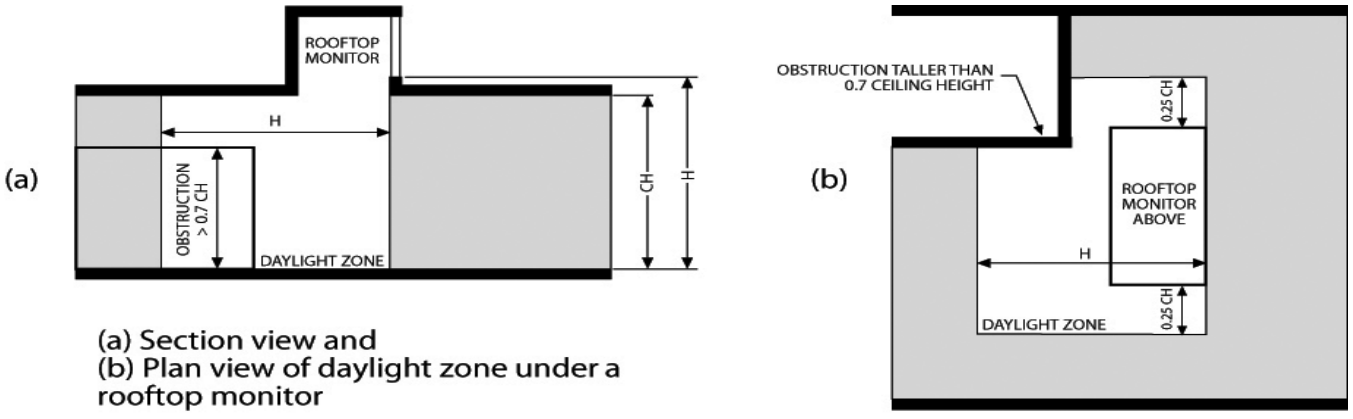
6. In parking garages with floor area adjacent to perimeter wall openings, the daylight zone shall include the area within 20 feet of any portion of a perimeter wall that has a net opening to wall ratio of at least 40 percent.

Figure C405.2.4.2(1)
Daylight Zone Adjacent to Fenestration in a Wall



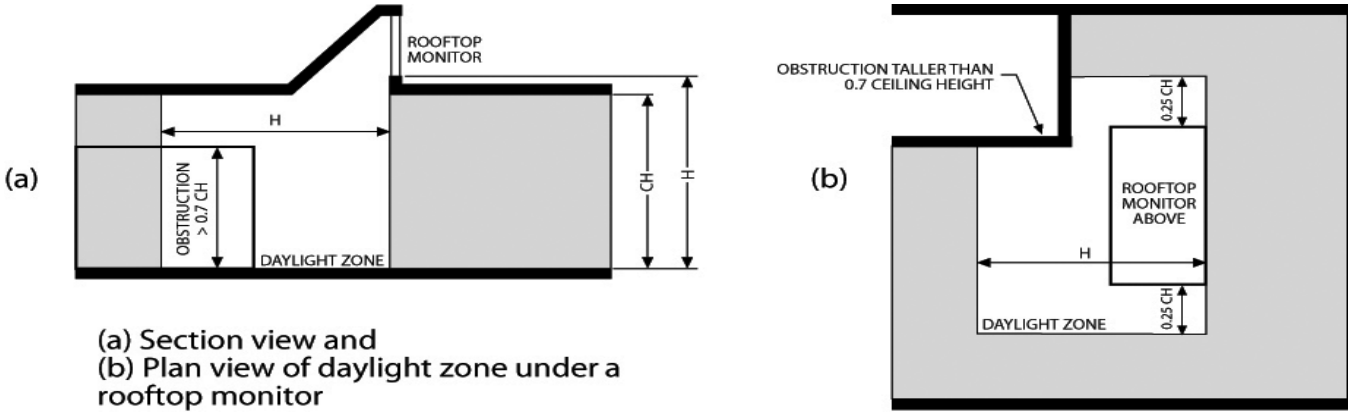
Computing the secondary sidelighted area.

Figure C405.2.4.2(2)
Daylight Zone Under a Rooftop Monitor



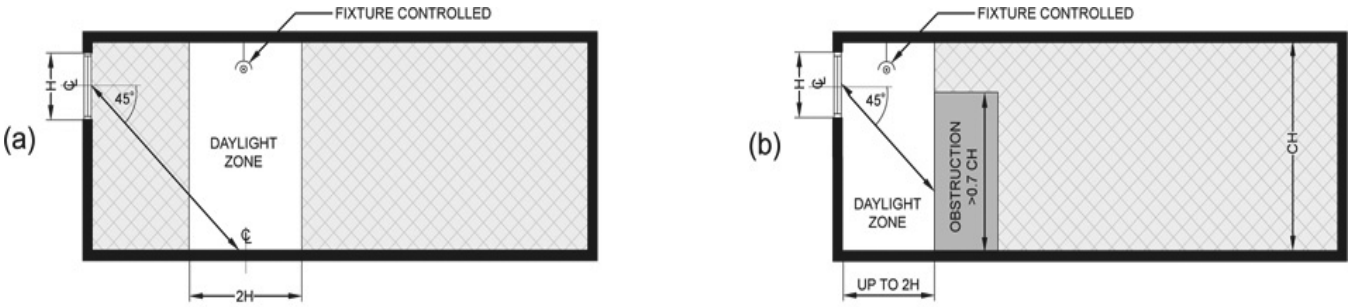
(a) Section view and
(b) Plan view of daylight zone under a rooftop monitor

Figure C405.2.4.2(3)
Daylight Zone Under a Sloped Rooftop Monitor



(a) Section view and
(b) Plan view of daylight zone under a rooftop monitor

Figure C405.2.4.2(4)
Daylight Zone Adjacent to Clerestory Fenestration in a Wall



(a) Section view
(b) Section view with obstruction

C405.2.4.3 Toplight daylight zone. The toplight *daylight zone* is the floor area underneath a roof fenestration assembly which complies with the following:

1. The toplight *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 C405.2.4.3(1).

2. Where toplight daylight zones overlap with sidelight daylight zones, lights within the overlapping area shall be assigned to the toplight daylight zone.

3. Where located in existing buildings, 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 daylight zone is no less than 0.008.

4. Where located under atrium fenestration, the *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 C405.2.4.3(2). The daylight zone area at the top floor is calculated the same as for a toplight daylight zone. Intermediate levels below the top floor that are not directly beneath the atrium are not included.

Figure C405.2.4.3(1)
Daylight Zone Under a Rooftop Fenestration Assembly

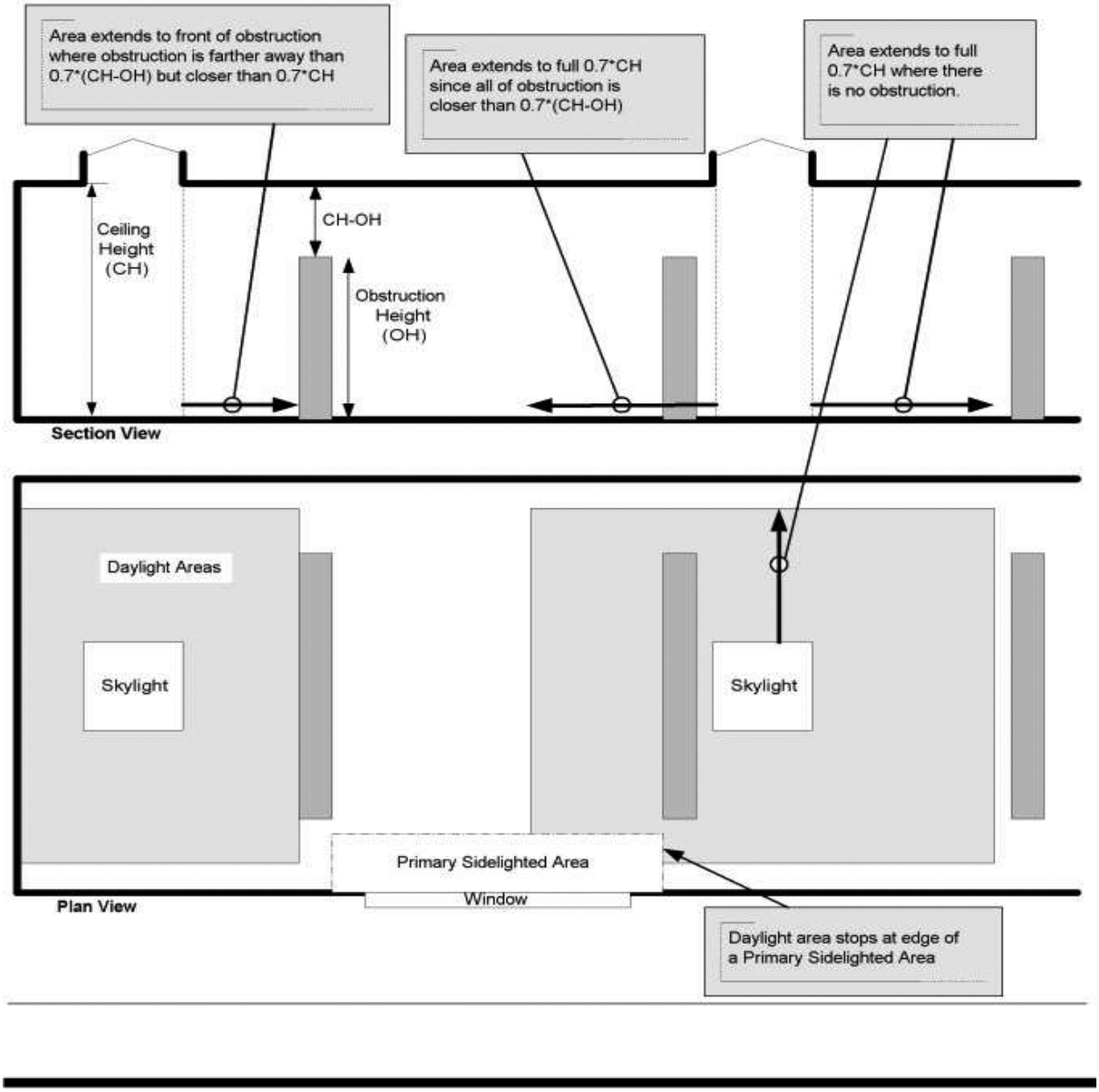
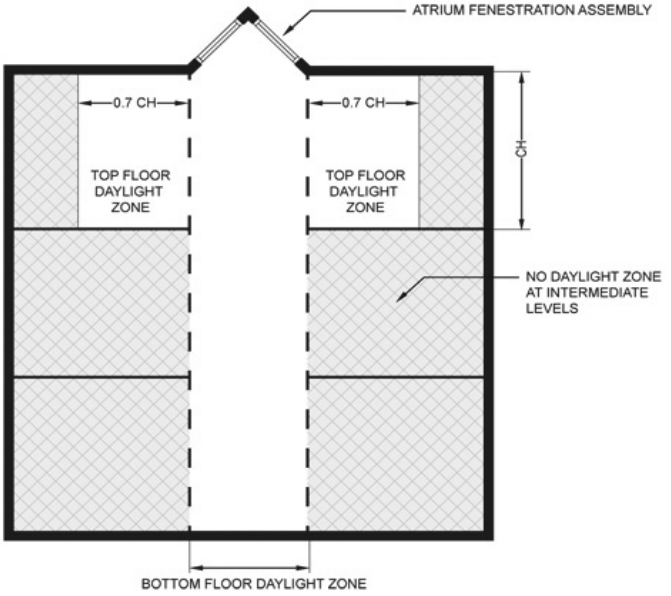


Figure C405.2.4.3(2)
Daylight Zone Under Atrium Fenestration



AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405025 Section C405.2.5—((~~Area~~)) Additional lighting controls.

C405.2.5 ((~~Area~~)) Additional lighting controls. ((~~The maximum lighting power that may be controlled from a single switch or automatic control 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.~~))

Specific application lighting controls shall be provided with controls, in addition to controls required by other sections, for the following:

1. Display and accent light shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.

2. Lighting in cases used for display case purposes shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.

3. Hotel and motel sleeping units and guest suites shall have control device(s) configured to automatically switch off all installed luminaires and switched receptacles within 20 minutes after all occupants leave the room.

EXCEPTION: Lighting and switched receptacles controlled by captive key systems.

4. Supplemental task lighting, including permanently installed under-shelf or under-cabinet lighting, shall be automatically shut off whenever that space is unoccupied and shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided the control device is readily accessible.

5. Lighting for nonvisual applications, such as plant growth and food warming, shall be controlled by a dedicated control which is independent of the controls for other lighting. Each control zone shall be no greater than the area served by a single luminaire or 4,000 square feet, whichever is larger.

6. Lighting equipment that is for sale or for demonstrations in lighting education shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.

7. Luminaires serving the exit access and providing means of egress illumination required by Section 1006.1 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.

NEW SECTION

WAC 51-11C-40526 Section C405.2.6—Digital timer switch.

C405.2.6 Digital timer switch controls. For each of the following space types, when under 300 square feet, digital timer switch controls may be provided in lieu of occupancy sensor controls:

1. Copy/print rooms.
2. Storage rooms.
3. Janitorial closets.

C405.2.6.1 Digital timer switch function. Digital timer switches shall comply with the following:

1. Turn lights on or off with operation of a button, switch or other manual means.

2. Automatically turn lights off within 15 minutes of the lights being turned on. The time delay shall be configurable only by removing the switch faceplate. A switch where the time delay is selected or configurable from the front of the switch faceplate is not permitted.

3. The switch shall provide audible indication of impending shut-off of the lights one minute before shut off.

4. The switch shall provide visible indication of impending shut-off by flashing the lights one minute before shut off.

NEW SECTION

WAC 51-11C-40527 Section C405.2.7—Exterior lighting controls.

C405.2.7 Exterior lighting controls. Lighting for exterior applications other than emergency lighting that is intended to be automatically off during building operation, lighting specifically required to meet health and life safety requirements or decorative gas lighting systems shall:

1. Be provided with a control that automatically turns off the lighting as a function of available daylight.

2. Where lighting the building façade or landscape, the lighting shall have controls that automatically shut off the lighting as a function of dawn/dusk and a set opening and closing time.

3. Where not covered in Item 2, the lighting shall have controls configured to automatically reduce the connected lighting power by at least 30 percent from no later than 12 midnight to 6 a.m. or from one hour after business closing to one hour before business opening or during any period when no activity has been detected for a time of no longer than 15 minutes.

Time switches shall be capable of retaining programming and the time setting for at least 10 hours without power.

EXCEPTION: Lighting for covered vehicle entrances or exits from buildings or parking structures where required for safety, security or eye adaption.

NEW SECTION

WAC 51-11C-40528 Section C405.2.8—Area controls.

C405.2.8 Area controls. The maximum lighting power that may be controlled from a single switch or automatic control 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40503 ((~~Section C405.3—~~))Reserved.

((~~**C405.3 Reserved.**~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40504 Section ((~~C405.4~~)) C405.3—Exit signs.

((~~C405.4~~)) C405.3 Exit signs (mandatory). Internally illuminated exit signs shall not exceed 5 watts per side.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40505 Section ((~~C405.5~~)) C405.4—Interior lighting power requirements.

((~~C405.5~~)) C405.4 Interior lighting power requirements (prescriptive). A building complies with this section if its total connected lighting power calculated under Section ((~~C405.5.1~~)) C405.4.1 is no greater than the interior lighting power calculated under Section ((~~C405.5.2~~)) C405.4.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405051 Section ((~~C405.5.1~~)) C405.4.1—Total connected interior lighting power.

((~~C405.5.1~~)) C405.4.1 Total connected interior lighting power. The total connected interior lighting power (((~~watts~~))) shall be the ((~~sum of the watts of all interior lighting equipment as determined in accordance with Sections C405.5.1.1 through C405.5.1.4.~~)) determined in accordance with Equation 4-10.

TCLP = [SL + LV + LTPB + Other]

(Equation 4-10)

Where:

TCLP = Total connected lighting power (watts).

SL = Labeled wattage of luminaires for screw-in lamps.

LV = Wattage of the transformer supplying low-voltage lighting.

LTPB = Wattage of line-voltage lighting tracks and plug-in busways as the specified wattage of the luminaires but at least 50 W/lin. ft., or the wattage limit of the system's circuit breaker, or the wattage limit of other permanent current limiting devices on the system.

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.

EXCEPTIONS:

1. The connected power associated with the following lighting equipment is not included in calculating total connected lighting power.

1.1. Professional sports arena playing field lighting.

1.2. Emergency lighting automatically off during normal building operation.

1.3. Lighting in spaces specifically designed for use by occupants with special lighting needs including the visually impaired and other medical and age-related issues.

1.4. Casino gaming areas.

1.5. General area lighting power in industrial and manufacturing occupancies dedicated to the inspection or quality control of goods and products.

1.6. Lighting in sleeping units, provided that the lighting complies with Section R404.1.

1.7. Mirror lighting in dressing rooms.

2. Lighting equipment used for the following shall be exempt provided that it is in addition to general lighting and is controlled by an independent control device:

2.1. Task lighting for medical and dental purposes.

2.2. Display lighting for exhibits in galleries, museums and monuments.

3. Lighting for theatrical purposes, including performance, stage, film production and video production.

4. Lighting for photographic processes.

5. Lighting integral to equipment or instrumentation and is installed by the manufacturer.

6. Task lighting for plant growth or maintenance where the lamp efficacy is not less than 90 lumens per watt.

7. Advertising signage or directional signage.

8. In restaurant buildings and areas, lighting for food warming or integral to food preparation equipment.

9. Lighting equipment that is for sale.

10. Lighting demonstration equipment in lighting education facilities.

11. Lighting *approved* because of safety or emergency considerations, inclusive of exit lights.

12. Lighting integral to both open and glass enclosed refrigerator and freezer cases.

13. Lighting in retail display windows, provided the display area is enclosed by ceiling-height partitions.

14. Furniture mounted supplemental task lighting that is controlled by automatic shutoff.

15. Lighting used for aircraft painting.

((**~~C405.5.1.1 Screw lamp holders.~~** ~~The wattage shall be the maximum *labeled* wattage of the luminaire.~~

~~C405.5.1.2 Low-voltage lighting.~~ ~~The wattage shall be the specified wattage of the transformer supplying the system.~~

~~C405.5.1.3 Other luminaires.~~ ~~The wattage of all other lighting equipment shall be the wattage of the lighting equipment verified through data furnished by the manufacturer or other *approved* sources.~~

~~C405.5.1.4 Line-voltage lighting track and plug-in busway.~~ ~~The wattage shall be:~~

~~1. The specified wattage of the luminaires included in the system with a minimum of 50 W/lin ft. (162 W/lin. m);~~

~~2. The wattage limit of the system's circuit breaker; or~~

~~3. The wattage limit of other permanent current limiting device(s) on the system.~~))

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405052 Section ((~~C405.5.2~~)) C405.4.2—Interior lighting power requirements.

((~~C405.5.2~~)) C405.4.2 Interior lighting power. The total interior lighting power allowance (watts) is determined according to Table ((~~C405.5.2(1)~~)) C405.4.2(1) using the Building Area Method, or Table ((~~C405.5.2(2)~~)) C405.4.2(2) using the Space-by-Space Method, for all areas of the building covered in this permit.

C405.4.2.1 Building area method. For the Building Area Method, the interior lighting power allowance is the floor area for each building area type listed in Table ((~~C405.5.2(1)~~)) C405.4.2(1) times the value from Table ((~~C405.5.2(1)~~)) C405.4.2(1) for 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 listed in Table ((~~C405.5.2(1)~~)) C405.4.2(1). Where this method is used to calculate the total interior lighting power for an entire building, 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 ((~~C405.5.2(2)~~)) 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.

Each area enclosed by partitions that are 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.

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 and automatically controlled separately from the general lighting, to be turned off during nonbusiness hours. 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.

(Equation 4-11)

Additional Interior Lighting Power Allowance = 500 watts + (Retail Area 1 × 0.6 W/ft^2) + (Retail Area 2 × 0.6 W/ft^2) + (Retail Area 3 × 1.4 W/ft^2) + (Retail Area 4 × 2.5 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 is *approved* by the code official.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405053 Table ((~~C405.5.2(1)~~)) C405.4.2(1)—Interior lighting power allowances—Building area method.

Table ((~~C405.5.2(1)~~)) C405.4.2(1)

Interior Lighting Power Allowances—Building Area Method

Building Area Type	LPD (w/ft²)
((~~Automotive facility~~	~~0.82~~
~~Convention center~~	~~1.08~~
~~Court house~~	~~1.05~~
~~Dining: Bar lounge/leisure~~	~~0.99~~
~~Dining: Cafeteria/fast food~~	~~0.90~~
~~Dining: Family~~	~~0.89~~
~~Dormitory~~	~~0.61~~
~~Exercise center~~	~~0.88~~
~~Fire station~~	~~0.71~~
~~Gymnasium~~	~~0.95~~
~~Health care clinic~~	~~0.87~~
~~Hospital~~	~~1.20~~
~~Hotel~~	~~1.00~~
~~Library~~	~~1.18~~
~~Manufacturing facility~~	~~1.11~~
~~Motel~~	~~0.88~~
~~Motion picture theater~~	~~0.83~~
~~Multifamily~~	~~0.60~~
~~Museum~~	~~1.00~~
~~Office~~	~~0.90~~
~~Parking garage~~	~~0.20~~
~~Penitentiary~~	~~0.90~~
~~Performing arts theater~~	~~1.25~~
~~Police station~~	~~0.90~~
~~Post office~~	~~0.87~~
~~Religious building~~	~~1.05~~
~~Retail~~	~~1.33~~
~~School/university~~	~~0.99~~
~~Sports arena~~	~~0.78~~
~~Town hall~~	~~0.92~~
~~Transportation~~	~~0.77~~
~~Warehouse~~	~~0.50~~
~~Workshop~~	~~1.20~~))
Automotive facility	0.64
Convention center	0.81
Court house	0.81
Dining: Bar lounge/leisure	0.79
Dining: Cafeteria/fast food	0.72
Dining: Family	0.71
Dormitory	0.46
Exercise center	0.67
Fire station	0.54
Gymnasium	0.75
Health care clinic	0.70
Hospital	0.84
Hotel/motel	0.70
Library	0.94
Manufacturing facility	0.89
Motion picture theater	0.61
Multifamily	0.41
Museum	0.80
Office	0.66
Parking garage	0.16
Penitentiary	0.65
Performing arts theater	1.00
Police station	0.70
Post office	0.70
Religious building	0.80
Retail	1.01
School/university	0.70
Sports arena	0.62
Town hall	0.71
Transportation	0.56
Warehouse	0.04
Workshop	0.95

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405054 Table ((~~C405.5.5.2(2)~~)) C405.4.2(2)—Interior lighting power allowances—Space-by-space method.

Table ((~~C405.5.2(2)~~)) C405.4.2(2)

Interior Lighting Power Allowances—Space-by-Space Method

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Atrium - First 40 feet in height~~	~~0.03 per ft. ht.~~
~~Atrium - Above 40 feet in height~~	~~0.02 per ft. ht.~~
~~Audience/seating area - Permanent~~	
~~For auditorium~~	~~0.79~~
~~For performing arts theater~~	~~2.43~~

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~For motion picture theater~~	~~1.14~~
~~Classroom/lecture/training~~	~~1.24~~
~~Conference/meeting/multipurpose~~	~~1.23~~
~~Corridor/transition~~	~~0.66~~
~~Dining area~~	
~~Bar/lounge/leisure dining~~	~~1.31~~
~~Family dining area~~	~~0.89~~
~~Dressing/fitting room performing arts theater~~	~~0.40~~
~~Electrical/mechanical~~	~~0.95~~
~~Food preparation~~	~~0.99~~
~~Laboratory for classrooms~~	~~1.28~~
~~Laboratory for medical/industrial/research~~	~~1.81~~
~~Lobby~~	~~0.90~~
~~Lobby for performing arts theater~~	~~2.00~~
~~Lobby for motion picture theater~~	~~0.52~~
~~Locker room~~	~~0.75~~
~~Lounge recreation~~	~~0.73~~
~~Office - Enclosed~~	~~1.11~~
~~Office - Open plan~~	~~0.98~~
~~Restroom~~	~~0.98~~
~~Sales area~~	~~1.68[a]~~
~~Stairway~~	~~0.69~~
~~Storage~~	~~0.63~~
~~Workshop~~	~~1.59~~
~~**Building Specific Space-by-space Types**~~	
~~Automotive - Service/repair~~	~~0.67~~
~~Bank/office - Banking activity area~~	~~1.38~~
~~Convention center~~	
~~Exhibit space~~	~~1.45~~
~~Audience/seating area~~	~~0.82~~
~~Courthouse/police station/penitentiary~~	
~~Courtroom~~	~~1.72~~
~~Confinement cells~~	~~1.10~~
~~Judge chambers~~	~~1.17~~
~~Penitentiary audience seating~~	~~0.43~~
~~Penitentiary classroom~~	~~1.34~~
~~Penitentiary dining~~	~~1.07~~
~~Dormitory living quarters~~	~~0.38~~
~~Fire stations~~	
~~Engine rooms~~	~~0.56~~

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Sleeping quarters~~	~~0.25~~
~~Gymnasium/fitness center~~	
~~Fitness area~~	~~0.72~~
~~Gymnasium audience/seating~~	~~0.43~~
~~Playing area~~	~~1.20~~
~~Health care clinic/hospital~~	
~~Corridors/transition~~	~~0.89~~
~~Emergency~~	~~2.26~~
~~Exam/treatment~~	~~1.66~~
~~Medical supplies~~	~~1.27~~
~~Nursery~~	~~0.88~~
~~Nurse station~~	~~0.87~~
~~Operating room~~	~~1.89~~
~~Patient room~~	~~0.62~~
~~Pharmacy~~	~~1.14~~
~~Physical therapy~~	~~0.91~~
~~Radiology/imaging~~	~~1.32~~
~~Recovery~~	~~1.15~~
~~Hotel~~	
~~Dining area~~	~~0.82~~
~~Guest rooms~~	~~1.11~~
~~Hotel lobby~~	~~1.06~~
~~Highway lodging dining~~	~~0.88~~
~~Highway lodging guest rooms~~	~~0.75~~
~~Library~~	
~~Card file and cataloguing~~	~~0.72~~
~~Reading area~~	~~0.93~~
~~Stacks~~	~~1.71~~
~~Manufacturing~~	
~~Corridors/transition~~	~~0.41~~
~~Detailed manufacturing~~	~~1.29~~
~~Equipment room~~	~~0.95~~
~~Extra high bay (> 50-foot floor-ceiling height)~~	~~1.05~~
~~High bay (25 - 50-foot floor-ceiling height)~~	~~1.23~~
~~Low bay (< 25-foot floor-ceiling height)~~	~~1.19~~
~~Museum~~	
~~General exhibition~~	~~1.05~~
~~Restoration~~	~~1.02~~
~~Parking garage - Garage areas~~	~~0.19~~

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Post office~~	
~~Sorting area~~	~~0.94~~
~~Religious building~~	
~~Audience seating~~	~~1.53~~
~~Fellowship hall~~	~~0.64~~
~~Worship pulpit/choir~~	~~1.53~~
~~Retail~~	
~~Dressing/fitting area~~	~~0.87~~
~~Mall concourse~~	~~1.10~~
~~Sales area~~	~~1.68[a]~~
~~Sports arena~~	
~~Audience seating~~	~~0.43~~
~~Court sports area - Class 4~~	~~0.72~~
~~Court sports area - Class 3~~	~~1.20~~
~~Court sports area - Class 2~~	~~1.92~~
~~Court sports area - Class 1~~	~~3.01~~
~~Ring sports area~~	~~2.68~~
~~Transportation~~	
~~Air/train/bus baggage area~~	~~0.76~~
~~Airport concourse~~	~~0.36~~
~~Audience seating~~	~~0.54~~
~~Terminal - Ticket counter~~	~~1.08~~
~~Warehouse~~	
~~Fine material storage~~	~~0.95~~
~~Medium/bulky material~~	~~0.58~~

~~For SI: 1 foot = 304.8 mm, 1 watt per square foot = 11 W/m².~~

~~[a] Where lighting equipment is specified to be installed to highlight specific merchandise in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits different from the circuits for general lighting, the smaller of the actual wattage of the lighting equipment installed specifically for merchandise, or additional lighting power as determined below shall be added to the interior lighting power determined in accordance with this line item.~~

~~Calculate the additional lighting power as follows:~~

~~Additional Interior Lighting Power Allowance = 500 watts + (Retail Area 1 × 0.6 W/ft²) + (Retail Area 2 × 0.6 W/ft²) + (Retail Area 3 × 1.4 W/ft²) + (Retail Area 4 × 2.5 W/ft²).~~

~~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 above, provided that justification documenting the need for additional lighting power based on visual inspection, contrast, or other critical display is *approved* by the authority having jurisdiction.~~))

Common Space-by-Space Types[a]	LPD (w/ft²)
Atrium - First 40 feet in height[c]	0.02 per ft. ht.
Atrium - Above 40 feet in height[c]	0.03 + 0.02 per ft. in total height
Audience/seating area - Permanent	
In an auditorium	0.50
In a convention center	0.66
In a gymnasium	0.34
In a motion picture theater	0.91
In a penitentiary	0.22
In a performing arts theater	1.94
In a religious building	1.22
In a sports arena	0.34
Otherwise	0.34
Banking activity area	0.81
Breakroom (see Lounge/breakroom)	
Classroom/lecture hall/training room	
In a penitentiary	1.07
Otherwise	1.00
Conference/meeting/multipurpose	0.98
Copy/print room	0.58
Corridor	
In a facility for the visually impaired (and not used primarily by the staff)[b]	0.74
In a hospital	0.63
In a manufacturing facility	0.33
Otherwise	0.53
Courtroom	1.38
Computer room	1.37

Dining area	
In a penitentiary	0.77
In a facility for the visually impaired (and not used primarily by the staff)[b]	1.52
In a bar/lounge or leisure dining	0.86
In a family dining area	0.71
Otherwise	0.52
Electrical/mechanical	0.76
Emergency vehicle garage	0.45
Food preparation	0.79
Guest room	0.38
Laboratory	
In or as a classroom	1.02
Otherwise	1.45
Laundry/washing area	0.48
Loading dock, interior	0.38
Lobby[c]	
In a facility for the visually impaired (and not used primarily by the staff)[b]	1.44
For an elevator	0.51
In a hotel	0.85
In a motion picture theater	0.42
In a performing arts theater	1.60
Otherwise	0.72
Locker room	0.60
Lounge/breakroom	
In a health care facility	0.74
Otherwise	0.58
Office[f]	
Enclosed	0.89
Open plan	0.78
Parking area, interior	0.15
Pharmacy area	0.91
Restroom	
In a facility for the visually impaired (and not used primarily by the staff)[b]	0.97
Otherwise	0.78
Sales area	1.27
Seating area, general	0.43
Stairway (see space containing stairway)	
Stairwell	0.55
Storage room	0.50
Vehicular maintenance	0.54
Workshop	1.27
Building Specific Space-by-Space Types[a]	
Building Specific Space-by-Space Types	**LPDd (w/ft²)**
Automotive - (See Vehicular maintenance, above)	0.54
Convention center - Exhibit space	1.16
Dormitory living quarters	0.30
Facility for the visually impaired[b]	
In a chapel (and not used primarily by the staff)[b]	1.77
In a recreation room (and not used primarily by the staff)[b]	1.93
Fire stations - Sleeping quarters	0.18
Engine rooms	0.45
Gymnasium/fitness center	
In an exercise area	0.58
In a playing area	0.96
Health care facility	
In an exam/treatment room	1.33
In an imaging room	1.06
In a medical supply room	0.59
In a nursery	0.70
In a nurse's station	0.57
In an operating room	1.51
In a patient room	0.50
In a physical therapy room	0.73
In a recovery room	0.92
Library[f]	
In a reading area	0.74
In the stacks	1.37
Manufacturing facility	
In a detailed manufacturing area	1.03
In an equipment room	0.59
In an extra high bay area (greater than 50-foot floor-to-ceiling height)	0.84
In a high bay area (25 - 50-foot floor-to-ceiling height)	0.98
In a low bay (< 25-foot floor-to-ceiling height)	0.95

Museum	
In a general exhibition area	0.84
In a restoration room	0.82
Performing arts theater dressing/fitting room	0.32
Post office - Sorting area	0.75
Religious buildings	
In a fellowship hall	0.51
In a worship/pulpit/choir	1.22
Retail facilities	
In a dressing/fitting room	0.57
In a mall concourse	0.88
Sports arena - Playing area	
For a Class 1 facility	2.41
For a Class 2 facility	1.54
For a Class 3 facility	0.96
For a Class 4 facility	0.58
Transportation	
In a baggage/carousel area	0.42
In an airport concourse	0.29
At a terminal ticket counter	0.64
Warehouse - Storage area	
For medium to bulky palletized items	0.46
For smaller, hand-carried items	0.76

For SI: 1 foot = 304.8 mm, 1 watt per square foot = 11 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.

d The watts per square foot may be increased by 2 percent per foot of ceiling height above 20 feet, unless specifically directed otherwise by subsequent footnotes.

e Footnote d may not be used for these occupancy types.

f The watts per square foot may be increased by 2 percent per foot of ceiling height above 9 feet. Footnote d may not be used for these occupancy types.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40506 Section ((~~C405.6~~)) C405.5—Exterior lighting.

((~~C405.6~~)) C405.5 Exterior lighting (mandatory). Where the power for exterior lighting is supplied through the energy service to the building, all exterior lighting shall comply with ((~~Sections C405.6.1 and C405.6.2~~)) Section C405.5.1.

EXCEPTION: Where *approved* because of historical, safety, signage or emergency considerations.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405061 Section ((~~C405.6.1~~)) C405.5.1—Exterior building grounds lighting.

((~~C405.6.1~~)) C405.5.1 Exterior building grounds lighting. All exterior building grounds luminaires that operate at greater than 100 watts shall ((~~contain lamps having~~)) have a minimum efficacy of ((~~60~~)) 80 lumens per watt unless the luminaire is controlled by a motion sensor or qualifies for one of the exceptions under Section ((~~C405.6.2~~)) C405.5.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405062 Section ((~~C405.6.2~~)) C405.5.2—Exterior building lighting power.

((~~C405.6.2~~)) C405.5.2 Exterior building lighting power. The total exterior lighting power allowance for all exterior building applications is the sum of the base site allowance plus the individual allowances for areas that are to be illuminated and are permitted in Table ((~~C405.6.2(2)~~)) C405.5.2(2) for the applicable lighting zone. Tradeoffs are allowed only among exterior lighting applications listed in Table ((~~C405.6.2(2)~~)) C405.5.2(2), Tradable Surfaces section. The lighting zone for the building exterior is determined from Table ((~~C405.6.2(1)~~)) C405.5.2(1) unless otherwise specified by the local jurisdiction. ((~~Exterior lighting for all applications (except those included in the exceptions to Section C405.6.2) shall comply with the requirements of Section C405.6.1~~)).

EXCEPTION: Lighting used for the following exterior applications is exempt where equipped with a control device independent of the control of the nonexempt lighting:

1. Specialized signal, directional and marker lighting associated with transportation;
2. Advertising signage or directional signage;
3. Integral to equipment or instrumentation and is installed by its manufacturer;
4. Theatrical purposes, including performance, stage, film production and video production;
5. Athletic playing areas;
6. Temporary lighting;
7. Industrial production, material handling, transportation sites and associated storage areas;
8. Theme elements in theme/amusement parks; and
9. Used to highlight features of public monuments and registered historic landmark structures or buildings.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405063 Table ((~~C405.6.2(1)~~)) C405.5.2(1)—Exterior lighting zones.

Table ((~~C405.6.2(1)~~)) C405.5.2(1)
Exterior Lighting Zones

Lighting Zone	Description
1	Developed areas of national parks, state parks, forest land, and rural areas
2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed use areas
3	All other areas not classified as lighting zone 1, 2, or 4
4	High-activity commercial districts in major metropolitan areas as designated by the local land use planning authority

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405064 Table ((~~C405.6.2(2)~~)) C405.5.2(2)—Individual lighting power allowances for building exteriors.

Table ((~~C405.6.2(2)~~)) C405.5.2(2)
Individual Lighting Power Allowances for Building Exteriors

		Lighting Zones			
		Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance (Base allowance is usable in tradable or nontradable surfaces.)		500 W	600 W	750 W	1300 W
Tradable Surfaces	**Uncovered Parking Areas**				
(Lighting power densities for uncovered parking areas, building grounds, building entrances and exits, canopies and overhangs and outdoor sales areas are tradable.)	Parking areas and drives	0.04 W/ft^2	0.06 W/ft^2	((~~0.10~~)) 0.08 W/ft^2	((~~0.13~~)) 0.10 W/ft^2
	Building Grounds				
	Walkways less than 10 feet wide	0.7 W/linear foot	0.7 W/linear foot	0.8 W/linear foot	1.0 W/linear foot
	Walkways 10 feet wide or greater, plaza areas, special feature areas	0.14 W/ft^2	0.14 W/ft^2	0.16 W/ft^2	0.2 W/ft^2
	Stairways	0.75 W/ft^2	1.0 W/ft^2	1.0 W/ft^2	1.0 W/ft^2
	Pedestrian tunnels	0.15 W/ft^2	0.15 W/ft^2	0.2 W/ft^2	0.3 W/ft^2
	Building Entrances and Exits				
	Main entries	20 W/linear foot of door width	20 W/linear foot of door width	30 W/linear foot of door width	30 W/linear foot of door width
	Other doors	20 W/linear foot of door width	20 W/linear foot of door width	20 W/linear foot of door width	20 W/linear foot of door width
	Entry canopies	0.25 W/ft^2	0.25 W/ft^2	0.4 W/ft^2	0.4 W/ft^2
	Sales Canopies				
	Free standing and attached	0.6 W/ft^2	0.6 W/ft^2	0.8 W/ft^2	1.0 W/ft^2
	Outdoor Sales				
	Open areas (including vehicle sales lots)	0.25 W/ft^2	0.25 W/ft^2	0.5 W/ft^2	0.7 W/ft^2
	Street frontage for vehicle sales lots in addition to "open area" allowance	No Allowance	10 W/linear foot	10 W/linear foot	30 W/linear foot

		Lighting Zones			
		Zone 1	Zone 2	Zone 3	Zone 4
Nontradable Surfaces (Lighting power density calculations for the following applications can be used only for the specific application and cannot be traded between surfaces or with other exterior lighting. The following allowances are in addition to any allowance otherwise permitted in the "Tradable Surfaces" section of this table.)	Building facades	No allowance	((~~0.1 W/ft^2 for each illuminated wall or surface or 2.5 W/linear foot for each illuminated wall or surface length~~)) 0.075 W/ft^2 of gross above-grade wall area	((~~0.15 W/ft^2 for each illuminated wall or surface or 3.75 W/linear foot for each illuminated wall or surface length~~)) 0.113 W/ft^2 of gross above-grade wall area	((~~0.2 W/ft^2 for each illuminated wall or surface or 5.0 W/linear foot for each illuminated wall or surface length~~)) 0.150 W/ft^2 of gross above-grade wall area
	Automated teller machines and night depositories	270 W per location plus 90 W per additional ATM per location	270 W per location plus 90 W per additional ATM per location	270 W per location plus 90 W per additional ATM per location	270 W per location plus 90 W per additional ATM per location
	Entrances and gatehouse inspection stations at guarded facilities	0.75 W/ft^2 of covered and uncovered area	0.75 W/ft^2 of covered and uncovered area	0.75 W/ft^2 of covered and uncovered area	0.75 W/ft^2 of covered and uncovered area
	Loading areas for law enforcement, fire, ambulance and other emergency service vehicles	0.5 W/ft^2 of covered and uncovered area	0.5 W/ft^2 of covered and uncovered area	0.5 W/ft^2 of covered and uncovered area	0.5 W/ft^2 of covered and uncovered area
	Drive-up windows/doors	400 W per drive-through	400 W per drive-through	400 W per drive-through	400 W per drive-through
	Parking near 24-hour retail entrances	800 W per main entry	800 W per main entry	800 W per main entry	800 W per main entry

For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m^2

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40507 Section C405.7—Electrical energy consumption.

C405.6 Electrical transformers. 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 at least 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	97.7	15	97.0
25	98.0	30	97.5
37.5	98.2	45	97.7
50	98.3	75	98.0
75	98.5	112.5	98.2
100	98.6	150	98.3
167	98.7	225	98.5
250	98.8	300	98.6
333	98.9	500	98.7
		750	98.8
		1000	98.9

[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 Electrical energy consumption (mandatory). ((~~In buildings having individual~~)) Each dwelling unit((~~s, provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units~~)) 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40508 Section C405.8—Electric motors.

((~~**C405.8 Electric motors.** All permanently wired polyphase motors of 1 hp or more, which are not part of an HVAC system, shall comply with Section C403.2.13.~~

~~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.~~))

C405.8 Electric motor efficiency (mandatory). 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. 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.

Fractional hp fan motors that are 1/12 hp or greater and less than 1 hp 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 C403.2.3 and Tables C403.2.3(1) through C403.2.3(10) 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.

Table C405.8(1)
Minimum Nominal Full-load Efficiency for 60 Hz NEMA General Purpose Electric Motors (Subtype I) Rated 600 Volts or Less (Random Wound)[a]

	OPEN DRIP-PROOF MOTORS			TOTALLY ENCLOSED FAN-COOLED MOTORS		
NUMBER OF POLES►	2	4	6	2	4	6
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	3600	1800	1200
MOTOR HORSEPOWER▼						
1	77.0	85.5	82.5	77.0	85.5	82.5
1.5	84.0	86.5	86.5	84.0	86.5	87.5
2	85.5	86.5	87.5	85.5	86.5	88.5
3	85.5	89.5	88.5	86.5	89.5	89.5
5	86.5	89.5	89.5	88.5	89.5	89.5
7.5	88.5	91.0	90.2	89.5	91.7	91.0
10	89.5	91.7	91.7	90.2	91.7	91.0
15	90.2	93.0	91.7	91.0	92.4	91.7
20	91.0	93.0	92.4	91.0	93.0	91.7
25	91.7	93.6	93.0	91.7	93.6	93.0
30	91.7	94.1	93.6	91.7	93.6	93.0
40	92.4	94.1	94.1	92.4	94.1	94.1
50	93.0	94.5	94.1	93.0	94.5	94.1
60	93.6	95.0	94.5	93.6	95.0	94.5
75	93.6	95.0	94.5	93.6	95.4	94.5
100	93.6	95.4	95.0	94.1	95.4	95.0
125	94.1	95.4	95.0	95.0	95.4	95.0

	OPEN DRIP-PROOF MOTORS			TOTALLY ENCLOSED FAN-COOLED MOTORS		
NUMBER OF POLES►	2	4	6	2	4	6
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	3600	1800	1200
MOTOR HORSEPOWER▼						
150	94.1	95.8	95.4	95.0	95.8	95.8
200	95.0	95.8	95.4	95.4	96.2	95.8
250	95.0	95.8	95.4	95.8	96.2	95.8
300	95.4	95.8	95.4	95.8	96.2	95.8
350	95.4	95.8	95.4	95.8	96.2	95.8
400	95.8	95.8	95.8	95.8	96.2	95.8
450	95.8	96.2	96.2	95.8	96.2	95.8
500	95.8	96.2	96.2	95.8	96.2	95.8

[a] Nominal efficiencies shall be established in accordance with DOE 10 C.F.R. 431.

Table C405.8(2)
Minimum Nominal Full-load Efficiency of General Purpose Electric Motors (Subtype II) And All Design B Motors Greater Than 200 Horsepower[a]

	OPEN DRIP-PROOF MOTORS				TOTALLY ENCLOSED FAN COOLED MOTORS			
NUMBER OF POLES►	2	4	6	8	2	4	6	8
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	900	3600	1800	1200	900
MOTOR HORSEPOWER▼								
1	NR	82.5	80.0	74.0	75.5	82.5	80.0	74.0
1.5	82.5	84.0	84.0	75.5	82.5	84.0	85.5	77.0
2	84.0	84.0	85.5	85.5	84.0	84.0	86.5	82.5
3	84.0	86.5	86.5	86.5	85.5	87.5	87.5	84.0
5	85.5	87.5	87.5	87.5	87.5	87.5	87.5	85.5
7.5	87.5	88.5	88.5	88.5	88.5	89.5	89.5	85.5
10	88.5	89.5	90.2	89.5	89.5	89.5	89.5	88.5
15	89.5	91.0	90.2	89.5	90.2	91.0	90.2	88.5
20	90.2	91.0	91.0	90.2	90.2	91.0	90.2	89.5
25	91.0	91.7	91.7	90.2	91.0	92.4	91.7	89.5
30	91.0	92.4	92.4	91.0	91.0	92.4	91.7	91.0
40	91.7	93.0	93.0	91.0	91.7	93.0	93.0	91.0
50	92.4	93.0	93.0	91.7	92.4	93.0	93.0	91.7
60	93.0	93.6	93.6	92.4	93.0	93.6	93.6	91.7
75	93.0	94.1	93.6	93.6	93.0	94.1	93.6	93.0
100	93.0	94.1	94.1	93.6	93.6	94.5	94.1	93.0
125	93.6	94.5	94.1	93.6	94.5	94.5	94.1	93.6
150	93.6	95.0	94.5	93.6	94.5	95.0	95.0	93.6
200	94.5	95.0	94.5	93.6	95.0	95.0	95.0	94.1
250	94.5	95.4	95.4	94.5	95.4	95.0	95.0	94.5
300	95.0	95.4	95.4	NR	95.4	95.4	95.0	NR
350	95.0	95.4	95.4	NR	95.4	95.4	95.0	NR
400	95.4	95.4	NR	NR	95.4	95.4	NR	NR
450	95.8	95.8	NR	NR	95.4	95.4	NR	NR

	OPEN DRIP-PROOF MOTORS				TOTALLY ENCLOSED FAN COOLED MOTORS			
NUMBER OF POLES►	2	4	6	8	2	4	6	8
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	900	3600	1800	1200	900
MOTOR HORSEPOWER▼								
500	95.8	95.8	NR	NR	95.4	95.8	NR	NR

[a] Nominal efficiencies shall be established in accordance with DOE 10 C.F.R. 431.
NR - No requirement.

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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40509 Section C405.9—((~~Transformers~~)) Vertical and horizontal transportation systems.

((~~**C405.9 Transformers.** The minimum efficiency of a low voltage dry-type distribution transformer shall be the Class I Efficiency Levels for distribution transformers specified in Table 4-2 of NEMA TP-1.~~)) **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 de-energize 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 reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.

EXCEPTION: A power factor controller that reduces operating voltage in response to light loading conditions may be provided in place 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40510 Section C405.10—((~~Walk-in coolers and freezers~~)) Controlled receptacles.

((~~**C405.10 Walk-in coolers and walk-in freezers.** Walk-in coolers and walk-in freezers shall comply with all of the following:~~

~~1. Lights shall use light sources with an efficacy of 40 lumens per watt or more, including ballast losses (if any). Light sources with an efficacy of less than 40 lumens per watt, including ballast losses (if any), may be used in con-~~

~~junction with a timer or device that turns off the lights within 15 minutes of when the *walk-in cooler* or *walk-in freezer* is not occupied by people.~~)) **C405.10 Controlled receptacles.** 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 (2,323 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 accessible 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40511 ((~~Section C405.11—Refrigerated warehouse coolers and freezers.~~)) Reserved.

((~~**C405.11 Refrigerated warehouse coolers and refrigerated warehouse freezers.** Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with all of the following:~~

~~1. Lights shall use light sources with an efficacy of 40 lumens per watt or more, including ballast losses (if any). Light sources with an efficacy of less than 40 lumens per watt, including ballast losses (if any), may be used in conjunction with a timer or device that turns off the lights within 15 minutes of when the *refrigerated warehouse cooler* or *refrigerated warehouse freezer* is not occupied by people.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40512 ((~~Section C405.12—Escalators and moving walks.~~)) Reserved.

((~~**C405.12 Escalators and moving walks.**~~

~~**C405.12.1 Variable speed escalators.** Where variable speed escalators and moving walks are permitted by the administrative authority, all escalators and moving walks shall reduce their operating speed to no more than 15 feet per minute when no passengers have been detected for a period of time not exceeding three times the amount of time required to transfer a passenger between landings. Such escalators and moving walks shall comply with the requirements of ANSI/ASME A17.1 for variable speed escalators and moving walks.~~

~~EXCEPTION: A power factor controller that reduces operating voltage in response to light loading conditions may be provided in place of the variable speed function.~~

~~**C405.12.2 Regenerative drive.** Escalators designed either for one-way down operation only or for reversible operation shall have variable frequency regenerative drives that supply electrical energy to the building electrical system when loaded with more than 5 passengers.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40600 Section C406—Additional efficiency package options.

((~~Sections C406.1 through C406.4 are not adopted.~~)) **C406.1 Requirements.** Buildings shall comply with no less than two of the following:

1. More efficient HVAC performance in accordance with Section C406.2.

2. Reduced lighting power in accordance with Section C406.3.

3. Enhanced lighting controls in accordance with Section C406.4.

4. On-site supply of renewable energy in accordance with Section C406.5.

5. Provision of a dedicated outdoor air system for certain HVAC equipment in accordance with Section C406.6.

6. High-efficiency service water heating in accordance with Section C406.7.

7. Enhanced envelope performance in accordance with Section C406.8.

8. Reduced air infiltration in accordance with Section C406.9.

C406.1.1 Tenant spaces. Tenant spaces shall comply with Section C406.2, C406.3, C406.4, or C406.7, where applicable. Where an entire building complies with Section C406.5, C406.8 or C406.9, tenant spaces within the building shall be deemed to comply with this section.

NEW SECTION

WAC 51-11C-40602 Section C406.2—HVAC option.

C406.2 More efficient HVAC equipment and fan performance. Buildings shall comply with Sections C406.2.1 through C406.2.3.

C406.2.1 HVAC system selection. No less than 90 percent of the total HVAC capacity serving the building shall be pro-

vided by equipment that is listed in Tables C403.2.3(1) through C403.2.3(9) or a combination thereof.

C406.2.2 Minimum equipment efficiency. Equipment shall exceed the minimum efficiency requirements listed in Tables C403.2.3(1) through C403.2.3(7) 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.

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 an energy efficiency classification 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.

NEW SECTION

WAC 51-11C-40603 Section C406.3—LPA option.

C406.3 Reduced lighting power. Buildings shall comply with Sections C406.3.1 and, where applicable, C406.3.2.

C406.3.1 Reduced lighting power density. The total interior lighting power (watts) of the building shall be determined by using 75 percent of the lighting power values specified in Table C405.4.2(1) times the floor area for the building types, or by using 75 percent of the interior lighting power allowance calculated by the Space-by-Space Method in Section C405.4.2.

C406.3.2 Lamp fraction. Not less than 95 percent of the interior lighting power (watts) from lamps in permanently installed light fixtures in dwelling units and sleeping units shall be provided by lamps with a minimum efficacy of 60 lumens per watt.

NEW SECTION

WAC 51-11C-40604 Section C406.4—Lighting controls option.

C406.4 Enhanced digital lighting controls. Interior lighting shall be located, scheduled and operated in accordance with Section C405.2.2 and no less than 90 percent of the total installed interior lighting power 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:

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. Not 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.

NEW SECTION

WAC 51-11C-40605 Section C406.5—On-site renewable energy option.

C406.5 On-site renewable energy. Buildings shall be provided with on-site renewable energy systems with a total system rating per square foot of conditioned floor area of the building of not less than the value specified in Table C406.5.

NEW SECTION

WAC 51-11C-40606 Section C406.6—DOAS option.

C406.6 Dedicated outdoor air system (DOAS). For buildings not subject to the provisions of Section C403.2.6.1, provide DOAS in accordance with Section C403.2.6.1.

NEW SECTION

WAC 51-11C-40607 Section C406.7—Service water heating option.

C406.7 Reduced energy use in service water heating. Buildings shall comply with Sections C406.7.7 and C406.7.2.

C406.7.1 Building type. Not less than 90 percent of the conditioned floor area 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: Buildings with residential occupancies.

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.

C406.7.1 Load fraction. Not less than 60 percent of the annual building service hot water energy use, or not less than 100 percent of the annual building service hot water heating energy use in buildings subject to the requirements of Section C403.6.4, 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.

2. Waste heat recovery from service hot water, heat recovery chillers, building equipment, process equipment, a combined heat and power system, or other *approved* system.

3. Solar water-heating systems.

NEW SECTION

WAC 51-11C-40608 Section C406.8—Envelope option.

C406.8 Enhanced envelope performance. The total UA of the building thermal envelope shall be 15 percent lower than the maximum allowable UA for a building of identical configuration and fenestration area in accordance with Section C402.1.4, where UA equals the sum of the *U*-values of each distinct envelope assembly multiplied by the area in square feet of that assembly.

NEW SECTION

WAC 51-11C-40609 Section C406.9—Air infiltration option.

C406.9 Reduced air infiltration. 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 0.25 cfm/ft^2 (2.0 L/s•m^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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40702 Section C407.2—Mandatory requirements.

C407.2 Mandatory requirements. Compliance with this section requires that the criteria of Sections ((~~C402.4~~)) C402.5, C403.2, C404 and C405 be met.

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 code.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40703 Section C407.3—Performance-based compliance.

C407.3 Performance-based compliance. Compliance based on total building performance requires that a proposed building (*proposed design*) be shown to have an annual energy consumption based on site energy expressed in Btu and Btu per square foot of *conditioned floor area* that is less than or equal to ((~~the annual energy consumption of~~)) 87 percent of that of the *standard reference design*.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40705 Section C407.5—Calculation procedure.

C407.5 Calculation procedure. Except as specified by this section, the *standard reference design* and *proposed design* shall be configured and analyzed using identical methods and techniques.

C407.5.1 Building specifications. The *standard reference design* and *proposed design* shall be configured and analyzed as specified by Table C407.5.1(1). Table C407.5.1(1) shall include by reference all notes contained in Table ((~~C402.2~~)) C402.1.4.

C407.5.2 Thermal blocks. The *standard reference design* and *proposed design* shall be analyzed using identical thermal blocks as specified in Section C407.5.2.1, C407.5.2.2 or C407.5.2.3.

C407.5.2.1 HVAC zones designed. Where HVAC *zones* are defined on HVAC design drawings, each HVAC *zone* shall be modeled as a separate thermal block.

EXCEPTION: Different HVAC *zones* shall be allowed to be combined to create a single thermal block or identical thermal blocks to which multipliers are applied provided:

1. The space use classification is the same throughout the thermal block.

2. All HVAC *zones* in the thermal block that are adjacent to glazed exterior walls face the same orientation or their orientations are within 45 degrees (0.79 rad) of each other.

3. All of the *zones* are served by the same HVAC system or by the same kind of HVAC system.

C407.5.2.2 HVAC zones not designed. Where HVAC *zones* have not yet been designed, thermal blocks shall be defined based on similar internal load densities, occupancy, lighting, thermal and temperature schedules, and in combination with the following guidelines:

1. Separate thermal blocks shall be assumed for interior and perimeter spaces. Interior spaces shall be those located

more than 15 feet (4572 mm) from an exterior wall. Perimeter spaces shall be those located closer than 15 feet (4572 mm) from an *exterior wall*.

2. Separate thermal blocks shall be assumed for spaces adjacent to glazed exterior walls: A separate *zone* shall be provided for each orientation, except orientations that differ by no more than 45 degrees (0.79 rad) shall be permitted to be considered to be the same orientation. Each *zone* shall include floor area that is 15 feet (4572 mm) or less from a glazed perimeter wall, except that floor area within 15 feet (4572 mm) of glazed perimeter walls having more than one orientation shall be divided proportionately between *zones*.

3. Separate thermal blocks shall be assumed for spaces having floors that are in contact with the ground or exposed to ambient conditions from *zones* that do not share these features.

4. Separate thermal blocks shall be assumed for spaces having exterior ceiling or roof assemblies from *zones* that do not share these features.

C407.5.2.3 Multifamily ((~~Group R~~)) residential buildings. ((~~Group R~~)) Residential spaces shall be modeled using one thermal block per space except that those facing the same orientations are permitted to be combined into one thermal block. Corner units and units with roof or floor loads shall only be combined with units sharing these features.

C407.5.3 Equipment efficiencies. All HVAC equipment in the standard reference design shall be modeled at the minimum efficiency levels, both part load and full load, in accordance with Section C403.2.3. Chillers shall use Path A efficiencies as shown in Table C403.2.3(7). Where efficiency ratings include supply fan energy, the efficiency rating shall be adjusted to remove the supply fan energy. For Baseline Systems HVAC Systems 3, 4, 6, 8, 9, 10 and 11, calculate the minimum $COP_{nfcooling}$ and $COP_{nfheating}$ using the equation for the applicable performance rating as indicated in Tables C403.2.3(1) through C403.2.3(3). Where a full- and part-load efficiency rating is provided in Tables C403.2.3(1) through C403.2.3(3), use Equation 4-12.

(Equation 4-12)

$$COP_{nfcooling} = 7.84E\text{-}8 \times EER \times Q + 0.338 \times EER$$

$$COP_{nfcooling} = -0.0076 \times SEER^2 + 0.3796 \times SEER$$

$$COP_{nfheating} = 1.48E\text{-}7 \times COP_{47} \times Q + 1.062 \times COP_{47} \text{ (applies to heat-pump heating efficiencies only)}$$

$$COP_{nfheating} = -0.0296 \times HSPF^2 + 0.7134 \times HSPF$$

Where:

$COP_{nfcooling}$ = The packaged HVAC equipment cooling energy efficiency.

$COP_{nfheating}$ = The packaged HVAC equipment heating energy efficiency.

Q = The AHRI-rated cooling capacity in Btu/h.

EER, SEER, COP and HSPF shall be at AHRI test conditions. Fan energy shall be modeled separately according to Table C407.5.1(1).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407051 Table C407.5.1(1)—Specifications for the standard reference and proposed design.

Table C407.5.1(1)
Specifications for the Standard Reference and Proposed Designs

Building Component Characteristics	Standard Reference Design	Proposed Design
Space use classification	Same as proposed	The space use classification shall be chosen in accordance with Table ((~~C405.5.2~~)) C405.4.2 for all areas of the building covered by this permit. Where the space use classification for a building is not known, the building shall be categorized as an office building.
Roofs	Type: Insulation entirely above deck	As proposed
	Gross area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
	Solar absorptance: 0.75	As proposed
	Emittance: 0.90	As proposed
Walls, above-grade	Type: Mass wall if proposed wall is mass; otherwise steel-framed wall	As proposed
	Gross area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
	Solar absorptance: 0.75	As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
	Emittance: 0.90	As proposed
Walls, below-grade	Type: Mass wall	As proposed
	Gross area: Same as proposed	As proposed
	U-Factor: From Table ((~~C402.1.2~~)) C402.1.4 with insulation layer on interior side of walls	As proposed
Floors, above-grade	Type: Joist/framed floor	As proposed
	Gross area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
Floors, slab-on-grade	Type: Unheated	As proposed
	F-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
Opaque Doors	Type: Swinging	As proposed
	Area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.2~~)) C402.1.4	As proposed
Vertical Fenestration Other than opaque doors	Area 1. The proposed vertical fenestration area; where the proposed vertical fenestration area is less than 30 percent of above-grade wall area. 2. 30 percent of above-grade wall area; where the proposed vertical fenestration area is 30 percent or more of the above-grade wall area.	As proposed
	U-factor: From Table ((~~C402.3~~)) C402.4 for the same framing material as proposed	As proposed
	SHGC: From Table ((~~C402.3~~)) C402.4 except that for climates with no requirement (NR) SHGC = 0.40 shall be used	As proposed
	External shading and PF: None	As proposed
Skylights	Area 1. The proposed skylight area; where the proposed skylight area is less than 3 percent of gross area of roof assembly. 2. 3 percent of gross area of roof assembly; where the proposed skylight area is 3 percent or more of gross area of roof assembly.	As proposed
	U-factor: From Table ((~~C402.3~~)) C402.4	As proposed
	SHGC: From Table ((~~C402.3~~)) C402.4 except that for climates with no requirement (NR) SHGC = 0.40 shall be used	As proposed
Air leakage	For infiltration, the air leakage rate as determined below shall be modeled at 100% when the building fan system is off, and at 25% when the building fan system is on, unless otherwise approved by the building official for unusually pressurized buildings. Per PNNL Report 18898, Infiltration Modeling Guidelines for Commercial Building Energy Analysis, the building air leakage rates as determined in accordance with Section C402.5.1.2 at 0.30 in. w.g. (75 Pa) shall be converted	The Proposed Design air-leakage rate shall be the same as the Standard Design.

Building Component Characteristics	Standard Reference Design	Proposed Design
	for modeling in annual energy analysis programs by being multiplied by 0.112 unless other multipliers are approved by the building official (e.g., a tested air leakage of 0.40 cfm/ft^2 of total building envelope area at 0.30 in. w.g. (75 Pa) would be calculated at 0.045 cfm/ft^2 of building envelope area). The calculated infiltration rate shall be normalized to the input required by the modeling software.	
Lighting, interior	The interior lighting power shall be determined in accordance with Table ((~~C405.5.2. Where the occupancy of the building is not known, the lighting power density shall be 1.0 watt per square foot (10.73 W/m^2) based on the categorization of buildings with unknown space classification as offices~~)) C405.4.2. As proposed when the occupancy of the space is not known. Automatic lighting controls (e.g., programmable controls or automatic controls for daylight utilization) shall be modeled in *the standard reference design* as required by Section C405.	As proposed; where the occupancy of the space is not known, the lighting power density shall be based on the space classification as offices in Table C405.4.2(1).
Lighting, exterior	The lighting power shall be determined in accordance with Table ((~~C405.6.2(2)~~)) C405.5.2(2). Areas and dimensions of tradable and nontradable surfaces shall be the same as proposed.	As proposed
Internal gains	Same as proposed	Receptacle, motor and process loads shall be modeled and estimated based on the space use classification. All end-use load components within and associated with the building shall be modeled to include, but not be limited to, the following: Exhaust fans, parking garage ventilation fans, exterior building lighting, swimming pool heaters and pumps, elevators, escalators, refrigeration equipment and cooking equipment.
Schedules	Same as proposed	Operating schedules shall include hourly profiles for daily operation and shall account for variations between weekdays, weekends, holidays and any seasonal operation. Schedules shall model the time-dependent variations in occupancy, illumination, receptacle loads, thermostat settings, mechanical ventilation, HVAC equipment availability, service hot water usage and any process loads. The schedules shall be typical of the proposed building type as determined by the designer and approved by the jurisdiction.

Building Component Characteristics	Standard Reference Design	Proposed Design
((~~Mechanical ventilation~~)) Outdoor airflow rates	((~~Same as proposed, except when modeling demand control ventilation in the proposed design when its use is not required by Section C403.2.5.1 or occupancy sensor ventilation controls when their use is not required by Section C403.2.5.2.~~)) Same as proposed, or no higher than those allowed by Section C403.2.6 (without exception 1), whichever is less. Demand control ventilation: Shall be modeled as required by Section C403.2.6.1 including reduction to the minimum ventilation rate when unoccupied.	As proposed, in accordance with Section ((~~C403.2.5~~)) C403.2.6. As proposed
Heating systems	Fuel type: Same as proposed design Equipment type[a]: From Tables C407.5.1(2) ((~~and~~)), C407.5.1(3), and C407.5.1(4) Efficiency: From Tables C403.2.3(2), C403.2.3(3), C403.2.3(4) and C403.2.3(5) Preheat coils: ((~~If the HVAC system in the proposed design has a preheat coil and a preheat coil can be modeled in the *standard reference design*, the *standard reference design* shall be modeled with a preheat coil controlled in the same manner as the proposed design~~)) For HVAC system numbers 1 through 4, a preheat coil shall be modeled controlled to a fixed setpoint 20°F less than the design room heating temperature setpoint. Capacity[b]: Sized proportionally to the capacities in the proposed design based on sizing runs, i.e., the ratio between the capacities used in the annual simulations and the capacities determined by the sizing runs shall be the same for both the proposed design and *standard reference design*, and shall be established such that no smaller number of unmet heating load hours and no larger heating capacity safety factors are provided than in the proposed design. Weather conditions used in sizing runs to determine *standard reference design* equipment capacities may be based either on hourly historical weather files containing typical peak conditions or on design days developed using 99.6% heating design temperatures and 1% dry-bulb and 1% wet-bulb cooling design temperatures.	As proposed As proposed As proposed As proposed
Cooling systems	Fuel type: Same as proposed design Equipment type[c]: From Tables C407.5.1(2) ((~~and~~)), C407.5.1(3), and C407.5.1(4) Efficiency: From Tables C403.2.3(1), C403.2.3(2) and C403.2.3(3). Chillers shall use Path A efficiency. Capacity[b]: Sized proportionally to the capacities in the proposed design based on sizing runs, i.e., the ratio between the capacities used in the annual simulations and the capacities determined by the sizing runs shall be the same for both the proposed design and *standard reference design*, and shall be established such that no	As proposed As proposed As proposed As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
	smaller number of unmet cooling load hours and no larger cooling capacity safety factors are provided than in the proposed design. Economizer[d]: Same as proposed, in accordance with Section ((~~C403.4.1~~)) C403.3. The high-limit shutoff shall be a dry-bulb switch with a setpoint as determined by Table ((~~C403.3.1.1.3(2)~~)) C403.3.3.3.	As proposed
Energy recovery	*Standard reference design* systems shall be modeled where required in Section ((~~C403.2.6~~)) C403.5.	As proposed
Fan systems	Airflow rate: System design supply airflow rates for the *standard reference design* shall be based on a supply-air-to-room-air temperature difference of 20°F or the required ventilation air or makeup air, whichever is greater. If return or relief fans are specified in the proposed design, the *standard reference design* shall also be modeled with fans serving the same functions and sized for the *standard reference design* system supply fan air quantity less the minimum outdoor air, or 90% of the supply fan air quantity, whichever is larger. Motor brake horsepower: System fan electrical power for supply, return, exhaust, and relief (excluding power to fan-powered VAV boxes) shall be calculated using the following formulas: For systems ((~~8 and 10~~)) in Table C407.5.1(4), Pfan = CFMS × 0.3 For all other systems, including DOAS, Pfan = bhp × 746/Fan Motor Efficiency Where: Pfan = Electric power to fan motor (watts) bhp = Brake horsepower of *standard reference design* fan motor from Table ((~~C403.2.10.1(1)~~)) C403.2.12.1(1) - Option 2 Fan motor = The efficiency from Tables ((~~C403.2.13~~)) C405.8(1) through C405.8(4) for the efficiency next motor size greater than the bhp using the enclosed motor at 1800 rpm CFMS = The *standard reference design* system maximum design supply fan airflow rate in cfm DOAS fan power shall be calculated separately from the brake horsepower allowance.	As proposed As proposed
On-site renewable energy	No on-site renewable energy shall be modeled in the *standard reference design*.	As proposed. ((~~On-site renewable energy sources energy shall not be considered to be consumed energy and shall not be included in the proposed building performance.~~))
Shading from adjacent structures/terrain	Same as proposed.	For the *standard reference design* and the proposed building, shading by permanent structures and terrain shall be taken into account for computing energy consumption whether or not

Building Component Characteristics	Standard Reference Design	Proposed Design
		these features are located on the building site. A permanent fixture is one that is likely to remain for the life of the proposed design.
Service water heating	Fuel type: Same as proposed	As proposed
	Efficiency: From Table C404.2	As proposed
	Capacity: Same as proposed	
	Demand: Same as proposed	((~~Demand:~~)) Service hot-water energy consumption shall be calculated explicitly based upon the volume of service hot water required and the entering makeup water and the leaving service hot water temperatures. Entering water temperatures shall be estimated based upon the location. Leaving temperatures shall be based upon the end-use requirements. Service water loads and usage shall be the same for both the *standard reference design* and the proposed design and shall be documented by the calculation procedures recommended by the manufacturer's specifications or generally accepted engineering methods.
	Where no service water hot water system exists or is specified in the proposed design, no service hot water heating shall be modeled.	As proposed
	Drain water heat recovery: Not required.	As proposed Drain water heat recovery modeling shall take into account manufacturer's rated efficiencies per C404.9, quantity of connected drains, the proportional flow rates between the waste stream and the preheated stream. Reductions in service water heating energy use for drain water heat recovery shall be demonstrated by calculations.

[a] Where no heating system exists or has been specified, the heating system shall be modeled as fossil fuel. The system characteristics shall be identical in both the standard reference design and proposed design.

[b] The ratio between the capacities used in the annual simulations and the capacities determined by sizing runs shall be the same for both the standard reference design and proposed design.

[c] Where no cooling system exists or no cooling system has been specified, the cooling system shall be modeled as an air-cooled single-zone system, one unit per thermal zone. The system characteristics shall be identical in both the standard reference design and proposed design.

[d] ((~~Reserved.~~)) If an economizer is required in accordance with Section C403.3 and where no economizer exists or is specified in the proposed design, then an air economizer shall be provided in the standard reference design in accordance with Section C403.3.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-407052 Table C407.5.1(2)/(3)—HVAC systems map.

Table C407.5.1(2)
HVAC Systems Map for Buildings Governed by Section C403.2.6.1[d]

Condenser Cooling Source[a]	Heating System Classification[b]	Standard Reference Design HVAC System Type[c]	
		Single-Zone Group R System	All Other
Water/ground	Electric resistance	System 5	System 5
	Heat pump	System 6	System 6
	Fossil fuel	System 7	System 7
	Electric resistance	System 8	System 9
Air/none	Heat pump	System 8	System 9
	Fossil fuel	System 10	System 11

[a] Select "water/ground" if the proposed design system condenser is water or evaporatively cooled; select "air/none" if the condenser is air cooled. Closed-circuit dry coolers shall be considered air cooled. Systems utilizing district cooling shall be treated as if the condenser water type were "water." If no mechanical cooling is specified or the mechanical cooling system in the proposed design does not require heat rejection, the system shall be treated as if the condenser water type were "Air." For proposed designs with ground-source or groundwater-source heat pumps, the standard reference design HVAC system shall be water-source heat pump (System 6).

[b] Systems utilizing district heating (steam or hot water) or district cooling and systems with no heating capability shall be treated as if the heating system type were "fossil fuel" for the purpose of Standard Reference Design HVAC system selection. Otherwise, select the path that corresponds to the proposed design heat source: Electric resistance, heat pump (including air source and water source), or fuel fired. For systems with mixed fuel heating sources, the system or systems that use the secondary heating source type (the one with the smallest total installed output capacity for the spaces served by the system) shall be modeled identically in the standard reference design and the primary heating source type shall be used to determine *standard reference design* HVAC system type.

[c] Select the *standard reference design* HVAC system category: The system under "single-zone Group R system" shall be selected if the HVAC system in the proposed design is a single-zone system and serves a residential space. The system under "single-zone other than Group R system" shall be selected if the HVAC system in the proposed design is a single-zone system and serves other than Group R spaces. The system under "all other" shall be selected for all other cases.

[d] This table covers those building types required by Section C403.2.6.1 to install Dedicated Outdoor Air Systems: Office, retail, education, libraries and fire stations.

Table C407.5.1(3)
HVAC Systems Map for All Other Buildings

Condenser Cooling Source[a]	Heating System Classification[b]	Standard Reference Design HVAC System Type[c]		
		Single-Zone Group R System	Single-Zone Other than Group R System	All Other
Water/ground	Electric resistance	System 5	System 5	System 1
	Heat pump	System 6	System 6	System 6
	Fossil fuel	System 7	System 7	System 2
	Electric resistance	System 8	System 9	System 3
Air/none	Heat pump	System 8	System 9	System 3
	Fossil fuel	System 10	System 11	System 4

[a] Select "water/ground" if the proposed design system condenser is water or evaporatively cooled; select "air/none" if the condenser is air cooled. Closed-circuit dry coolers shall be considered air cooled. Systems utilizing district cooling shall be treated as if the condenser water type were "water." If no mechanical cooling is specified or the mechanical cooling system in the proposed design does not require heat rejection, the system shall be treated as if the condenser water type were "Air." For proposed designs with ground-source or groundwater-source heat pumps, the standard reference design HVAC system shall be water-source heat pump (System 6).

[b] Systems utilizing district heating (steam or hot water) or district cooling and systems with no heating capability shall be treated as if the heating system type were "fossil fuel" for the purpose of Standard Reference Design HVAC system selection. Otherwise, select the path that corresponds to the proposed design heat source: Electric resistance, heat pump (including air source and water source), or fuel fired. For systems with mixed fuel heating sources, the system or systems that use the secondary heating source type (the one with the smallest total installed output capacity for the spaces served by the system) shall be modeled identically in the standard reference design and the primary heating source type shall be used to determine *standard reference design* HVAC system type.

[c] Select the *standard reference design* HVAC system category: The system under "single-zone Group R system" shall be selected if the HVAC system in the proposed design is a single-zone system and serves a residential space. The system under "single-zone other than Group R system" shall be selected if the HVAC system in the proposed design is a single-zone system and serves other than Group R spaces. The system under "all other" shall be selected for all other cases.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407053 Table ((~~C407.5.1(3)~~)) C407.5.1(4)—Specifications for the standard reference design HVAC system description.

Table ((~~C407.5.1(3)~~)) C407.5.1(4)
Specifications for the Standard Reference Design HVAC System Descriptions

System No.	System Type	Fan Control	Cooling Type	Heating Type
1	Variable air volume with parallel fan-powered boxes[a]	VAV[d]	Chilled water[e]	Electric resistance
2	Variable air volume with reheat[b]	VAV[d]	Chilled water[e]	Hot water fossil fuel boiler[f]
3	Packaged variable air volume with parallel fan-powered boxes[a]	VAV[d]	Direct expansion[c]	Electric resistance
4	Packaged variable air volume with reheat[b]	VAV[d]	Direct expansion[c]	Hot water fossil fuel boiler[f]
5	Two-pipe fan coil	Constant volume[i,j]	Chilled water[e]	Electric resistance
6	Water-source heat pump	Constant volume[i,j]	Direct expansion[c]	Electric heat pump and boiler[g]
7[k]	Four-pipe fan coil	Constant volume[i,j]	Chilled water[e]	Hot water fossil fuel boiler[f]
8[k]	Packaged terminal heat pump	Constant volume[i,j]	Direct expansion[c]	Electric heat pump[h]
9[k]	Packaged rooftop heat pump	Constant volume[i,j]	Direct expansion[c]	Electric heat pump[h]
10[k]	Packaged terminal air conditioner	Constant volume[i,j]	Direct expansion	Hot water fossil fuel boiler[f]
11[k]	Packaged rooftop air conditioner	Constant volume[i,j]	Direct expansion	Fossil fuel furnace

For SI: 1 foot = 304.8 mm, 1 cfm/ft^2 = 0.0004719, 1 Btu/h = 0.293/W, °C = [(°F) -32/1.8].

[a] **VAV with parallel boxes:** Fans in parallel VAV fan-powered boxes shall be sized for 50 percent of the peak design flow rate and shall be modeled with 0.35 W/cfm fan power. Minimum volume setpoints for fan-powered boxes shall be equal to the minimum rate for the space required for ventilation consistent with Section ((~~C403.4.5~~)) C403.4.4, Exception ((~~5~~)) 4. Supply air temperature ((~~setpoint shall be constant at the design condition~~)) shall be reset based on zone demand. Design airflow rates shall be sized for the maximum reset supply air temperature. The air temperature for cooling shall be reset higher by 5°F under the minimum cooling load conditions.

[b] **VAV with reheat:** Minimum volume setpoints for VAV reheat boxes shall be 0.4 cfm/ft^2 of floor area. Supply air temperature shall be reset based on zone demand ((~~from the design temperature difference to a 10°F temperature difference under minimum load conditions~~)). Design airflow rates shall be sized for the maximum reset supply air temperature((~~, i.e., a 10°F temperature difference~~)). The air temperature for cooling shall be reset higher by 5°F under the minimum cooling load conditions.

[c] **Direct expansion:** The fuel type for the cooling system shall match that of the cooling system in the proposed design.

[d] **VAV:** When the proposed design system has a supply, return or relief fan motor horsepower (hp) requiring variable flow controls as required by Section ((~~C403.2.12~~)) C403.2.11.5, the corresponding fan in the VAV system of the standard reference design shall be modeled assuming a variable speed drive. For smaller fans, a forward-curved centrifugal fan with inlet vanes shall be modeled. If the proposed design's system has a direct digital control system at the zone level, static pressure setpoint reset based on zone requirements in accordance with Section ((~~C403.4.2~~)) C403.4.1 shall be modeled.

e **Chilled water:** For systems using purchased chilled water, the chillers are not explicitly modeled. Otherwise, the standard reference design's chiller plant shall be modeled with chillers having the number as indicated in Table ((~~C407.5.1(4)~~)) C407.5.1(5) as a function of standard reference building chiller plant load and type as indicated in Table ((~~C407.5.1(5)~~)) C407.5.1(6) as a function of individual chiller load. Where chiller fuel source is mixed, the system in the standard reference design shall have chillers with the same fuel types and with capacities having the same proportional capacity as the proposed design's chillers for each fuel type. Chilled water supply temperature shall be modeled at 44°F design supply temperature and 56°F return temperature. Piping losses shall not be modeled in either building model. Chilled water supply water temperature shall be reset in accordance with Section ((~~C403.4.3.4~~)) C403.4.2.4. Pump system power for each pumping system shall be the same as the proposed design; if the proposed design has no chilled water pumps, the standard reference design pump power shall be 22 W/gpm (equal to a pump operating against a 75-foot head, 65-percent combined impeller and motor efficiency). The chilled water system shall be modeled as primary-only variable flow with flow maintained at the design rate through each chiller using a bypass. Chilled water pumps shall be modeled as riding the pump curve or with variable-speed drives when required in Section ((~~C403.4.3.4~~)) C403.4.2.4. The heat rejection device shall be an axial fan cooling tower with variable speed fans if required in Section ((~~C403.4.4 or Section C403.2.12~~)) C403.4.3. Condenser water design supply temperature shall be 85°F or 10°F approach to design wet-bulb temperature, whichever is lower, with a design temperature rise of 10°F. The tower shall be controlled to maintain a 70°F leaving water temperature where weather permits, floating up to leaving water temperature at design conditions. Pump system power for each pumping system shall be the same as the proposed design; if the proposed design has no condenser water pumps, the standard reference design pump power shall be 19 W/gpm (equal to a pump operating against a 60-foot head, 60-percent combined impeller and motor efficiency). Each chiller shall be modeled with separate condenser water and chilled water pumps interlocked to operate with the associated chiller.

f **Fossil fuel boiler:** For systems using purchased hot water or steam, the boilers are not explicitly modeled. Otherwise, the boiler plant shall use the same fuel as the proposed design and shall be natural draft. The standard reference design boiler plant shall be modeled with a single boiler if the standard reference design plant load is 600,000 Btu/h and less and with two equally sized boilers for plant capacities exceeding 600,000 Btu/h. Boilers shall be staged as required by the load. Hot water supply temperature shall be modeled at 180°F design supply temperature and 130°F return temperature. Piping losses shall not be modeled in either building model. Hot water supply water temperature shall be reset in accordance with Section ((~~C403.4.3.4~~)) C403.4.2.4. Pump system power for each pumping system shall be the same as the proposed design; if the proposed design has no hot water pumps, the standard reference design pump power shall be 19 W/gpm (equal to a pump operating against a 60-foot head, 60-percent combined impeller and motor efficiency). The hot water system shall be modeled as primary only with continuous variable flow. Hot water pumps shall be modeled as riding the pump curve or with variable speed drives when required by Section ((~~C403.4.3.4~~)) C403.4.2.4.

g **Electric heat pump and boiler:** Water-source heat pumps shall be connected to a common heat pump water loop controlled to maintain ((~~temperatures between~~)) a heating setpoint of 60°F and cooling setpoint of 90°F. Heat rejection from the loop shall be provided by an axial fan closed-circuit evaporative fluid cooler with variable speed fans if required in Section ((~~C403.4.2~~)) C403.4.2.1 or ((~~Section C403.2.12~~)) C403.2.13. Heat addition to the loop shall be provided by a boiler that uses the same fuel as the proposed design and shall be natural draft. If no boilers exist in the proposed design, the standard reference building boilers shall be fossil fuel. The standard reference design boiler plant shall be modeled with a single boiler if the standard reference design plant load is 600,000 Btu/h or less and with two equally sized boilers for plant capacities exceeding 600,000 Btu/h. Boilers shall be staged as required by the load. Piping losses shall not be modeled in either building model. Pump system power shall be the same as the proposed design; if the proposed design has no pumps, the standard reference design pump power shall be 22 W/gpm, which is equal to a pump operating against a 75-foot head, with a 65-percent combined impeller and motor efficiency. Loop flow shall be variable with flow shutoff at each heat pump when its compressor cycles off as required by Section ((~~C403.4.3.3~~)) C403.4.2.3. Loop pumps shall be modeled as riding the pump curve or with variable speed drives when required by Section ((~~C403.4.3.4~~)) C403.4.2.4.

h **Electric heat pump:** Electric air-source heat pumps shall be modeled with electric auxiliary heat and an outdoor air thermostat. The system shall be controlled ((~~with a multistage space thermostat and an outdoor air thermostat wired~~)) to energize auxiliary heat only ((~~on the last thermostat stage and~~)) when outdoor air temperature is less than 40°F. ((~~In heating operation the system shall be controlled to operate the heat pump as the first stage of heating, before energizing the electric auxiliary heat,~~)) The air-source heat pump shall be modeled to continue to operate while auxiliary heat is energized. The air-source heat pump shall be modeled to operate down to a minimum outdoor air temperature of 35°F for System No. 8 or ((~~17°F~~)) 0°F for System No. 9. If the Proposed Design utilizes the same system type as the Standard Design (PTHP or PSZ-HP), the Proposed Design shall be modeled with the same minimum outdoor air temperature for heat pump operation as the Standard Design. For temperatures below the stated minimum outdoor air temperatures, the electric auxiliary heat shall be controlled to provide the full heating load.

i **Constant volume:** For building types governed by Section C403.2.6.1, fans shall be controlled ((~~in the same manner as in the proposed design; i.e., fan operation whenever the space is occupied or~~)) to cycle with load; i.e., fan operation cycled on calls for heating and cooling. If the fan is modeled as cycling and the fan energy is included in the energy efficiency rating of the equipment, fan energy shall not be modeled explicitly. For all other buildings, fans shall be controlled in the same manner as in the proposed design; i.e., fan operation whenever the space is occupied or fan operation cycled on calls for heating and cooling. If the fan is modeled as cycling and the fan energy is included in the energy efficiency rating of the equipment, fan energy shall not be modeled explicitly.

j **Fan speed control:** Fans shall operate as one- or two-speed as required by Section C403.2.11.5, regardless of the fan speed control used in the proposed building.

k **Outside air:** For building types governed by Section C403.2.6.1, outside air shall be supplied by a separate dedicated outside air system (DOAS) operating in parallel with terminal equipment. The terminal equipment fan system cycle calls for heating and cooling. DOAS shall include an Energy Recovery Ventilation System with a minimum effectiveness in accordance with Section C403.5.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407054 Table ((~~C407.5.1(4)~~)) C407.5.1(5)—Number of chillers.

Table ((~~C407.5.1(4)~~)) C407.5.1(5)
Number of Chillers

Total Chiller Plant Capacity	Number of Chillers
≤ 300 tons	1
> 300 tons, < 600 tons	2, sized equally
≥ 600 tons	2 minimum, with chillers added so that no chiller is larger than 800 tons, all sized equally

For SI: 1 ton = 3517 W.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407055 Table ((~~C407.5.1(5)~~)) C407.5.1(6)—Water chiller types.

Table ((~~C407.5.1(5)~~)) C407.5.1(6)
Water Chiller Types

Individual Chiller Plant Capacity	Electric-Chiller Type	Fossil Fuel Chiller Type
≤ 100 tons	Water-cooled Reciprocating	Single-effect absorption, direct fired
> 100 tons, < 300 tons	Water-cooled Screw	Double-effect absorption, direct fired
≥ 300 tons	Water-cooled Centrifugal	Double-effect absorption, direct fired

For SI: 1 ton = 3517 W.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40706 Section C407.6—Calculation software tool.

C407.6 Calculation software tools. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the *standard reference design* and the *proposed design* and shall include the following capabilities.

1. Building operation for a full calendar year (8,760 hours).

2. Climate data for a full calendar year (8,760 hours) and shall reflect *approved* coincident hourly data for temperature, solar radiation, humidity and wind speed for the building location.

3. Ten or more thermal zones.

4. Thermal mass effects.

5. Hourly variations in occupancy, illumination, receptacle loads, thermostat settings, mechanical ventilation, HVAC equipment availability, service hot water usage and any process loads.

6. Part-load performance curves for mechanical equipment.

7. Capacity and efficiency correction curves for mechanical heating and cooling equipment.

8. Printed *code official* inspection checklist listing each of the *proposed design* component characteristics from Table C407.5.1(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g., *R*-value, *U*-factor, SHGC, HSPF, AFUE, SEER, EF, etc.).

9. Air-side economizers with integrated control.

10. *Standard reference design* characteristics specified in Table C407.5.1(1).

C407.6.1 Specific approval. Performance analysis tools meeting the applicable subsections of Section C407 and tested according to ASHRAE Standard 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.

C407.6.2 Input values. Where calculations require input values not specified by Sections C402, C403, C404 and C405, those input values shall be taken from an *approved* source.

C407.6.3 Exceptional calculation methods. ((~~When~~)) Where the *simulation program* does not model a design, material, or device of the *proposed design*, an Exceptional Calculation Method shall be used if approved by the *((~~building~~)) code official*. If there are multiple designs, materials, or devices that the *simulation program* does not model, each shall be calculated separately and Exceptional Savings determined for each. ((~~At no time shall~~)) The total Exceptional Savings shall not constitute more than half of the difference between the *baseline building performance* and the *proposed building performance*. ((~~All~~)) Applications for approval of an exceptional method shall include:

1. Step-by-step documentation of the Exceptional Calculation Method performed detailed enough to reproduce the results;

2. Copies of all spreadsheets used to perform the calculations;

3. A sensitivity analysis of *energy* consumption when each of the input parameters is varied from half to double the value assumed;

4. The calculations shall be performed on a time step basis consistent with the *simulation program* used; and

5. The *Performance Rating* calculated with and without the Exceptional Calculation Method.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40801 Section C408.1—General.

C408.1 General. ((~~This section covers the commissioning of the building~~)) A building commissioning process led by a

certified commissioning professional shall be completed for mechanical systems in Section C403, service water heating systems in Section C404, electrical power and lighting systems in Section C405 and energy metering in Section C409.

EXCEPTION: Buildings, or portions thereof, which are exempt from Sections C408.2 through C408.6 may be excluded from the commissioning process.

C408.1.1 Commissioning in construction documents. Construction document notes shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements.

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. Items 1 through 4 shall be included with the construction documents, and items 5 through 8 shall be submitted prior to the first mechanical inspection. For projects where no mechanical inspection is required, items 5 through 8 shall be submitted prior to the first electrical inspection.

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.

2. Roles and responsibilities of the commissioning team, including statement of qualifications of the commissioning professional in accordance with Section C408.1.1.

3. A schedule of activities including systems testing and balancing, functional performance testing, and verification of the building documentation requirements in Section C103.6.

4. Where the certified commissioning professional is an employee of one of the registered design professionals of record or an employee or subcontractor of the project contractor, an In-House Commissioning Disclosure and Conflict Management Plan shall be submitted with 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.

5. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.

6. Functions to be tested.

7. Conditions under which the test will be performed.

8. Measurable criteria for performance.

C408.1.3 Final commissioning report. A final 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, lighting, service water heating and metering 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.

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 ((~~passing~~)) the final mechanical, plumbing and electrical inspections or obtaining a certificate of occupancy, the *((~~registered design~~))* *certified commissioning professional* or approved agency shall provide evidence of systems *commissioning* and completion in accordance with the provisions of this section.

Copies of all documentation shall be given to the owner and made available to the *code official* upon request in accordance with Section((~~s C408.1.2 and C408.1.3.~~

~~**C408.1.1 Commissioning plan.** A *commissioning plan* shall be developed by a *registered design professional* or approved agency and shall include the following items:~~

~~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.~~

~~2. Roles and responsibilities of the commissioning team.~~

~~3. A schedule of activities including systems testing and balancing, functional testing, and supporting documentation.~~

~~4. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.~~

~~5. Functions to be tested.~~

~~6. Conditions under which the test will be performed.~~

~~7. Measurable criteria for performance.~~

~~**C408.1.2 Preliminary commissioning report.**~~)) C408.1.4.3.

C408.1.4.1 Commissioning progress report for code compliance. A preliminary report of commissioning test procedures and results shall be completed and certified by the *((~~registered design~~))* *certified commissioning professional* or *approved agency* and provided to the building owner or owner's authorized agent. The report shall be organized with mechanical, lighting, service water heating and metering findings in separate sections to allow independent review. The report shall be identified as "Preliminary Commissioning Report" and shall identify:

1. Itemization of deficiencies found during testing required by this ((~~section~~)) code that have not been corrected at the time of report preparation.

2. Deferred tests that cannot be performed at the time of report preparation because of climatic conditions, with anticipated date of completion.

3. Climatic conditions required for performance of the deferred tests.

4. ((~~Record of progress and completion of operator training.~~

~~**C408.1.2.1**~~**))** Status of the project's record documents, manuals and systems operation training with respect to requirements in Section C103.6.

C408.1.4.2 Acceptance of report. Buildings, or portions thereof, shall not ((~~pass the final mechanical and electrical inspections or obtain a certificate of occupancy, until such time as the~~)) be considered acceptable for a final inspection pursuant to Section C104.3 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 Preliminary Commissioning Report. Completion of the Commissioning Compliance Checklist (Figure ((~~C408.1.2.1~~)) C408.1.4.2) is deemed to satisfy this requirement.

((~~C408.1.2.2~~)) C408.1.4.3 Copy of report. The *code official* shall be permitted to require that a copy of the Preliminary Commissioning Report be made available for review by the *code official*.

((**~~C408.1.3 Documentation requirements.~~** The *~~construction documents~~* shall specify that the *~~documents~~* described in this section be provided to the *~~building~~* owner within 90 days of the date of receipt of the *~~certificate of occupancy~~*.

~~C408.1.3.1 Record documents.~~ Construction documents shall be updated to convey a record of the alterations to the original design. Such updates shall include updated mechanical, electrical and control drawings red-lined, or redrawn if specified, that show all changes to size, type and locations of components, equipment and assemblies.

~~C408.1.3.2 Manuals.~~ An operating and maintenance manual shall be provided and include all of the following:

1. Submittal data stating equipment size and selected options for each piece of equipment requiring maintenance.

2. Manufacturer's operation manuals and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified.

3. Name and address of at least one service agency.

4. Controls system maintenance and calibration information, including wiring diagrams, schematics, record documents, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions.

5. A narrative of how each system is intended to operate, including recommended setpoints. Sequence of operation is not acceptable for this requirement.

~~C408.1.3.3 System balancing report.~~ A written report describing the activities and measurements completed in accordance with Section C408.2.2.

~~C408.1.3.4 Final commissioning report.~~ A report of test procedures and results identified as "Final Commissioning Report" shall be delivered to the building owner and 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.

EXCEPTION: Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.

~~C408.1.4 Systems operation training.~~ Training of the maintenance staff for equipment included in the manuals required by Section C408.1.3.2 shall include at a minimum:

1. Review of systems documentation.

2. Hands-on demonstration of all normal maintenance procedures, normal operating modes, and all emergency shutdown and start-up procedures.

3. Training completion report.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-408012 Figure ((~~C408.1.2.1~~)) C408.1.4.2—Commissioning compliance checklist.

Figure ((~~C408.1.2.1~~)) C408.1.4.2
Commissioning Compliance Checklist

~~Project Information~~	((**~~Project Name:~~**	
	~~Project Address:~~	
	~~Commissioning Authority:~~	
~~Commissioning Plan~~ (Section 408.1.1)	☐	**~~Commissioning Plan was used during construction and included items below~~** • ~~A narrative description of activities and the personnel intended to accomplish each one~~ • ~~Measurable criteria for performance~~ • ~~Functions to be tested~~
~~Systems Balancing~~ (Section C408.2.2)	☐	**~~Systems Balancing has been completed~~** • ~~Air and Hydronic systems are proportionately balanced in a manner to first minimize throttling losses.~~ • ~~Test ports are provided on each pump for measuring pressure across the pump.~~
~~Functional Testing~~	☐	**~~HVAC Systems Equipment Testing has been completed~~** (Section C408.2.3.1)

~~(Section C408.2.3, C408.3.1, C408.4.1, C408.4.1.3 and C408.5.1)~~		~~HVAC equipment has been tested to demonstrate the installation and operation of components, systems and system-to-system interfacing relationships in accordance with approved plans and specifications~~
	~~□~~	~~**HVAC Controls Functional Testing has been completed** (Section C408.2.3.2)~~ ~~HVAC controls have been tested to ensure that control devices are calibrated, adjusted and operate properly. Sequences of operation have been functionally tested to ensure they operate in accordance with approved plans and specifications~~
	~~□~~	~~**Economizers Functional Testing has been completed** (Section C408.2.3.3)~~ ~~Economizers operate in accordance with manufacturer's specifications~~
	~~□~~	~~**Lighting Controls Functional Testing has been completed** (Section C408.3.1)~~ ~~Lighting controls have been tested to ensure that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications~~
	~~□~~	~~**Service Water Heating System Functional Testing has been completed** (Section C408.4.1)~~ ~~Service water heating equipment has been tested to ensure that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications~~
	~~□~~	~~**Pool and Spa Functional Testing has been completed** (Section C408.4.1.3)~~ ~~Pools and spas have been tested to ensure that service water heating equipment, time switches and heat recovery equipment are calibrated, adjusted and operate in accordance with approved plans and specifications~~
	~~□~~	~~**Metering System Functional Testing has been completed** (Section C408.5.1)~~ ~~Energy source meters, energy end-use meters, the energy metering data acquisition system and required display are calibrated adjusted and operate in accordance with approved plans and specifications~~
~~**Supporting Documents**~~ ~~(Section 408.1.3.2)~~	~~□~~	~~**Manuals, record documents and training have been completed or are scheduled**~~ ~~• System documentation has been provided to the owner or scheduled date: __~~ ~~• Record documents have been submitted to owner or scheduled date: __~~ ~~• Training has been completed or scheduled date:~~
~~**Commissioning Report**~~ ~~(Section C408.1.2)~~	~~□~~	~~**Preliminary Commissioning Report submitted to Owner and includes items below**~~ ~~• Deficiencies found during testing required by this section which have not been corrected at the time of report preparation~~ ~~• Deferred tests, which cannot be performed at the time of report preparation due to climatic conditions~~
~~**Certification**~~	~~□~~	~~I hereby certify that all requirements for Commissioning have been completed in accordance with the Washington State Energy Code, including all items above~~ ~~__ -~~ ~~Building Owner or Owner's Representative Date))~~
Project Information	**Project Name:**	
	Project Address:	
	Certified Commissioning Professional:	
	Certifying Body:	
Commissioning Plan (Section 408.1.2)	□	**Commissioning Plan was used during construction**
Commissioned Systems (Section C408.2, C408.3, C408.4 and C408.6)	□	**Mechanical Systems were included in the Commissioning Process** (Section C408.2) Building mechanical systems have been tested to demonstrate the installation and operation of components, systems and system-to-system interfacing relationships in accordance with approved plans and specifications □ There are unresolved deficiencies with the mechanical systems. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Electrical Power or Lighting Systems were included in the Commissioning Process** (Section C408.4) Electrical power and automatic lighting controls have been tested to demonstrate the installation and operation of components, systems and system-to-system interfacing relationships in accordance with approved plans and specifications

		□ There are unresolved deficiencies with the electrical power and/or automatic lighting controls. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Service Water Heating Systems were included in the Commissioning Process** (Section C408.5) Service water heating systems have been tested to demonstrate that control devices, components, equipment and systems are calibrated, adjusted and operate in accordance with approved plans and specifications □ There are unresolved deficiencies with the service water heating systems. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Additional Systems included in the Commissioning Process** (Section C408.5) □ There are unresolved deficiencies with systems required by Section C406 or Section C407. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Metering Systems were included in the Commissioning Process** (Section C408.6) Energy source meters, energy end-use meters, the energy metering data acquisition system and required display are calibrated, adjusted and operate to minimally meet code requirements □ There are unresolved deficiencies with the metering system. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
Supporting Documents (Section C103.6)	□	**Manuals, record documents and training have been completed or are scheduled** • System documentation has been provided to the owner or scheduled date: • Record documents have been submitted to owner or scheduled date: • Training has been completed or scheduled date:
Preliminary Commissioning Report (Section C408.1.4.1)	□	**Preliminary Commissioning Report submitted to owner and includes items below** □ Itemization of deficiencies found during testing that are part of the energy code and that have not been corrected at the time of report preparation □ Deferred tests, which cannot be performed at the time of report preparation, with anticipated date of completion □ Status of the project's record documents, manuals and systems operation training with respect to requirements in Section C103.6
Certification	□	I hereby certify that all requirements for Commissioning have been completed in accordance with the Washington State Energy Code, including all items above Building Owner or Owner's Authorized Agent Date

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40802 Section C408.2—Mechanical systems commissioning ((~~and completion requirements~~)).

C408.2 Mechanical systems commissioning ((~~and completion requirements~~)). Mechanical equipment and controls subject to Section C403 shall ((~~comply with Section C408.2.~~

~~Construction document notes shall clearly indicate provisions for *commissioning* and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Exception: Systems which (a) qualify as simple systems using the criteria in Section C403.3, (b) are not required to have an economizer per Section C403.3.1, and (c) where the building total mechanical equipment capacity is less than 480,000 Btu/h (140,690 W) cooling capacity and 600,000 Btu/h (175,860 W) heating capacity.~~)) be included in the commissioning process required by Section C408.1. The commissioning process shall minimally include all energy code requirements for which the code states that equipment or controls shall "be capable of" or "configured to" perform specific functions.

EXCEPTION: Mechanical systems are exempt from the commissioning process where the building's total mechanical equipment capacity is less than 240,000 Btu/h cooling capacity and less than 300,000 Btu/h heating capacity.

C408.2.1 Reserved.

C408.2.2 Systems adjusting and balancing. HVAC systems shall be balanced in accordance with generally accepted engineering standards. Air and water flow rates shall be measured and adjusted to deliver final flow rates within the tolerances provided in the ((~~product~~)) project specifications. Test

and balance activities shall include air system and hydronic system balancing.

C408.2.2.1 Air systems balancing. Each supply air outlet and *zone* terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the *International Mechanical Code*. Discharge dampers used for air system balancing are prohibited on constant volume fans and variable volume fans with motors 10 hp (18.6 kW) and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp (0.74 kW), fan speed shall be adjusted to meet design flow conditions.

EXCEPTION: Fans with fan motors of 1 hp (0.74 kW) or less.

C408.2.2.2 Hydronic systems balancing. Individual hydronic heating and cooling coils shall be equipped with means for balancing and measuring flow. Hydronic systems shall be proportionately balanced in a manner to first minimize throttling losses, then the pump impeller shall be trimmed or pump speed shall be adjusted to meet design flow conditions. Each hydronic system shall have either the capability to measure pressure across the pump, or test ports at each side of each pump.

EXCEPTION((~~S~~)): The following equipment is not required to be equipped with means for balancing or measuring flow:

1. Pumps with pump motors of 5 hp (3.7 kW) or less.
2. Where throttling results in no greater than five percent of the nameplate horsepower draw above that required if the impeller were trimmed.

C408.2.3 Functional performance testing. Functional performance testing specified in Sections C408.2.3.1 through C408.2.3.3 shall be conducted. Written procedures which clearly describe the individual systematic test procedures, the expected systems' response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion shall be followed. ((~~At a minimum,~~)) Testing shall affirm operation during actual or simulated winter and summer design conditions and during full outside air conditions.

C408.2.3.1 Equipment. Equipment functional performance testing shall demonstrate the installation and operation of components, systems, and system-to-system interfacing relationships in accordance with approved plans and specifications such that operation, function, and maintenance serviceability for each of the commissioned systems is confirmed. Testing shall include all modes and *sequence of operation*, including under full-load, part-load and the following emergency conditions:

1. All modes as described in the *sequence of operation*;
2. Redundant or *automatic* back-up mode;
3. Performance of alarms; and
4. Mode of operation upon a loss of power and restoration of power.

C408.2.3.2 Controls. HVAC control systems shall be tested to document that control devices, components, equipment, and systems are calibrated((~~,~~)) and adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with *approved* plans and specifications.

C408.2.3.3 Economizers. Air economizers shall undergo a functional test to determine that they operate in accordance with manufacturer's specifications.

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-40803 Section C408.3—Lighting system ((~~functional testing~~)) commissioning.

((~~**C408.3 Lighting system functional testing.** Controls for automatic lighting systems shall comply with Section C408.3.1.~~)) **C408.3 Electrical power and lighting systems commissioning.** Electrical power and lighting systems subject to Section C405 shall be included in the commissioning process required by Section C408.1. The commissioning process shall minimally include all energy code requirements for which the code requires specific daylight responsive controls, "control functions," and where the code states that equipment shall be "configured to" perform specific functions.

EXCEPTION: Lighting control systems are exempt from the commissioning process in buildings where ((~~the total installed lighting load is less than 20kW and less than 10kW of lighting is controlled by occupancy sensors or automatic daylighting controls.~~)):

1. The total installed lighting load is less than 20 kW.
2. Where the lighting load controlled by occupancy sensors or automatic daylighting controls is less than 10 kW.

C408.3.1 Functional testing. ((~~Testing shall ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's installation instructions. Written procedures which clearly describe the individual systematic test procedures, the expected systems' response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion shall be followed. At a minimum, testing shall affirm operation during normally occupied daylight conditions. The construction documents shall state the party who will conduct the required functional testing.~~

~~Where occupant sensors, time switches, programmable schedule controls, photosensors or daylighting controls are installed, the following procedures shall be performed:~~

~~1. Confirm that the placement, sensitivity and time-out adjustments for occupant sensors yield acceptable performance.~~

~~2. Confirm that the time switches and programmable schedule controls are programmed to turn the lights off.~~

~~3. Confirm that the placement and sensitivity adjustments for photosensor controls reduce electric light based on the amount of usable daylight in the space as specified.~~)) Prior to passing final inspection, the *certified commissioning professional* shall provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's instructions. Written procedures which clearly describe the individual systematic test proce-

dures, the expected systems' response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion shall be followed. Functional testing shall comply with Section C408.3.1.1 through C408.3.1.3 for the applicable control type.

C408.3.1.1 Occupant sensor controls. Where occupancy sensors are provided, the following procedures shall be performed:

1. Certify that the occupancy sensor has been located and aimed in accordance with manufacturer recommendations.

2. For projects with seven or fewer occupancy sensors, each sensor shall be tested. For projects with more than seven occupancy sensors, testing shall be done for each unique combination of sensor type and space geometry. Where multiples of each unique combination of sensor type and space geometry are provided, no fewer than the greater of one or 10 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 controls fail, all remaining identical combinations shall be tested.

3. For each occupancy sensor to be tested, verify the following:

3.1. Where occupancy sensors include status indicators, verify correct operation.

3.2. The controlled lights turn off or down to the permitted level within the required time.

3.3. For auto-on occupancy sensors, the lights turn on to the permitted level within the required time.

3.4. For manual on sensors, the lights turn on only when manually activated.

3.5. The lights are not incorrectly turned on by movement in adjacent areas or by HVAC operation.

C408.3.1.2 Time switch controls. Where automatic time switches are provided, the following procedures shall be performed:

1. Confirm that the automatic time switch control is programmed with accurate weekday, weekend and holiday schedules, and set-up and preference program settings.

2. Provide documentation to the owner of automatic time switch programming, including weekday, weekend, holiday schedules and set-up and preference program settings.

3. Verify the correct time and date in the time switch.

4. Verify that any battery backup is installed and energized.

5. Verify that the override time limit is set to not more than two hours.

6. Simulate occupied conditions. Verify and document the following:

6.1. All lights can be turned on and off by their respective area control switch.

6.2. The switch only operates lighting in the enclosed space in which the switch is located.

7. Simulate unoccupied condition. Verify the following:

7.1. All nonexempt lighting turns off.

7.2. Manual override switch allows only the lights in the enclosed space where the override switch is located to turn on or remain on until the next scheduled shut off occurs.

8. Additional testing as specified by the *certified commissioning professional.*

C408.3.1.3 Daylight responsive controls. Where *daylight responsive controls* are provided, the following procedures shall be performed:

1. All control devices have been properly located, field-calibrated and set for accurate setpoints and threshold light levels.

2. Daylight controlled lighting loads adjusted to light level setpoints in response to available daylight.

3. The locations of calibration adjustment equipment are *readily accessible* only to authorized personnel.

C408.3.2 Documentation requirements. The construction documents shall specify that documents certifying that the installed lighting controls meet documented performance criteria of Section C405 be provided to the building owner within 90 days from the date of receipt of the certificate of occupancy.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40804 Section C408.4—Service water heating systems commissioning ((~~and completion requirements~~)).

C408.4 Service water heating systems commissioning and completion requirements. Service water heating equipment and controls ((~~shall comply with Section C408.4. Construction document notes shall clearly indicate provisions for *commissioning* and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements.~~

~~EXCEPTION: The following systems are exempt from the commissioning requirements:~~

~~1. Service water heating systems in buildings where the largest service water heating system capacity is less than 200,000 Btu/h (58,562 W) and where there are no pools or in-ground permanently installed spas.~~)) subject to Section C404 shall be included in the commissioning process required by Section C408.1. The commissioning process shall minimally include all energy code requirements for which the code states that equipment or controls shall "be capable of" or "configured to" perform specific functions.

EXCEPTION: 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 (58.6 W) and where there are no pools or permanent spas.

C408.4.1 Functional performance testing. Functional performance testing specified in Sections C408.4.1.1 through C408.4.1.3 shall be conducted. Written procedures which clearly describe the individual systematic test procedures, the expected systems' response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion shall be followed. ((~~At a minimum,~~)) Testing shall affirm operation with the system under 50 percent water heating load.

C408.4.1.1 Equipment. Equipment functional performance testing shall demonstrate the installation and operation of components, systems, and system-to-system interfacing rela-

tionships in accordance with approved plans and specifications such that operation, function, and maintenance serviceability for each of the commissioned systems is confirmed. Testing shall include all modes and *sequence of operation*, including under full-load, part-load and the following emergency conditions:

1. Redundant or *automatic* back-up mode;

2. Performance of alarms; and

3. Mode of operation upon a loss of power and restoration of power.

C408.4.1.2 Controls. Service water heating controls shall be tested to document that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with *approved* plans and specifications.

C408.4.1.3 Pools and spas. Service water heating equipment, time switches, and heat recovery equipment which serve pools and ((~~in-ground permanently installed~~)) permanent spas shall undergo a functional test to determine that they operate in accordance with manufacturer's specifications.

NEW SECTION

WAC 51-11C-408045 Section C408.5—Other systems commissioning.

C408.5 Systems installed to meet Section C406 or C407. Equipment, components, controls or configuration settings for mechanical, service water heating, electrical power or lighting systems which are included in the project to comply with Section C406 or C407 shall be included in the commissioning process required by Section C408.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40805 Section ((~~C408.5~~)) C408.6—Metering system commissioning.

((~~C408.5~~)) C408.6 Metering system commissioning. Energy metering systems required by Section C409 shall comply with Section ((~~C408.5~~)) C408.6 and be included in the commissioning process required by Section C408.1. ((~~Construction documents shall clearly indicate provisions for *commissioning* in accordance with Section C408 and are permitted to refer to specifications for further requirements~~)) The commissioning process shall include all energy metering equipment and controls required by Section C409.

((~~C408.5.1~~)) C408.6.1 Functional performance testing. Functional performance testing shall be conducted by following written procedures which clearly describe the individual systematic test procedures, the expected systems' response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion. Functional testing shall document that energy source meters, energy end-use meters, the energy metering data acquisition system, and required energy consumption display are calibrated, adjusted and operate in accordance with approved plans and specifications. At a minimum, testing shall confirm that:

1. The metering system devices and components work properly under low and high load conditions.

2. The metered data is delivered in a format that is compatible with the data collection system.

3. The energy display is accessible to building operation and management personnel.

4. The energy display meets code requirements regarding views required in Section C409.4.3. The display shows energy data in identical units (e.g., kWh).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40901 Section C409.1—General.

C409.1 General. New buildings and additions with a gross conditioned floor area over 50,000 square feet shall comply with Section C409. Buildings 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.

EXCEPTIONS: 1. Tenant spaces smaller than 50,000 square feet within buildings if the tenant space has its own utility service and utility meters.

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.

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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40903 Section C409.3—End-use metering.

C409.3 End-use metering. Meters shall be provided to collect energy use data for each end-use category listed in Sections C409.3.1 through C409.3.2. These meters shall collect data for the whole building or for each separately metered portion of the building where not exempted by the exception to Section C409.1. Multiple meters may be used for any end-use category, provided that the data acquisition system totals all of the energy used by that category.

EXCEPTIONS: 1. HVAC and water heating equipment serving only an individual dwelling unit or sleeping unit does not require end-use metering.

2. Separate metering is not required for fire pumps, stairwell pressurization fans or other life safety systems that operate only during testing or emergency.

3. End use metering is not required for individual tenant spaces not exceeding 2,500 square feet in floor area when a dedicated source meter meeting the requirements of Section C409.4.1 is provided for the tenant space.

C409.3.1 HVAC system energy use. This category shall include all energy including electrical, gas, liquid fuel, district steam and district chilled water that is used by boilers, chillers, pumps, fans and other equipment used to provide space heating, space cooling, dehumidification and ventilation to the building, but not including energy that serves process loads, water heating or miscellaneous loads as defined in Section C409.3. Multiple HVAC energy sources, such as gas, electric and steam, are not required to be summed together.

EXCEPTIONS: 1. All 120 volt equipment.

2. 208/120 volt equipment in a building where the main service is 480/277 volt power.

3. Electrical energy fed through variable frequency drives that are connected to the energy metering data acquisition center.

C409.3.2 Water heating energy use. This category shall include all energy used for heating of domestic and service hot water, but not energy used for space heating.

EXCEPTION: Water heating energy use less than 50 kW does not require end-use metering.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40905 Section C409.5—Metering for existing buildings.

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.

NEW SECTION

WAC 51-11C-41000 Section C410—Refrigeration system requirements.

C410.1 General (prescriptive). Walk-in coolers, walk-in freezers, refrigerated warehouse coolers, refrigerated warehouse freezers, and refrigerated display cases shall comply with this Section.

C410.1.1 Refrigeration equipment performance. Refrigeration equipment shall have an energy use in kWh/day not greater than the values of Tables C410.2(1) and C410.2(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

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
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	
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	

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
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	
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.

C410.2 Walk-in coolers, walk-in freezers, refrigerated warehouse coolers and refrigerated warehouse freezers. *Refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall comply with this section. *Walk-in coolers* and *walk-in freezers* that are not either site assembled or site constructed shall comply with the following:

1. Be equipped with automatic door-closers that firmly 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 have 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 contain 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 contain 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: Glazed portions of doors or structural members need not be insulated.

4. The floor of *walk-in freezers* shall contain floor insulation of not less than R-28 or have a floor assembly *U*-factor no greater than *U*-0.035.

5. Transparent reach-in doors for *walk-in freezers* and windows in *walk-in freezer* doors shall be of triple-pane glass, either filled with inert gas or with heat-reflective treated glass.

6. Windows and transparent reach-in doors for *walk-in coolers* doors shall be of double-pane or triple-pane, inert gas-filled, heat-reflective treated glass.

7. Evaporator fan motors that are less than 1 hp (0.746 kW) and less than 460 volts shall use 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. Where antisweat heaters without antisweat heater controls are provided, they shall have a total door rail, glass and frame heater power draw of not more than 7.1 W/ft^2 (76 W/m^2) of door opening for *walk-in freezers* and 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 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.

11. Lights in *walk-in coolers*, *walk-in freezers*, *refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall either use light sources with an efficacy of not less than 40 lumens per watt, including ballast losses, or shall use light sources with an efficacy of not less than 40 lumens per watt, including ballast losses, in conjunction with a device that turns off the lights within 15 minutes when the space is not occupied.

C410.2.1 Walk-in coolers and walk-in freezers. Site-assembled or site-constructed *walk-in coolers* and *walk-in 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: 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 the doors are open.

3. Walk-in cooler walls, ceilings and doors shall be provided with insulation having a thermal resistance of not less than R-25 or have wall, ceiling and door assembly *U*-factors no greater than *U*-0.039. *Walk-in freezers* walls, ceilings and doors shall be provided with insulation having a thermal resistance of not less than R-32 or have wall, ceiling, door and slab 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 freezers* shall be provided with insulation having a thermal resistance of not less than R-28 or have a floor assembly *U*-factor no greater than *U*-0.035.

5. Transparent reach-in doors for and windows in opaque *walk-in freezer* doors shall be provided with triple-pane glass having the interstitial spaces filled with inert gas or provided with heat-reflective treated glass.

6. Transparent reach-in doors for and windows in opaque *walk-in cooler* doors shall be double-pane heat-reflective treated glass having the interstitial space gas filled.

7. Evaporator fan motors that are less than 1 hp (0.746 kW) and less than 460 volts shall be electronically commutated motors or 3-phase motors.

8. Condenser fan motors that are less than 1 hp (0.746 kW) in capacity shall be of the electronically commutated or permanent split capacitor-type or shall be 3-phase motors.

EXCEPTION: Fan motors in *walk-in coolers* and *walk-in freezers* combined in a single enclosure greater than 3,000 square feet (279 m^2) in floor area are exempt.

9. Antisweat heaters that are not provided with antisweat heater controls shall have a total door rail, glass and frame heater power draw 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. Antisweat heater controls 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. Light sources shall have an efficacy of not less than 40 lumens per watt, including any 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* was last occupied.

C410.2.2 Refrigerated display cases. Site-assembled or site-constructed refrigerated display cases 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. 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 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 and C410.4.2.

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 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 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-50000 Chapter 5 [CE]—((~~Referenced standards~~)) Existing buildings. ((~~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 106.~~

~~**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—11~~	~~North American Fenestration Standard/Specifications for Windows, Doors and Unit Skylights~~	~~.....~~	~~Table C402.4.3~~
~~**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 C403.2.3(3)~~
~~**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			
13256-1 (2005)	Water-source Heat Pumps - Testing and Rating for Performance - Part 1: Water-to-air and Brine-to-air Heat Pumps	.....	Table C403.2.3(2)
ISO/AHRI/ASHRAE			
13256-2 (1998)	Water-source Heat Pumps - Testing and Rating for Performance - Part 2: Water-to-water and Brine-to-water Heat Pumps	.....	Table C403.2.3(2)
210/240—08	Unitary Air Conditioning and Air-source Heat Pump Equipment	.....	Table C403.2.3(1), Table C403.2.3(2)
310/380—04	Standard for Packaged Terminal Air Conditioners and Heat Pumps	.....	Table C403.2.3(3)
340/360—2007	Commercial and Industrial Unitary Air-conditioning and Heat Pump Equipment	.....	Table C403.2.3(1), Table C403.2.3(2)
365—09	Commercial and Industrial Unitary Air-conditioning Condensing Units	.....	Table C403.2.3(1), Table C403.2.3(6)
390—03	Performance Rating of Single Package Vertical Air Conditioners and Heat Pumps	.....	Table C403.2.3(3)
400—01	Liquid to Liquid Heat Exchangers with Addendum 2	.....	Table C403.2.3(9)
440—08	Room Fan Coil	.....	C403.2.8
460—05	Performance Rating Remote Mechanical Draft Air-cooled Refrigerant Condensers	.....	Table C403.2.3(8)
550/590—03	Water Chilling Packages Using the Vapor Compression Cycle—with Addenda	.....	C403.2.3.1, Table C403.2.3(7), Table C406.2(6)
560—00	Absorption Water Chilling and Water-heating Packages	.....	Table C403.2.3(7)
1160—08	Performance Rating of Heat Pump Pool Heaters	.....	Table C404.2
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
500D—10	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/ASME A17.1-2010	Safety code for elevators and escalators	.....	C405.12.1

Z21.10.3/CSA 4.3—04	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—06	Gas-fired Central Furnaces	.....	Table C403.2.3(4), Table C406.2(4)
Z83.8/CSA 2.6—09	Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters and Gas-fired Duct Furnaces	.....	Table C403.2.3(4), Table C406.2(4)
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	.....	C403.4.1
Standard 183—2007	Peak Cooling and Heating Load Calculations in Buildings, Except Low-rise Residential Buildings	.....	C403.2.1
ASHRAE—2004	ASHRAE HVAC Systems and Equipment Handbook—2004	.....	C403.2.1
ISO/AHRI/ASHRAE			
13256-1 (2005)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	.....	Table C403.2.3(2)
ISO/AHRI/ASHRAE			
13256-2 (1998)	Water-source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	.....	Table C403.2.3(2)
90.1—2010	Energy Standard for Buildings Except Low-rise Residential Buildings (ANSI/ASHRAE/IESNA 90.1—2010)	.....	C401.2, C401.2.1, C402.1.1, Table C402.1.2, Table C402.2, Table C407.6.1
119—88 (RA 2004)	Air Leakage Performance for Detached Single-family Residential Buildings	.....	Table C405.5.2(1)
140—2010	Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs	.....	C407.6.1
146—2006	Testing and Rating Pool Heaters	.....	Table C404.2
ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859		
Standard reference number	Title		Referenced in code section number
C 90—08	Specification for Load-bearing Concrete Masonry Units	.....	Table C402.2

~~C 1371—04~~	~~Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers~~	~~.....~~	~~Table C402.2.1.1~~
~~C 1549—04~~	~~Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using A Portable Solar Reflectometer~~	~~.....~~	~~Table C405.2.1.1~~
~~D 1003—07e1~~	~~Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics~~	~~.....~~	~~C402.3.2.2~~
~~E 283—04~~	~~Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen~~	~~.....~~	~~Table C402.2.1.1, C402.4.1.2.2, Table C402.4.3, C402.4.4, C402.4.8~~
~~E 408—71 (2002)~~	~~Test Methods for Total Normal Emittance of Surfaces Using Inspection-meter Techniques~~	~~.....~~	~~Table C402.2.1.1~~
~~E 779—03~~	~~Standard Test Method for Determining Air Leakage Rate by Fan Pressurization~~	~~.....~~	~~C402.4.1.2.3~~
~~E 903—96~~	~~Standard Test Method Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres (Withdrawn 2005)~~	~~.....~~	~~Table C402.2.1.1~~
~~E 1677—05~~	~~Standard Specification for an Air-retarder (AR) Material or System for Low-rise Framed Building Walls~~	~~.....~~	~~C402.4.1.2.2~~
~~E 1918—97~~	~~Standard Test Method for Measuring Solar Reflectance of Horizontal or Low-sloped Surfaces in the Field~~	~~.....~~	~~Table C402.2.1.1~~
~~E 1980—(2001)~~	~~Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-sloped Opaque Surfaces~~	~~.....~~	~~Table C402.2.1.1~~
~~E 2178—03~~	~~Standard Test Method for Air Permanence of Building Materials~~	~~.....~~	~~C402.4.1.2.1~~
~~E 2357—05~~	~~Standard Test Method for Determining Air Leakage of Air Barrier Assemblies~~	~~.....~~	~~C404.1.2.2~~
~~**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~~	~~.....~~	~~R402.4.3~~
~~**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)~~	~~Acceptance Test Code for Water Cooling Tower~~	~~.....~~	~~Table C403.2.3(8)~~

STD 201—09	Standard for Certification of Water Cooling Towers Thermal Performances	.....	Table C403.2.3(8)
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)	Test Method for Thermal Transmittance and Air Infiltration of Garage Doors	.....	Table C402.4.3
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—1998	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 C403.2.3(4), Table C403.2.3(5), Table C404.2, Table C406.2(4), Table C406.2(5)
10 C.F.R., Part 430, Subpart B, Appendix N—1998	Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers	.....	C202
10 C.F.R., Part 431—2004	Energy Efficiency Program for Certain Commercial and Industrial Equipment: Test Procedures and Efficiency Standards; Final Rules	.....	Table C403.2.3(5), Table C406.2(5)
NAECA 87—(88)	National Appliance Energy Conservation Act 1987 [(Public Law 100-12 (with Amendments of 1988-P.L. 100-357)]	.....	Tables C403.2.3 (1), (2), (4)
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—2012	Uniform Plumbing Code	.....	C201.3
ICC	International Code Council, Inc. 500 New Jersey Avenue, N.W., 6th Floor Washington, DC 20001		
Standard reference number	Title		Referenced in code section number
IBC—12	International Building Code	.....	C201.3, C303.2, C402.4.4
IFC—12	International Fire Code	.....	C201.3
IFGC—12	International Fuel Gas Code	.....	C201.3

IMC—12	International Mechanical Code	.....	C403.2.5, C403.2.5.1, C403.2.6, C403.2.7, C403.2.7.1, C403.2.7.1.1, C403.2.7.1.2, C403.2.7.1.3, C403.4.5, C408.2.2.1
IESNA	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—2010	Energy Standard for Buildings Except Low-rise Residential Buildings	.....	C401.2, C401.2.1, C402.1.1, Table C402.1.2, Table C402.2, Table C407.6.1
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 (2005)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	.....	C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (1998)	Water-Source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	.....	C403.2.3(2)
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
NFRC	National Fenestration Rating Council, Inc. 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770		
Standard reference number	Title		Referenced in code section number
100—2010	Procedure for Determining Fenestration Product U-factors	.....	C303.1.2, C402.2.1
200—2010	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence	.....	C303.1.3, C402.3.1.1
400—2010	Procedure for Determining Fenestration Product Air Leakage	.....	Table C402.4.3
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—85	HVAC Air Duct Leakage Test Manual	.....	C403.2.7.1.3
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062-2096		
Standard reference number	Title		Referenced in code section number
727—06	Oil-fired Central Furnaces—with Revisions through April 2010	.....	Table C403.2.3(4), Table C406.2(4)
731—95	Oil-fired Unit Heaters—with Revisions through April 2010	.....	Table C403.2.3(4), Table C406.2(4)
US-FTC	United States-Federal Trade Commission 600 Pennsylvania Avenue N.W. Washington, DC 20580		
Standard reference number	Title		Referenced in code section number
C.F.R. Title 16 (May 31, 2005)	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—11	North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights	.....	Table C402.4.3))

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 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.

C501.3 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 the *International Building Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *Uniform Plumbing Code*, and NFPA 70.

C501.5 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 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.

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-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 Section 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. Vertical fenestration alternate per Section C402.4.1.1 or C402.4.1.3 for the *addition* only.

2. Component performance option with target area adjustment per Section C402.1.5 or the total building performance option in Section C407 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 the component performance option with the target area adjustment per Section C402.1.5 or the total building performance option in Section C407 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.

NEW SECTION

WAC 51-11C-50300 Section C503—Alterations.

C503.1 General. Alterations to any building or structure shall comply with the requirements of the code for new construction. 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. 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 not create an unsafe or hazardous condition or overload existing building systems.

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 nonconditioned space that is altered to become *conditioned space* or *semi-heated* space shall be required to be brought into full compliance with this code. Any semi-heated space that is altered to

become conditioned space shall be required to be brought into full compliance with this code.

EXCEPTION: Where the component performance building envelope option in Section C402.1.5 is used to comply with this Section, the Proposed UA is allowed to be up to 110 percent of the Target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3.

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.

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 insulation entirely above the roof deck.

C503.3.2 Vertical fenestration. The addition of *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. Alterations that result in a total building vertical fenestration area greater than specified in Section C402.4.1 shall comply with one of the following:

1. Vertical fenestration alternate per Section C402.1.3 for the new vertical fenestration added.

2. Vertical fenestration alternate per Section C402.4.1.1 for the area adjacent to the new vertical fenestration added.

3. Component performance option with target area adjustment per Section C402.1.5 or the total building performance option in Section C407 for the whole 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 Skylight area. The addition of *skylights* that results in a total building skylight area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. *Alterations* that result in a total building skylight area greater than that specified in Section C402.4.1 shall comply with the component performance option with target area adjustment per Section C402.1.5 or the total building performance option in Section C407 for the whole building.

C503.4 Mechanical systems. Those parts of systems which are altered or replaced shall comply with Section C403. Additions or alterations shall not be made to an existing mechanical system that will cause the existing mechanical system to become out of compliance.

All new systems in existing buildings, including packaged unitary equipment and packaged split systems, shall comply with Section C403.

Where mechanical cooling is added to a space that was not previously cooled, the mechanical system shall comply with either Section C403.2.6.1 or C403.3.

EXCEPTIONS: 1. Alternate 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/exhausts make full compliance impractical. Alternate designs shall provide alternate energy savings strategies including, but not limited to, Demand Control Ventilation or increased mechanical cooling or heating efficiency above that required by Tables C403.2.3(1) through C403.2.3(10).

2. Qualifying small equipment: This exception shall not be used for unitary cooling equipment installed outdoors or in a mechanical room adjacent to the outdoors. This exception is allowed to be used for other cooling units and split systems serving one zone with a total cooling capacity rated in accordance with Section C403.2.3 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 C403.2.3 (1) through (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 qualifying small equipment without economizers shall not exceed 72,000 Btu/h per building, or 5 percent of its air economizer capacity, whichever is greater. That portion of the equipment serving Group R occupancies is not included in determining the total capacity of all units without economizers in a building. Redundant units are not counted in the capacity limitations. This exception shall not be used for the shell-and-core permit or for the initial tenant improvement or for Total Building Performance.

3. Chilled water terminal units connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than minimum part load efficiencies listed in Table C403.2.3(7), 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 its air economizer capacity, whichever is greater. That portion of the equipment serving Group R occupancy is not included in determining the total capacity of all units without economizers in a building. This exception shall not be used for the initial permit (this includes any initial permit for the space including, but not limited to, the shell-and-core permit, built-to-suit permit, and tenant improvement permit) or for Total Building Performance Method.

Alterations to existing mechanical cooling systems shall not decrease economizer capacity unless the system complies

with either Section C403.2.6 or C403.3. In addition, for existing mechanical cooling systems that do not comply with either Section C403.2.6 or C403.3, including both the individual unit size limits and the total building capacity limits on units without economizer; other alterations shall comply with Table C503.4.

When space cooling equipment is replaced, controls shall comply with all requirements under Section C403.2.6 and related subsections or provide for integrated operation with economizer in accordance with Section C403.3.1.

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
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.[1] Economizer: C403.3[2]	Efficiency: min.[1] Economizer: C403.3[2,3]	Efficiency: min.[1] Economizer: C403.3[2,3]	Efficiency: min.[1] Economizer: C403.3[2,4]
2. Split Systems	Efficiency: min.[1] Economizer: C403.3[2]	Efficiency: + 10/5%[5] Economizer: shall not decrease existing economizer capability	Only for new units < 54,000 Btuh replacing unit installed prior to 1991 (one of two): Efficiency: + 10/5%[5] Economizer: 50%[6] For units > 54,000 Btuh or any units installed after 1991: Option A	Efficiency: min.[1] Economizer: C403.3[2,4]
3. Water Source Heat Pump	Efficiency: min.[1] Economizer: C403.3[2]	(two of three): Efficiency: + 10/5%[5] Flow control valve[7] Economizer: 50%[6]	(three of three): Efficiency: + 10/5%[5] Flow control valve[7] Economizer: 50%[6] (except for certain pre-1991 systems[8])	Efficiency: min.[1] Economizer: C403.3[2,4] (except for certain pre-1991 systems[8])
4. Hydronic Economizer using Air-Cooled Heat Rejection Equipment (Dry Cooler)	Efficiency: min.[1] Economizer: 1433[2]	Efficiency: + 10/5%[5] Economizer: shall not decrease existing economizer capacity	Option A	Efficiency: min.[1] Economizer: C403.3[2,4]
5. Air-Handling Unit (including fan coil units) where the system has an air-cooled chiller	Efficiency: min.[1] Economizer: C403.3[2]	Economizer: shall not decrease existing economizer capacity	Option A (except for certain pre-1991 systems[8])	Option A (except for certain pre-1991 systems[8])
6. Air-Handling Unit (including fan coil units) and Water-cooled Process Equipment, where the system has a water-cooled chiller[10]	Efficiency: min.[1] Economizer: C403.3[2]	Economizer: shall not decrease existing economizer capacity	Option A (except for certain pre-1991 systems[8] and certain 1991-2004 systems[9])	Efficiency: min.[1] Economizer: C403.3[2,4] (except for certain pre-1991 systems[8] and certain 1991-2015 systems[9])

	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**
7. Cooling Tower	Efficiency: min.[1] Economizer: C403.3[2]	No requirements	Option A	Option A
8. Air-Cooled Chiller	Efficiency: min.[1] Economizer: C403.3[2]	Efficiency: + 5%[11] Economizer: shall not decrease existing economizer capacity	Efficiency (two of two): (1) + 10%[12] and (2) multistage Economizer: shall not decrease existing economizer capacity	Efficiency: min.[1] Economizer: C403.3[2,4]
9. Water-Cooled Chiller	Efficiency: min.[1] Economizer: C403.3[2]	Efficiency (one of two): (1) + 10%[13] or (2) plate frame heat exchanger[15] Economizer: shall not decrease existing economizer capacity	Efficiency (two of two): (1) + 15%[14] and (2) plate-frame heat exchanger[15] Economizer: shall not decrease existing economizer capacity	Efficiency: min.[1] Economizer: C403.3[2,4]
10. Boiler	Efficiency: min.[1] Economizer: C403.3[2]	Efficiency: + 8%[16] Economizer: shall not decrease existing economizer capacity	Efficiency: + 8%[16] Economizer: shall not decrease existing economizer capacity	Efficiency: min.[1] Economizer: C403.3[2,4]

1 Minimum equipment efficiency shall comply with Section C403.2.3 and Tables C403.2.3(1) through C403.2.3(10).

2 System and building shall comply with Section C403.3 (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 C403.3 or C504.3.4.

3 All equipment replaced in an existing building shall have air economizer complying with Section C403.3 unless both the individual unit size and the total capacity of units without air economizer in the building is less than that allowed in Exception 2 to Section C503.4.

4 All separate new equipment added to an existing building shall have air economizer complying with Section C403.3 unless both the individual unit size and the total capacity of units without air economizer in the building is less than that allowed in Exception 3 to Section C503.4.

5 Equipment shall have a capacity-weighted average cooling system efficiency:

a. For units with a cooling capacity below 54,000 Btuh, a minimum of 10% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2).

b. For units with a cooling capacity of 54,000 Btuh and greater, a minimum of 5% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2).

6 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 equipped with economizer control.

7 Have flow control valve to eliminate flow through the heat pumps that are not in operation with variable speed pumping control complying with Section C403.4.2 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, have a capacity-weighted average cooling system efficiency that is 5% greater than the requirements in note 5 (i.e., a minimum of 15%/10% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2)).

8 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.

9 Economizer 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.

10 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.

11 The air-cooled chiller shall have an IPLV efficiency that is a minimum of 5% greater than the IPLV requirements in Table C403.2.3(7).

12 The air-cooled chiller shall:

a. Have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7); and

b. Be multistage with a minimum of two compressors.

[13] The water-cooled chiller shall have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7).

[14] The water-cooled chiller shall have an IPLV efficiency that is a minimum of 15% greater than the IPLV requirements in Table C403.2.3(7).

[15] 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.

[16] The replacement boiler shall have an efficiency that is a minimum of 8% higher than the value in Table C403.2.3(5), except for electric boilers.

C503.5 Service hot water systems. New service hot water systems that are part of the alteration shall comply with Section C404.

C503.6 Lighting and motors. Alterations that replace 50 percent or more of the luminaires in a space enclosed by walls or ceiling-height partitions, replace 50 percent or more of parking garage luminaires, or replace 50 percent or more of the total installed wattage of exterior luminaires shall comply with Sections C405.4 and C405.5. Where less than 50 percent of the fixtures in an interior space enclosed by walls or ceiling-height partitions or parking garage are new, or 50 percent or more of the installed exterior wattage is altered, the installed lighting wattage shall be maintained or reduced.

Where new wiring is being installed to serve added fixtures and/or fixtures are being relocated to a new circuit, controls shall comply with Sections C405.2.2.3, C405.2.4, C405.2.5, C405.3, and as applicable C408.3. In addition, office areas less than 300 ft^2 enclosed by walls or ceiling-height partitions, and all meeting and conference rooms, and all school classrooms, shall be equipped with occupancy sensors that comply with Section C405.2.1 and C408.3. 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, controls shall also comply with the other requirements in Sections C405.2 and C408.3.

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 controls that comply with Sections C405.2.1, C 405.2.2, C405.2.4 and C408.3.

Those motors which are altered or replaced shall comply with Section C405.8.

C503.7 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.

NEW SECTION

WAC 51-11C-50400 Section C504—Repairs.

C504.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section C501.3 and this section. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section C501.3, ordinary repairs exempt from *permit*, and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.

C504.2 Application. For the purposes of this code, the following shall be considered repairs.

1. Glass only replacements in an existing sash and frame.

2. *Roof repairs*.

3. Air barriers shall not be required for *roof repair* where the repairs to the building do not include *alterations*, renovations or *repairs* to the remainder of the building envelope.

4. 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.

5. *Repairs* where only the bulb and/or ballast within the existing luminaires in a space are replaced provided that the replacement does not increase the installed interior lighting power.

NEW SECTION

WAC 51-11C-50500 Section C505—Change of occupancy or use.

C505.1 General. Spaces undergoing a change in occupancy shall be brought up to full compliance with this code in the following cases:

1. Any space that is converted from an F, S or U occupancy to an occupancy other than 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.

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 shall comply with Section C405.4.

EXCEPTION: Where the component performance alternative in Section C402.1.5 is used to comply with this section, the proposed UA is allowed to be up to 110 percent of the target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3.

NEW SECTION

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—11	North American Fenestration Standard/Specifications for Windows, Doors and Unit Skylights	. . . . .	Table C402.4.2
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 C403.2.3(3)
AHAM HRF-1-2007	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 13256-1 (2011)	Water-source Heat Pumps - Testing and Rating for Performance - Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	Table C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (2011)	Water-source Heat Pumps - Testing and Rating for Performance - Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	Table C403.2.3(2)
210/240—08 with Addenda 1 and 2	Unitary Air Conditioning and Air-source Heat Pump Equipment	. . . . .	Table C403.2.3(1), Table C403.2.3(2)
310/380—04	Standard for Packaged Terminal Air Conditioners and Heat Pumps	. . . . .	Table C403.2.3(3)
340/360—2007 with Addendum 2	Commercial and Industrial Unitary Air-conditioning and Heat Pump Equipment	. . . . .	Table C403.2.3(1), Table C403.2.3(2)
365—09	Commercial and Industrial Unitary Air-conditioning Condensing Units	. . . . .	Table C403.2.3(1), Table C403.2.3(6)
390—03	Performance Rating of Single Package Vertical Air Conditioners and Heat Pumps	. . . . .	Table C403.2.3(3)
400—01	Liquid to Liquid Heat Exchangers with Addendum 2	. . . . .	Table C403.2.3(9)
440—08	Room Fan Coil	. . . . .	C403.2.8
460—05	Performance Rating Remote Mechanical Draft Air-cooled Refrigerant Condensers	. . . . .	Table C403.2.3(8)

550/590—2011 with Addendum 1	Water Chilling Packages Using the Vapor Compression Cycle—with Addenda	. . . . .	C403.2.3.1, Table C403.2.3(7), Table C406.2(6)
560—00	Absorption Water Chilling and Water-heating Packages	. . . . .	Table C403.2.3(7)
1160—08	Performance Rating of Heat Pump Pool Heaters	. . . . .	Table C404.2
1200-2010	Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets	. . . . .	C410.1,Table C410.1(1), Table C410.1(2)
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	. . . . .	C403.2.11.3
220-8 (2012)	Laboratory Methods for Testing Air Curtain Units for Aerodynamic Performance Rating	. . . . .	C402.5.7
500D—12	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/ASME A17.1-2010	Safety code for elevators and escalators	. . . . .	C405.12.1
Z21.10.3/CSA 4.3—11	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	Gas-fired Central Furnaces	. . . . .	Table C403.2.3(4)
Z83.8/CSA 2.6—09	Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters and Gas-fired Duct Furnaces	. . . . .	Table C403.2.3(4)
APSP	The Association of Pool and Spa Professionals 2111 Eisenhower Avenue Alexandria, VA 22314		
Standard reference number	Title		Referenced in code section number
14-11	American National Standards for Portable Electric Spa Efficiency	. . . . .	C404.12
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 C403.2.3(9)
Standard 183—2007	Peak Cooling and Heating Load Calculations in Buildings, Except Low-rise Residential Buildings	. . . . .	C403.2.1
ASHRAE—2012	ASHRAE HVAC Systems and Equipment Handbook—2012	. . . . .	C403.2.1
ISO/AHRI/ASHRAE 13256-1 (2011)	Water-source Heat Pumps—Testing and Rating for Performance— Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	Table C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (2011)	Water-source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	Table C403.2.3(2)
90.1—2013	Energy Standard for Buildings Except Low-rise Residential Buildings (ANSI/ASHRAE/IESNA 90.1—2010)	. . . . .	Table C402.1.3, Table C402.1.4, C406.2 Table C407.6.1
140—2011	Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs	. . . . .	C407.6.1
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 B44-2013	Safety Code for Elevators and Escalators	. . . . .	C405.9.2
ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859		
Standard reference number	Title		Referenced in code section number
C 90—13	Specification for Load-bearing Concrete Masonry Units	. . . . .	Table C402.1.3
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
C 1371—04a(2010)e1	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—11e1	Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	. . . . .	C402.4.2.2

E 283—04	Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen	. . . . .	C402.5.1.2.2
E 408—71 (2008)	Test Methods for Total Normal Emittance of Surfaces Using Inspection-meter Techniques	. . . . .	Table C402.4
E 779—10	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	. . . . .	C402.5.1.2.3
E 903—96	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 1918—06	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
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
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)	Acceptance Test Code for Water Cooling Tower	. . . . .	Table C403.2.3(8)
ATC 105S—11	Acceptance Test Code for Closed Circuit Cooling Towers	. . . . .	Table C403.2.3(8)
ATC 106—11	Acceptance Test Code for Mechanical Draft Evaporative Vapor Condensers	. . . . .	Table C403.2.3(8)
STD 201—11	Standard for Certification of Water Cooling Towers Thermal Performances	. . . . .	Table C403.2.3(8)
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	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—1998	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 C403.2.3(4), Table C403.2.3(5), Table C404.2
10 C.F.R., Part 430, Subpart B, Appendix N—1998	Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers	. . . . .	C202
10 C.F.R., Part 431—2004	Energy Efficiency Program for Certain Commercial and Industrial Equipment: Test Procedures and Efficiency Standards; Final Rules	. . . . .	Table C403.2.3(5), Table C406.2(5)
NAECA 87—(88)	National Appliance Energy Conservation Act 1987 [(Public Law 100-12 (with Amendments of 1988-P.L. 100-357)]	. . . . .	Tables C403.2.3 (1), (2), (4)
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	Uniform Plumbing Code	. . . . .	C201.3, C501.4
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	International Building Code	. . . . .	C201.3, C303.2, C402.4.3
IFC—15	International Fire Code	. . . . .	C201.3, C501.4
IFGC—15	International Fuel Gas Code	. . . . .	C201.3, C501.4
IMC—15	International Mechanical Code	. . . . .	C106.3, C201.3, C402.5.3, C403.2.4.3, C403.2.6, C403.2.6.2, C403.2.6.4, C403.2.6.4.1, C403.2.8.2, C403.2.8.3, C403.2.8.3.1, C403.2.8.3.2, C403.2.11.4, C403.2.11.5, C403.4.4, C403.4.4.3, C403.5.1, C408.2.2.1, C501.4

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	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—2013	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 (2011)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (2011)	Water-Source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	C403.2.3(2)
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
MGI—1993	Motors and Generators	. . . . .	C202
NFRC	National Fenestration Rating Council, Inc. 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770		
Standard reference number	Title		Referenced in code section number
100—2009	Procedure for Determining Fenestration Product U-factors	. . . . .	C303.1.2, C402.2.2
200—2009	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence	. . . . .	C303.1.3, C402.4.1.1

400—2009	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	. . . . .	C403.2.8.1.3
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	. . . . .	C403.2.8
727—06	Oil-fired Central Furnaces—with Revisions through April 2010	. . . . .	Table C403.2.3(4)
731—95	Oil-fired Unit Heaters—with Revisions through April 2010	. . . . .	Table C403.2.3(4)
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 (May 31, 2005)	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—11	North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights	. . . . .	Table C402.4.2

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61011 Section A101.1—Scope.

A101.1 Scope. The following defaults shall apply to Chapter 4 of both the (RE) and (CE) sections of the ((~~IECC~~)) WSEC. This chapter includes tables of seasonal average heat loss coefficients for specified nominal insulation.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61015 Section A101.5—Building materials.

A101.5 Building materials. Default R-values used for building materials shall be as shown in Table A101.5.

Table A101.5
Default R-values for Building Materials

Material	Nominal Size (in.)	Actual Size (in.)	R-Value (Heat Capacity[c])
Air cavity (unventilated), between metal studs at 16 inches on center[a]	-	-	0.79
Air cavity (unventilated), all other depths and framing materials[1]	-	-	0.91
Airfilm, exterior surfaces[b]	-	-	0.17
Airfilm, interior horizontal surfaces, heat flow up[b]	-	-	0.61
Airfilm, interior horizontal surfaces, heat flow down[b]	-	-	0.92
Airfilm, interior vertical surfaces[b]	-	-	0.68
Brick at R-0.12/in. (face brick, 75% solid/25% core area, 130 lbs/ft^3)	4	3.5	0.32 (5.9)
Carpet and rubber pad	-	-	1.23
Concrete[c] at R-0.0625/in., heavyweight (144 lbs/ft^3)	-	2	0.13 (HC-4.8)
	-	4	0.25 (HC-9.6)
	-	6	0.38 (HC-14.4)
	-	8	0.50 (HC-19.2)
	-	10	0.63 (HC-24.0)
	-	12	0.75 (HC-28.8)
((~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~6~~	~~-~~	~~0.80 (HC-11.4)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~6~~	~~-~~	~~0.51 (HC-13.2)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~6~~	~~-~~	~~1.33 (HC-6.7)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~6~~	~~-~~	~~0.82 (HC-9.0)~~
~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~8~~	~~-~~	~~1.05 (HC-15.5)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~8~~	~~-~~	~~0.69 (HC-17.9)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~8~~	~~-~~	~~1.44 (HC-9.6)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~8~~	~~-~~	~~0.98 (HC-12.0)~~
~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~10~~	~~-~~	~~1.30 (HC-19.7)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~10~~	~~-~~	~~0.87 (HC-22.6)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~10~~	~~-~~	~~1.61 (HC-11.9)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~10~~	~~-~~	~~1.11 (HC-14.8)~~
~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~12~~	~~-~~	~~1.53 (HC-23.9)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~12~~	~~-~~	~~1.06 (HC-27.2)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~12~~	~~-~~	~~1.75 (HC-14.2)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~12~~	~~-~~	~~1.23 (HC-17.5)~~)))
Flooring, wood subfloor	-	0.75	0.94
Gypsum board	-	0.5	0.45
	-	0.625	0.56
Metal deck	-	-	0
Roofing, built-up	-	0.375	0.33
Sheathing, vegetable fiber board, 0.78 in.	-	0.78	2.06
Soil at R-0.104/in.	-	12	1.25

Material	Nominal Size (in.)	Actual Size (in.)	R-Value (Heat Capacity[c])
Steel, mild		1	0.0031807
Stucco	-	0.75	0.08

[a] There is no credit for cavities that are open to outside air.

[b] Air films do not apply to air cavities within an assembly.

[c] For heat capacity for concrete ((~~and~~)) with densities other than these values or other concrete masonry materials ((~~with densities other than the values listed in Table A101.5~~)), see Tables A103.3.7.1(1) through (3) or Tables A3.1B and A3.1C in ASHRAE/IESNA Standard 90.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61022 Section A102.2—Component description.

A102.2 Component description. The four types of ceilings are characterized as follows:

A102.2.1 Ceilings below a vented attic. Attic insulation is assumed to be blown-in, loose-fill fiberglass with a K-value of 2.6 h • ft² • °F/Btu per inch. Full bag count for specified R-value is assumed in all cases. Ceiling dimensions for flat ceiling calculations are 45 by 30 feet, with a gabled roof having a 4/12 pitch. The attic is assumed to vent naturally at the rate of 3 air changes per hour through soffit and ridge vents. A void fraction of 0.002 is assumed for all attics with insulation baffles. Standard-framed, unbaffled attics assume a void fraction of 0.008.

Attic framing is either standard or advanced. Standard framing assumes tapering of insulation depth around the perimeter with resultant decrease in thermal resistance. An increased R-value is assumed in the center of the ceiling due to the effect of piling leftover insulation. Advanced framing assumes full and even depth of insulation extending to the outside edge of exterior walls. Advanced framing does not change from the default value.

U-factors for flat ceilings below vented attics with standard framing may be modified with the following table:

Roof Pitch	U-Factor for Standard Framing	
	R-30	R-38
4/12	0.036	0.031
5/12	0.035	0.030
6/12	0.034	0.029
7/12	0.034	0.029
8/12	0.034	0.028
9/12	0.034	0.028
10/12	0.033	0.028
11/12	0.033	0.027
12/12	0.033	0.027

Vented scissors truss attics assume a ceiling pitch of 2/12 with a roof pitch of either 4/12 or 5/12. Unbaffled standard framed scissors truss attics are assumed to have a void fraction of 0.016.

A102.2.2 Vaulted ceilings. Insulation is assumed to be fiberglass batts installed in roof joist cavities. In the vented case, at least 1.5 inches between the top of the batts and the underside of the roof sheathing is left open for ventilation in each cavity. A ventilation rate of 3.0 air changes per hour is assumed. In the unvented or dense pack case, the ceiling cavity is assumed to be fully packed with insulation, leaving no space for ventilation.

A102.2.3 Roof decks. Rigid insulation is applied to the top of roof decking with no space left for ventilation. Roofing materials are attached directly on top of the insulation. Framing members are often left exposed on the interior side.

A102.2.4 Metal truss framing. Overall system tested values for the roof/ceiling U_o for metal framed truss assemblies from approved laboratories shall be used, when such data is acceptable to the building official.

Alternatively, the U_o for roof/ceiling assemblies using metal truss framing may be obtained from Tables A102.2.4(1) through A102.2.4(5).

A102.2.5 Metal building roof. Table A102.2.5: The base assembly is a roof where the insulation is compressed when installed beneath metal roof panels attached to the steel structure (purlins). Additional assemblies include continuous insulation, uncompressed and uninterrupted by framing.

U-factors for metal building roofs shall be taken from Table A102.2.5, provided the average purlin spacing is at least 52 inches and the R-value of the thermal spacer block is greater than or equal to the thermal spacer block R-value indicated in Table A107.2.5 for the assembly. It is not acceptable to use the U-factors in Tables A102.2.6(1), A102.2.6(2) and A102.2.6(3) if additional insulated sheathing is not continuous.

A102.2.5.1 Single layer. The rated R-value of insulation is for insulation installed perpendicular to and draped over purlins and then compressed when the metal roof panels are attached. A minimum R-3 (R-0.5) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

A102.2.5.2 Double layer. The first rated R-value of insulation is for insulation installed perpendicular to and draped over purlins. The second rated R-value of insulation is for unfaced insulation installed above the first layer and parallel to the purlins and then compressed when the metal roof panels are attached. A minimum R-3 (R-0.5) thermal spacer block between the purlins and the metal roof panels is

required, unless compliance is shown by the overall assembly U-factor.

A102.2.5.3 Continuous insulation. For continuous insulation (e.g., insulation boards or blankets), it is assumed that the insulation is installed below the purlins and is uninterrupted by framing members. Insulation exposed to the conditioned space or semi-heated space shall have a facing, and all insulation seams shall be continuously sealed to provide a continuous air barrier.

A102.2.5.4 Liner system (Ls). A continuous membrane is installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane 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. A minimum R-3 (R-0.5) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

A102.2.5.5 Filled cavity. The first rated R-value of insulation is for faced insulation installed parallel to the purlins. The second rated R-value of insulation is for unfaced insulation installed above the first layer, parallel to and between the purlins and compressed when the metal roof panels are attached. The facer of the first layer of insulation is of sufficient width to be continuously sealed to the top flange of the purlins and to accommodate the full thickness of the second layer of insulation. A supporting structure retains the bottom of the first layer at the prescribed depth required for the full thickness of the second layer of insulation being installed above it. A minimum R-5 (R-0.9) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

A102.2.6 Roofs with insulation entirely above deck (uninterrupted by framing). Tables A102.2.6(1) through A102.2.6(3): The base assembly is continuous insulation over a structural deck. ((~~Added insulation is continuous and uninterrupted by framing. For the insulation, the first column lists the R-value for continuous insulation with a uniform thickness; the second column lists the comparable area-weighted average R-value for continuous insulation provided that the insulation thickness is never less than R-5 (except at roof drains) and that the slope is~~)) These tables indicate effective U-factors for tapered roof insulation, sloped from a maximum R-value (R_{max}) at the peak of the slope to a minimum R-value (R_{min}) at the low point of the slope. The rows of the tables represent the rated R-value of the insulation at the minimum conditions (except at roof drains) and the columns of the table represent the rated R-value of the insulation at the maximum conditions. The slope of the tapered insulation shall be no greater than 1/4 inch per foot.

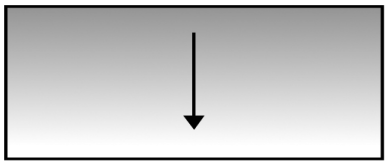
AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-610226 Tables A102.2.6—Assembly U-factors for roofs with insulation entirely above deck.

((~~Table A102.2.6~~
~~Assembly U-factors for Roofs with Insulation Entirely above Deck~~
~~(Uninterrupted by Framing)~~

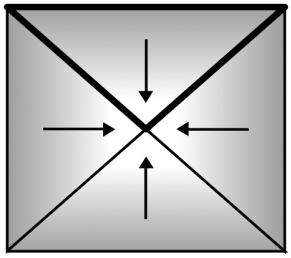
~~Rated R-Value of Insulation Alone: Minimum Throughout, Unsloped~~	~~Rated R-Value of Insulation Alone: Average (R-5 minimum), Sloped (1/4 inch per foot maximum)~~	~~Overall U-Factor for Entire Assembly~~
~~R-0~~	~~Not Allowed~~	~~U-1.282~~
~~R-1~~	~~Not Allowed~~	~~U-0.562~~
~~R-2~~	~~Not Allowed~~	~~U-0.360~~
~~R-3~~	~~Not Allowed~~	~~U-0.265~~
~~R-4~~	~~Not Allowed~~	~~U-0.209~~
~~R-5~~	~~Not Allowed~~	~~U-0.173~~
~~R-6~~	~~R-7~~	~~U-0.147~~
~~R-7~~	~~R-8~~	~~U-0.129~~
~~R-8~~	~~R-9~~	~~U-0.114~~
~~R-9~~	~~R-10~~	~~U-0.102~~
~~R-10~~	~~R-12~~	~~U-0.093~~
~~R-11~~	~~R-13~~	~~U-0.085~~
~~R-12~~	~~R-15~~	~~U-0.078~~
~~R-13~~	~~R-16~~	~~U-0.073~~
~~R-14~~	~~R-18~~	~~U-0.068~~
~~R-15~~	~~R-20~~	~~U-0.063~~
~~R-16~~	~~R-22~~	~~U-0.060~~
~~R-17~~	~~R-23~~	~~U-0.056~~
~~R-18~~	~~R-25~~	~~U-0.053~~
~~R-19~~	~~R-27~~	~~U-0.051~~
~~R-20~~	~~R-29~~	~~U-0.048~~
~~R-21~~	~~R-31~~	~~U-0.046~~
~~R-22~~	~~R-33~~	~~U-0.044~~
~~R-23~~	~~R-35~~	~~U-0.042~~
~~R-24~~	~~R-37~~	~~U-0.040~~
~~R-25~~	~~R-39~~	~~U-0.039~~
~~R-26~~	~~R-41~~	~~U-0.037~~
~~R-27~~	~~R-43~~	~~U-0.036~~
~~R-28~~	~~R-46~~	~~U-0.035~~
~~R-29~~	~~R-48~~	~~U-0.034~~
~~R-30~~	~~R-50~~	~~U-0.032~~
~~R-35~~	~~R-61~~	~~U-0.028~~
~~R-40~~	~~R-73~~	~~U-0.025~~
~~R-45~~	~~R-86~~	~~U-0.022~~
~~R-50~~	~~R-99~~	~~U-0.020~~
~~R-55~~	~~R-112~~	~~U-0.018~~
~~R-60~~	~~R-126~~	~~U-0.016~~))

Table A102.2.6(1)
Assembly U-factors for Roofs with Tapered Insulation Entirely Above Deck Single Slope Rectangular to One-side[d,e,f,g,h]
(Uninterrupted by Framing)



		Rated R-value of Insulation at Maximum Condition (Rmax[c])												
		1	5	10	15	20	25	30	35	40	45	50	55	60
Rated R-value of insulation at a Minimum Condition (Rmin[b])	1	0.562	0.306	0.213	0.168	0.140	0.121	0.107	0.097	0.088	0.081	0.075	0.070	0.066
	5	-	0.173	0.125	0.101	0.086	0.076	0.068	0.062	0.057	0.053	0.049	0.046	0.044
	10	-	-	0.093	0.076	0.066	0.058	0.053	0.048	0.045	0.042	0.039	0.037	0.035
	15	-	-	-	0.063	0.055	0.049	0.045	0.041	0.038	0.036	0.034	0.032	0.030
	20	-	-	-	-	0.048	0.043	0.039	0.036	0.034	0.032	0.030	0.028	0.027
	25	-	-	-	-	-	0.039	0.035	0.033	0.031	0.029	0.027	0.026	0.025
	30	-	-	-	-	-	-	0.032	0.030	0.028	0.026	0.025	0.024	0.023
	35	-	-	-	-	-	-	-	0.028	0.026	0.025	0.023	0.022	0.021
	40	-	-	-	-	-	-	-	-	0.025	0.023	0.022	0.021	0.020
	45	-	-	-	-	-	-	-	-	-	0.022	0.021	0.020	0.019
	50	-	-	-	-	-	-	-	-	-	-	0.020	0.019	0.018
	55	-	-	-	-	-	-	-	-	-	-	-	0.018	0.017
	60	-	-	-	-	-	-	-	-	-	-	-	-	0.016

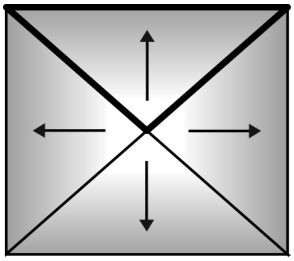
Table A102.2.6(2)
Assembly U-factors for Roofs with Tapered Insulation Entirely Above Deck Sloped Triangle (Roof with Center Drain)[e,f,g,h,i]
(Uninterrupted by Framing)



		Rated R-value of Insulation at Maximum Condition (Rmax[c])												
		1	5	10	15	20	25	30	35	40	45	50	55	60
Rated R-value of insulation at a Minimum Condition (Rmin[b])	1	0.526	0.242	0.146	0.106	0.083	0.068	0.058	0.051	0.045	0.040	0.036	0.033	0.031
	5	-	0.173	0.112	0.084	0.068	0.057	0.049	0.044	0.039	0.035	0.032	0.030	0.028
	10	-	-	0.093	0.071	0.059	0.050	0.044	0.039	0.035	0.032	0.029	0.027	0.025
	15	-	-	-	0.063	0.053	0.045	0.040	0.035	0.032	0.029	0.027	0.025	0.023
	20	-	-	-	-	0.048	0.042	0.037	0.033	0.030	0.027	0.025	0.024	0.022
	25	-	-	-	-	-	0.039	0.034	0.031	0.028	0.026	0.024	0.022	0.021
	30	-	-	-	-	-	-	0.032	0.029	0.027	0.025	0.023	0.021	0.020
	35	-	-	-	-	-	-	-	0.028	0.026	0.024	0.022	0.021	0.019
	40	-	-	-	-	-	-	-	-	0.025	0.023	0.021	0.020	0.019
	45	-	-	-	-	-	-	-	-	-	0.022	0.020	0.019	0.018

	Rated R-value of Insulation at Maximum Condition (Rmax[c])												
	1	5	10	15	20	25	30	35	40	45	50	55	60
50	-	-	-	-	-	-	-	-	-	-	0.020	0.018	0.017
55	-	-	-	-	-	-	-	-	-	-	-	0.018	0.017
60	-	-	-	-	-	-	-	-	-	-	-	-	0.016

Table A102.2.6(3)
Assembly U-factors for Roofs with Tapered Insulation Entirely Above Deck Sloped Triangle (Roof with Perimeter Drains)[e,f,g,h,i]
(Uninterrupted by Framing)



		Rated R-value of Insulation at Maximum Condition (Rmax[c])												
		1	5	10	15	20	25	30	35	40	45	50	55	60
Rated R-value of insulation at a Minimum Condition (Rmin[b])	1	0.562	0.242	0.146	0.106	0.083	0.068	0.058	0.051	0.045	0.040	0.036	0.033	0.031
	5	-	0.173	0.122	0.084	0.068	0.057	0.049	0.044	0.039	0.035	0.032	0.030	0.028
	10	-	-	0.093	0.071	0.059	0.050	0.044	0.039	0.035	0.032	0.029	0.027	0.025
	15	-	-	-	0.063	0.053	0.045	0.040	0.035	0.032	0.029	0.027	0.025	0.024
	20	-	-	-	-	0.048	0.042	0.037	0.033	0.030	0.027	0.025	0.024	0.022
	25	-	-	-	-	-	0.039	0.034	0.031	0.028	0.026	0.024	0.022	0.021
	30	-	-	-	-	-	-	0.032	0.029	0.027	0.025	0.023	0.021	0.020
	35	-	-	-	-	-	-	-	0.028	0.026	0.024	0.022	0.021	0.019
	40	-	-	-	-	-	-	-	-	0.025	0.023	0.021	0.020	0.019
	45	-	-	-	-	-	-	-	-	-	0.022	0.020	0.019	0.018
	50	-	-	-	-	-	-	-	-	-	-	0.020	0.018	0.017
	55	-	-	-	-	-	-	-	-	-	-	-	0.018	0.017
	60	-	-	-	-	-	-	-	-	-	-	-	-	0.016

Footnotes to Tables A102.2.6(1), A102.2.6(2), and A102.2.6(3):

[a] R_{max} and R_{min} are determined along the linearly tapered cross section for the 6. respective minimum and maximum thickness values for the roof section being analyzed. For triangular roof sections.

[b] R_{max} refers to the insulation value along the long edge of the triangle and R_{min} to the insulation at the point of the triangle which assumes that the insulation slopes to the center.

[c] R_{max} refers to the insulation value at the point of the triangle and R_{min} to the insulation along the long edge of the triangle which assumes that the insulation slopes to the perimeter.

[d] Effective U-factor for rectangular tapered insulation is calculated as follows:

$$R_{eff} = \frac{R_{max} - R_{min}}{Ln[R_{max}/R_{min}]}$$

[e] Effective U-factor for triangular tapered insulation is calculated as follows:

$$R_{eff} = [2/(R_{max} - R_{min})\,[1 + (R_{min}/R_{max} - R_{min})\ln(R_{min}/R_{max})]]^{-1}$$

[f] Assembly U-factors include an exterior air film (R=0.17) and an interior air film, horizontal with heat flow up (R=0.61).

[g] For effective U-factors of roof assemblies with different R_{max} or R_{min} values not listed in the tables interpolation is allowed.

[h] This table shall only be applied to tapered insulation that is tapered along only one axis.

[i] In areas of differing insulation slopes/configurations, individual U-values shall be calculated and an area weighted U-value calculation shall be used to determine the effective value of the roof.

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 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-61031 Section A103.1—General.

A103.1 General. The tables in this section list heat loss coefficients for the opaque portion of above-grade wood stud frame walls, metal stud frame walls and concrete masonry walls (Btu/h • ft² • °F). They are derived from procedures listed in the ASHRAE Fundamentals Handbook. For intermediate floor slabs which penetrate the insulated wall, use the concrete wall U-factors in Table A103.3.7.1(1).

Insulation is assumed to uniformly fill the entire cavity and to be installed as per manufacturer's directions. All walls are assumed to be finished on the inside with 1/2 inch gypsum wallboard, and on the outside with either beveled wood siding over 1/2 inch plywood sheathing or with 5/8 inch T1-11 siding. Insulated sheathing (either interior or exterior) is assumed to cover the entire opaque wall surface, except where modified in accordance with footnote ((~~h~~)) g to Table ((~~C402.1.1~~)) C402.1.3.

Metal building walls have a different construction and are addressed in Table A103.3.6.3.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-610337 Section A103.3.7—Concrete and masonry walls.

A103.3.7 Concrete and masonry walls.

A103.3.7.1 Concrete masonry walls. The nominal R-values in Tables A103.3.7.1(1), A103.3.7.1(2) and A103.3.7.1(3) may be used for purposes of calculating concrete masonry wall section U-factors in lieu of the ASHRAE isothermal planes calculation method as provided in Chapter 27 of the ASHRAE Fundamentals Handbook.

Table A103.3.7.1(1)
Default U-factors for Concrete ((~~and~~)) Masonry Walls

((~~**8" Concrete Masonry**~~

~~Wall Description~~	~~CORE TREATMENT~~			
	~~Partial Grout with Ungrouted Cores~~			
		~~Loose-fill insulated~~		
	~~Empty~~	~~Perlite~~	~~Vermiculite~~	~~Solid Grout~~
~~Exposed Block, Both Sides~~	~~0.40~~	~~0.23~~	~~0.24~~	~~0.43~~
~~R-5 Interior Insulation, Wood Furring~~	~~0.14~~	~~0.11~~	~~0.12~~	~~0.15~~
~~R-6 Interior Insulation, Wood Furring~~	~~0.14~~	~~0.11~~	~~0.11~~	~~0.14~~
~~R-10.5 Interior Insulation, Wood Furring~~	~~0.11~~	~~0.09~~	~~0.09~~	~~0.11~~
~~R-8 Interior Insulation, Metal Clips~~	~~0.11~~	~~0.09~~	~~0.09~~	~~0.11~~
~~R-6 Exterior Insulation~~	~~0.12~~	~~0.10~~	~~0.10~~	~~0.12~~
~~R-10 Exterior Insulation~~	~~0.08~~	~~0.07~~	~~0.07~~	~~0.08~~
~~R-9.5 Rigid Polystyrene Integral Insulation, Two Webbed Block~~	~~0.11~~	~~0.09~~	~~0.09~~	~~0.12~~

~~**12" Concrete Masonry**~~

~~Wall Description~~	~~CORE TREATMENT~~			
	~~Partial Grout with Ungrouted Cores~~			
		~~Loose-fill insulated~~		
	~~Empty~~	~~Perlite~~	~~Vermiculite~~	~~Solid Grout~~
~~Exposed Block, Both Sides~~	~~0.35~~	~~0.17~~	~~0.18~~	~~0.33~~
~~R-5 Interior Insulation, Wood Furring~~	~~0.14~~	~~0.10~~	~~0.10~~	~~0.13~~
~~R-6 Interior Insulation, Wood Furring~~	~~0.13~~	~~0.09~~	~~0.10~~	~~0.13~~
~~R-10.5 Interior Insulation, Wood Furring~~	~~0.11~~	~~0.08~~	~~0.08~~	~~0.10~~
~~R-8 Interior Insulation, Metal Clips~~	~~0.10~~	~~0.08~~	~~0.08~~	~~0.09~~
~~R-6 Exterior Insulation~~	~~0.11~~	~~0.09~~	~~0.09~~	~~0.11~~
~~R-10 Exterior Insulation~~	~~0.08~~	~~0.06~~	~~0.06~~	~~0.08~~
~~R-9.5 Rigid Polystyrene Integral Insulation, Two Webbed Block~~	~~0.11~~	~~0.08~~	~~0.09~~	~~0.12~~

~~8" Clay Brick~~))

8-inch Medium-Weight (115 lb/CF) CMU									
	All Cells Grouted	Grout @ 16-inches OC		Grout @ 32 inches OC		Grout @ 48 inches OC		No Grout (unreinforced)	
Additional Insulation		Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled
None	0.58	0.52	0.43	0.48	0.35	0.46	0.27	0.43	0.21
R-5 continuous insulation	0.15	0.14	0.14	0.14	0.12	0.14	0.11	0.14	0.10
R-10 continuous insulation	0.09	0.08	0.08	0.08	0.07	0.08	0.07	0.08	0.07
R-15 continuous insulation	0.06	0.06	0.06	0.06	0.05	0.06	0.05	0.06	0.05
R-19 continuous	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.05	0.04
R-13 insulation 2x4 wood studs	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.08	0.07
R-21 insulation 2x6 wood studs	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.05
R-13 insulation 3-5/8" metal studs	0.16	0.15	0.14	0.14	0.13	0.14	0.12	0.14	0.11
R-19 insulation 6" metal studs	0.11	0.11	0.11	0.11	0.10	0.11	0.10	0.11	0.10
R-21 insulation 5.5" metal studs	0.12	0.11	0.11	0.11	0.10	0.11	0.09	0.11	0.09

12-inch Medium-Weight (115 lb/CF) CMU									
	All Cells Grouted	Grout @ 16 inches OC		Grout @ 32 inches OC		Grout @ 48 inches OC		No Grout (unreinforced)	
Additional Insulation		Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled
None	0.47	0.44	0.34	0.42	0.28	0.41	0.21	0.40	0.15
R-5 continuous insulation	0.14	0.14	0.12	0.14	0.11	0.13	0.10	0.13	0.09
R-10 continuous insulation	0.08	0.08	0.08	0.08	0.07	0.08	0.07	0.08	0.06
R-15 continuous insulation	0.06	0.06	0.06	0.06	0.05	0.06	0.05	0.06	0.05
R-19 continuous	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.05	0.04
R-13 insulation 2x4 wood studs	0.08	0.08	0.08	0.08	0.07	0.08	0.07	0.08	0.06
R-21 insulation 2x6 wood studs	0.06	0.06	0.05	0.06	0.05	0.06	0.05	0.06	0.05
R-13 insulation 3-5/8" metal studs	0.15	0.14	0.13	0.14	0.12	0.14	0.11	0.14	0.11
R-19 insulation 6" metal studs	0.11	0.11	0.11	0.11	0.10	0.11	0.10	0.11	0.10
R-21 insulation 5.5" metal studs	0.11	0.11	0.10	0.11	0.09	0.11	0.08	0.11	0.09

Notes:

1. Interpolation is allowed between 8-inch and 12-inch CMU values (for 10-inch CMU).
2. Interpolation is allowed between 16 and 32-inch grout spacing (for 24-inch spacing).
3. Interpolation is allowed between 32 and 48-inch grout spacing (for 40-inch spacing).
4. "Cores filled" means that all cores not grouted are filled with perlite or vermiculite insulation.
5. Values are based on stud spacing of 16 inches on center.
6. Values are based on horizontal grout spacing of 48 inches OC.
7. Stud wall values include one layer of gypsum board on the interior.

Table A103.3.7.1(2)
Default U-factors for 80-Inch Clay Brick Masonry Walls

Wall Description	*CORE TREATMENT*			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
	Empty	**Perlite**	**Vermiculite**	**Solid Grout**
Exposed Block, Both Sides	0.50	0.31	0.32	0.56
R-5 Interior Insulation, Wood Furring	0.15	0.13	0.13	0.16
R-6 Interior Insulation, Wood Furring	0.15	0.12	0.12	0.15
R-10.5 Interior Insulation, Wood Furring	0.12	0.10	0.10	0.12
R-8 Interior Insulation, Metal Clips	0.11	0.10	0.10	0.11
R-6 Exterior Insulation	0.12	0.11	0.11	0.13
R-10 Exterior Insulation	0.08	0.08	0.08	0.09

((~~**6" Concrete Poured or Precast**~~))

Table A103.3.7.1(3)
Default U-factors for 6-Inch Concrete Poured or Precast Masonry Walls

Wall Description	*CORE TREATMENT*			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
	Empty	**Perlite**	**Vermiculite**	**Solid Grout**
Exposed Concrete, Both Sides	NA	NA	NA	0.61
R-5 Interior Insulation, Wood Furring	NA	NA	NA	0.16
R-6 Interior Insulation, Wood Furring	NA	NA	NA	0.15
R-10.5 Interior Insulation, Wood Furring	NA	NA	NA	0.12
R-8 Interior Insulation, Metal Clips	NA	NA	NA	0.12
R-6 Exterior Insulation	NA	NA	NA	0.13
R-10 Exterior Insulation	NA	NA	NA	0.09

Notes for Tables A103.3.7.1(2) and A103.3.7.1(3):

1. Grouted cores at 40" x 48" on center vertically and horizontally in partial grouted walls.
2. Interior insulation values include 1/2" gypsum board on the inner surface.
3. Furring and stud spacing is 16" on center. Insulation is assumed to fill furring space and is not compressed.
4. Intermediate values may be interpolated using this table. Values not contained in this table may be computed using the procedures listed in the ASHRAE Fundamentals Handbook.

((~~5. Concrete Masonry Unit (CMU) assembly U-values are based on local test data for Washington state CMU block material using the ASTM C-236-87 steady state thermal conductance test. Tests included an 8"x8"x16" CMU with all cells filled with vermiculite (1995) and 8"x8"x16" CMU with all cells filled with polymaster foam in place insulation (1996). Refer to ASHRAE Standard 90.1 for additional nationally recognized data on the thermal performance of CMU block walls.~~))

Table A103.3.7.1(2)
Default U-Factors for Concrete and Masonry Walls[a, b, c, d]

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
Base Wall only				
No Framing	R-0	U-0.740	U-0.580	U-0.480

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
	Ungrouted Cores Filled with Loose-Fill Insulation	N.A.	N.A.	U-0.350
Continuous Wood Framing				
0.75 in.	R-3.0	U-0.247	U-0.226	U-0.210
1.5 in.	R-6.0	U-0.160	U-0.151	U-0.143
2.0 in.	R-10.0	U-0.116	U-0.111	U-0.107
3.5 in.	R-11.0	U-0.094	U-0.091	U-0.088
3.5 in.	R-13.0	U-0.085	U-0.083	U-0.080
3.5 in.	R-15.0	U-0.079	U-0.077	U-0.075
5.5 in.	R-19.0	U-0.060	U-0.059	U-0.058
5.5 in.	R-21.0	U-0.057	U-0.055	U-0.054
Continuous Metal Framing at 24 in. on center horizontally				
1.0 in.	R-0.0	U-0.414	U-0.359	U-0.318
1.0 in.	R-3.8	U-0.325	U-0.290	U-0.263
1.0 in.	R-5.0	U-0.314	U-0.281	U-0.255
1.0 in.	R-6.5	U-0.305	U-0.274	U-0.249
1.5 in.	R-11.0	U-0.267	U-0.243	U-0.223
2.0 in.	R-7.6	U-0.230	U-0.212	U-0.197
2.0 in.	R-10.0	U-0.219	U-0.202	U-0.188
2.0 in.	R-13.0	U-0.210	U-0.195	U-0.182
3.0 in.	R-11.4	U-0.178	U-0.167	U-0.157
3.0 in.	R-15.0	U-0.168	U-0.158	U-0.149
3.0 in.	R-19.0	U-0.161	U-0.152	U-0.144
3.5 in.	R-11.0	U-0.168	U-0.158	U-0.149
3.5 in.	R-13.0	U-0.161	U-0.152	U-0.144
3.5 in.	R-15.0	U-0.155	U-0.147	U-0.140
4.5 in.	R-17.1	U-0.133	U-0.126	U-0.121
4.5 in.	R-22.5	U-0.124	U-0.119	U-0.114
4.5 in.	R-25.2	U-0.122	U-0.116	U-0.112
5.0 in.	R-19.0	U-0.122	U-0.117	U-0.112
5.0 in.	R-25.0	U-0.115	U-0.110	U-0.106
5.0 in.	R-28.0	U-0.112	U-0.107	U-0.103
5.0 in.	R-32.0	U-0.109	U-0.105	U-0.101
5.5 in.	R-19.0	U-0.118	U-0.113	U-0.109
5.5 in.	R-20.9	U-0.114	U-0.109	U-0.105
5.5 in.	R-21.0	U-0.113	U-0.109	U-0.105
5.5 in.	R-27.5	U-0.106	U-0.102	U-0.099
5.5 in.	R-30.8	U-0.104	U-0.100	U-0.096

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
6.0 in.	R-22.8	U-0.106	U-0.102	U-0.098
6.0 in.	R-30.0	U-0.099	U-0.095	U-0.092
6.0 in.	R-33.6	U-0.096	U-0.093	U-0.090
6.5 in.	R-24.7	U-0.099	U-0.096	U-0.092
7.0 in.	R-26.6	U-0.093	U-0.090	U-0.087
7.5 in.	R-28.5	U-0.088	U-0.085	U-0.083
8.0 in.	R-30.4	U-0.083	U-0.081	U-0.079
1 in. Metal Clips at 24 in. on center horizontally and 16 in. vertically (also, where allowed by Section ((~~C402.1.2~~)) C402.1.3, for assemblies with a ratio of metal penetration area/mass wall area of < 0.0004 or < 0.04% of the mass wall area) See ASHRAE Fundamentals for determination of U-factors for assemblies that include metal other than screws and nails.				
1.0 in.	R-3.8	U-0.210	U-0.195	U-0.182
1.0 in.	R-5.0	U-0.184	U-0.172	U-0.162
1.0 in.	R-5.6	U-0.174	U-0.163	U-0.154
1.5 in.	R-5.7	U-0.160	U-0.151	U-0.143
1.5 in.	R-7.5	U-0.138	U-0.131	U-0.125
1.5 in.	R-8.4	U-0.129	U-0.123	U-0.118
2.0 in.	R-7.6	U-0.129	U-0.123	U-0.118
2.0 in.	R-10.0	U-0.110	U-0.106	U-0.102
2.0 in.	R-11.2	U-0.103	U-0.099	U-0.096
2.5 in.	R-9.5	U-0.109	U-0.104	U-0.101
2.5 in.	R-12.5	U-0.092	U-0.089	U-0.086
2.5 in.	R-14.0	U-0.086	U-0.083	U-0.080
3.0 in.	R-11.4	U-0.094	U-0.090	U-0.088
3.0 in.	R-15.0	U-0.078	U-0.076	U-0.074
3.0 in.	R-16.8	U-0.073	U-0.071	U-0.069
3.5 in.	R-13.3	U-0.082	U-0.080	U-0.077
3.5 in.	R-17.5	U-0.069	U-0.067	U-0.065
3.5 in.	R-19.6	U-0.064	U-0.062	U-0.061
4.0 in.	R-15.2	U-0.073	U-0.071	U-0.070
4.0 in.	R-20.0	U-0.061	U-0.060	U-0.058
4.0 in.	R-22.4	U-0.057	U-0.056	U-0.054
5.0 in.	R-28.0	U-0.046	U-0.046	U-0.045
6.0 in.	R-33.6	U-0.039	U-0.039	U-0.038
7.0 in.	R-39.2	U-0.034	U-0.034	U-0.033
8.0 in.	R-44.8	U-0.030	U-0.030	U-0.029
9.0 in.	R-50.4	U-0.027	U-0.027	U-0.026
10 in.	R-56.0	U-0.024	U-0.024	U-0.024
11 in.	R-61.6	U-0.022	U-0.022	U-0.022
Continuous Insulation Uninterrupted by Framing				

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
No Framing	R-1.0	U-0.425	U-0.367	U-0.324
	R-2.0	U-0.298	U-0.269	U-0.245
	R-3.0	U-0.230	U-0.212	U-0.197
	R-4.0	U-0.187	U-0.175	U-0.164
	R-5.0	U-0.157	U-0.149	U-0.141
No Framing	R-6.0	U-0.136	U-0.129	U-0.124
	R-7.0	U-0.120	U-0.115	U-0.110
	R-8.0	U-0.107	U-0.103	U-0.099
	R-9.0	U-0.097	U-0.093	U-0.090
	R-10.0	U-0.088	U-0.085	U-0.083
No Framing	R-11.0	U-0.081	U-0.079	U-0.076
	R-12.0	U-0.075	U-0.073	U-0.071
	R-13.0	U-0.070	U-0.068	U-0.066
	R-14.0	U-0.065	U-0.064	U-0.062
	R-15.0	U-0.061	U-0.060	U-0.059
No Framing	R-16.0	U-0.058	U-0.056	U-0.055
	R-17.0	U-0.054	U-0.053	U-0.052
	R-18.0	U-0.052	U-0.051	U-0.050
	R-19.0	U-0.049	U-0.048	U-0.047
	R-20.0	U-0.047	U-0.046	U-0.045
No Framing	R-21.0	U-0.045	U-0.044	U-0.043
	R-22.0	U-0.043	U-0.042	U-0.042
	R-23.0	U-0.041	U-0.040	U-0.040
	R-24.0	U-0.039	U-0.039	U-0.038
	R-25.0	U-0.038	U-0.037	U-0.037
No Framing	R-30.0	U-0.032	U-0.032	U-0.031
	R-35.0	U-0.028	U-0.027	U-0.027
	R-40.0	U-0.024	U-0.024	U-0.024
	R-45.0	U-0.022	U-0.021	U-0.021
	R-50.0	U-0.019	U-0.019	U-0.019
	R-55.0	U-0.018	U-0.018	U-0.018
	R-60.0	U-0.016	U-0.016	U-0.016
Brick cavity wall with continuous insulation				
No Framing	R-0.0	U-0.337	U-0.299	U-0.270
No Framing	R-3.8	U-0.148	U-0.140	U-0.133
No Framing	R-5.0	U-0.125	U-0.120	U-0.115
No Framing	R-6.5	U-0.106	U-0.102	U-0.098
No Framing	R-7.6	U-0.095	U-0.091	U-0.088
No Framing	R-10.0	U-0.077	U-0.075	U-0.073

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
No Framing	R-10.5	U-0.079	U-0.077	U-0.075
No Framing	R-11.4	U-0.070	U-0.068	U-0.066
No Framing	R-15.0	U-0.056	U-0.055	U-0.053
No Framing	R-16.5	U-0.054	U-0.053	U-0.052
No Framing	R-19.0	U-0.046	U-0.045	U-0.044
No Framing	R-22.5	U-0.041	U-0.040	U-0.039
No Framing	R-28.5	U-0.033	U-0.032	U-0.032
Continuous Insulation Uninterrupted by Framing with Stucco and Continuous Metal Framing at 24 in. on center horizontally				
1.0 in.	R-0.0 + R-19 c.i.	U-0.047	U-0.046	U-0.045
1.0 in.	R-3.8 + R-19 c.i.	U-0.045	U-0.044	U-0.044
1.0 in.	R-5.0 + R-19 c.i.	U-0.045	U-0.044	U-0.043
1.0 in.	R-6.5 + R-19 c.i.	U-0.045	U-0.044	U-0.043
1.5 in.	R-11.0 + R-19 c.i.	U-0.044	U-0.043	U-0.043
2.0 in.	R-7.6 + R-19 c.i.	U-0.043	U-0.042	U-0.041
2.0 in.	R-10.0 + R-19 c.i.	U-0.042	U-0.041	U-0.041
2.0 in.	R-13.0 + R-19 c.i.	U-0.042	U-0.041	U-0.041
3.0 in.	R-11.4 + R-19 c.i.	U-0.041	U-0.040	U-0.039
3.0 in.	R-15.0 + R-19 c.i.	U-0.040	U-0.039	U-0.039
3.0 in.	R-19.0 + R-19 c.i.	U-0.040	U-0.039	U-0.038
3.5 in.	R-11.0 + R-19 c.i.	U-0.040	U-0.039	U-0.039
3.5 in.	R-13.0 + R-19 c.i.	U-0.040	U-0.039	U-0.038
5.0 in.	R-19.0 + R-19 c.i.	U-0.037	U-0.036	U-0.036
5.0 in.	R-25.0 + R-19 c.i.	U-0.036	U-0.035	U-0.035
5.0 in.	R-32.5 + R-19 c.i.	U-0.035	U-0.035	U-0.034
5.5 in.	R-19.0 + R-19 c.i.	U-0.036	U-0.036	U-0.035
5.5 in.	R-21.0 + R-19 c.i.	U-0.035	U-0.035	U-0.035

Note for Default Table A103.3.7.1(2):

a. It is acceptable to use the U-factors in Table A103.3.7.1(2) for all concrete and masonry walls, provided that the grouting is equal to or less than that specified.

- For ungrouted walls, use the partially grouted column.
- For metal studs and z-furring, use the continuous-metal-framing category.
- For discontinuous metal clips 1 inch square or smaller, use the metal-clip category.
- For insulation that is attached without any framing members (e.g. glued), use the continuous-insulation uninterrupted-by-framing category. Continuous insulation may be installed on the interior or exterior of masonry walls, or between stand-alone walls in multilayer masonry walls, or on the interior or exterior of the concrete.

b. For Table A103.3.7.1(2), the U-factor includes R-0.17 for exterior air film and R-0.68 for interior air film-vertical surfaces. For insulated walls, the U-factor also includes R-0.45 for 0.5 in. gypsum board. U-factors are provided for the following configurations:

(1) Concrete wall: 8-in. normal weight concrete wall with a density of 145 lb/ft^3.

(2) Solid grouted concrete block wall: 8-in. medium weight ASTM C90 concrete block with a density of 115 lb/ft^3 and solid grouted cores.

(3) Partially grouted concrete block wall: 8-in. medium weight ASTM C90 concrete block with a density of 115 lb/ft^3 having reinforcing steel every 32 in. vertically and every 48 in. horizontally, with cores grouted in those areas only. Other cores are filled with insulating material only if there is no other insulation.

c. For walls with insulation contained in a framing layer, the U-factors in Table A103.3.7.1(2) assume contact (and thermal bridging) between the mass wall and other framing. For wall assemblies with multiple layers where the wood or metal framing layer does not contact the concrete or masonry layer (i.e., walls with an airspace between the stud wall layer and the mass wall layer), it is acceptable to use the appropriate wood or metal frame wall default U-factors in Tables A103.3.1 or A103.3.6.1. Note: It is acceptable to use this approach where the insulation extends beyond the framing and is in contact with the mass wall layer (e.g. a nominal four-inch metal stud containing insulation that is nominally six inches thick and therefore extends two inches beyond the back of the metal stud).

d. Except for wall assemblies qualifying for note 3, if not taken from Table A103.3.7.1(2), mass wall U-factors shall be determined in accordance with ASHRAE 90.1, Appendix A, Section A3.1 and Tables A3.1A to A3.1D, or Section A9.4.

A103.3.7.2 Peripheral edges of intermediate concrete floors. See Table A103.3.7.2.

Table A103.3.7.2
Default U-factors for Peripheral Edges of Intermediate Concrete Floors[a, b, c, d]

Slab Edge Treatment	Average Thickness of Wall above and below			
	6 inches	8 inches	10 inches	12 inches
Exposed Concrete	0.816	0.741	0.678	0.625
R-5 Exterior Insulation	0.161	0.157	0.154	0.152
R-6 Exterior Insulation	0.138	0.136	0.134	0.132
R-7 Exterior Insulation	0.122	0.120	0.118	0.116
R-8 Exterior Insulation	0.108	0.107	0.106	0.104
R-9 Exterior Insulation	0.098	0.097	0.095	0.094
R-10 Exterior Insulation	0.089	0.088	0.087	0.086
R-11 Exterior Insulation	0.082	0.081	0.080	0.079
R-12 Exterior Insulation	0.076	0.075	0.074	0.074
R-13 Exterior Insulation	0.070	0.070	0.069	0.068
R-14 Exterior Insulation	0.066	0.065	0.065	0.064
R-15 Exterior Insulation	0.062	0.061	0.061	0.060

Note for Table A103.3.7.2:

a. Exterior insulation values listed above are continuous R-values on the exterior side of the concrete floor.

b. For conditions with an exterior wall above the peripheral edge of intermediate concrete floor but with no wall below the intermediate concrete floor this table may be used as long as the code minimum insulation is applied to the floor slab below the concrete floor.

c. Typical conditions where conditioned space building envelope wall thermal insulation values are broken concrete floors include, but are not limited to, the following examples:

1. Elevator hoistway shafts that serve the conditioned building and pass through unconditioned floors such as parking garage levels;

2. Stairwell enclosures that serve the conditioned building and pass through unconditioned floors such as parking garage levels;

3. Walls between interior and exterior building envelope that separate the interior conditioned space from an exterior courtyard or roofdeck;

4. Walls between interior and exterior building envelope that separate the interior conditioned space from an exterior unconditioned space on parking garage levels.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61051 Section A105.1—General.

A105.1 General. Tables A105.1(1), A105.1(2) and A105.1 (3) list heat loss coefficients for floors over unconditioned spaces in units of Btu/h • ft² • °F.

They are derived from procedures listed in the ASHRAE Fundamentals Handbook, assuming an average outdoor temperature of 45°F, an average indoor temperature of 65°F and a crawlspace area of 1350 ft² and 100 feet of perimeter. The crawlspace is assumed to be 2.5 feet high, with 24 inches below grade and 6 inches above grade.

Table A105.1(1)
Default U-factors for Wood-Framed Floors over Vented Crawlspace or Unheated Basement

Nominal R-value		U-factor	
Floor	Perimeter	Post & Beam	Joists
0	0	0.112	0.134
	11	0.100	0.116
	19	0.098	0.114
	30	0.093	0.107
11	0	0.052	0.056
	11	0.048	0.052
19	0	0.038	0.041
	11	0.036	0.038
22	0	0.034	0.037
	11	0.033	0.035
25	0	0.032	0.034
	11	0.031	0.033
30	0	0.028	0.029
	11	0.027	0.028

Nominal R-value		U-factor	
Floor	Perimeter	Post & Beam	Joists
38	0	0.024	0.025
	11	0.024	0.024

Table A105.1(2)
Default U-factors for Wood-Framed Floors over Heated Plenum Crawlspaces

Nominal R-value Perimeter	U-factor
11	0.085
19	0.075
30	0.069

Note: Crawlspaces used as heated plenums have approximately 30 percent higher heat loss rate than unvented crawlspaces with the same assumed ACH. Default U-factors in Table A105.1(2) reflect this higher rate of heat loss.

Table A105.1(3)
Default U-factors for Exposed Floors

Nominal R-value	U-factor		
	Concrete	Wood Joist	Metal Joist
R-11	0.077	0.088	0.14
R-15	0.059	0.076	0.12
R-19	0.048	0.062	0.11
R-21	0.043	0.057	0.11
R-25	0.037	0.051	0.10
R-30	0.031	0.040	0.09
R-38	0.025	0.034	0.08

NEW SECTION

WAC 51-11C-80500 Appendix D—Renewable energy.

AE101.1 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: The code official can approve an alternative approach to achieve the on-site renewable energy requirements.

WSR 15-17-046
PROPOSED RULES
OFFICE OF INSURANCE COMMISSIONER

[Insurance Commissioner Matter No. R 2015-03—Filed August 12, 2015, 4:51 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-11-084.

Title of Rule and Other Identifying Information: Issuer filing of attestation form regarding transparency tools for consumer information on health care cost and quality.

Hearing Location(s): Office of the Insurance Commissioner (OIC), Training Room (TR-120), 5000 Capitol Boulevard S.E., Tumwater, WA, on September 30, 2015, at 8:30 a.m.

Date of Intended Adoption: October 2, 2015.

Submit Written Comments to: Jason Siems, P.O. Box 40258, Olympia, WA 98504, e-mail rulescoordinator@oic.wa.gov, fax (360) 586-3109, by September 30, 2015.

Assistance for Persons with Disabilities: Contact Lori [Lorie] Villaflores by September 16, 2015, TTY (360) 586-0241 or (360) 725-7087.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: RCW 48.43.007 requires health plan issuers in Washington to attest to the office of the insurance commissioner that their member transparency tools meet the requirements in the statute and that access to the tools is available on the issuers home page within the health plan's secured member web site. This proposed rule directs health plan issuers to file with OIC one annual attestation for each market level of plans offered in Washington (e.g., individual, small group and large group). The proposed rule provides guidance as to how the attestation(s) should be provided to OIC.

Reasons Supporting Proposal: The proposed rule will assist health plan issuers in complying with RCW 48.43.007, by providing direction as to how and when the attestations required by the statute are to be filed with OIC.

Statutory Authority for Adoption: RCW 48.02.060, 48.43.340, 48.44.050.

Statute Being Implemented: RCW 48.43.007.

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

Name of Proponent: Mike Kreidler, insurance commissioner, governmental.

Name of Agency Personnel Responsible for Drafting: Jason Siems, 302 Sid Snyder Avenue, Olympia, WA 98504, (360) 725-7037; Implementation: Leslie Krier, 5000 Capitol Boulevard, Tumwater, WA 98504, (360) 725-7216; and Enforcement: AnnaLisa Gellermann, 5000 Capitol Boulevard, Tumwater, WA 98504, (360) 725-7050.

No small business economic impact statement has been prepared under chapter 19.85 RCW. The entities that must comply with the proposed rule are not small businesses, pursuant to chapter 19.85 RCW.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Jason Siems, P.O. Box 40258, Olympia, WA

98504-0258, phone (360) 725-7037, fax (360) 725-3535, e-mail rulescoordinator@oic.wa.gov.

August 12, 2015
Mike Kreidler
Insurance Commissioner

NEW SECTION

WAC 284-43-927 Issuer filing of attestation form, transparency tools. Every issuer offering or renewing a health benefit plan on or after January 1, 2016, must attest to the insurance commissioner that the transparency tools available to their members meet the requirements of RCW 48.43.007.

(1) Annually, each health plan issuer must file an attestation form with the insurance commissioner for each line of business written by the issuer. For purposes of this section, line of business is defined as individual, small group and large group health plans.

(2) The form must be signed by an officer of the issuer that is responsible for ensuring compliance with RCW 48.43.007.

(3) The form must be submitted to the insurance commissioner no later than February 1st of each calendar year. Instructions for filing of the form will be available on the insurance commissioner's web site no later than sixty days prior to the filing deadline.

WSR 15-17-070
PROPOSED RULES
DEPARTMENT OF ECOLOGY
[Order 06-12—Filed August 17, 2015, 11:33 a.m.]

Continuance of WSR 15-13-118.

Preproposal statement of inquiry was filed as WSR 14-13-004.

Title of Rule and Other Identifying Information: New chapter 173-219 WAC, Reclaimed water. Ecology is extending the public comment period by thirty days in response to request from stakeholders.

"The draft rule and the guidance document total hundreds of pages. An extension of the comment period is warranted given the length of the document, the implications of the rule, and complexity of the issues. Also, during the summer it is harder for jurisdictions, utilities, and committees to coordinate review and offer comment. The extended comment period will allow stakeholders to thoroughly review the proposed rule and provide meaningful feedback."

Date of Intended Adoption: October 28, 2015.

Submit Written Comments to: Dennis McDonald, P.O. Box 47696, Olympia, WA 98504-7696, e-mail reclaimed water@ecy.wa.gov, fax (360) 407-6426, by Monday, September 21, 2015.

Statutory Authority for Adoption: RCW 90.46.015.

Statute Being Implemented: RCW 90.46.015.

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

August 14, 2015
Polly Zehm
Deputy Director

WSR 15-17-073
PROPOSED RULES
SUPERINTENDENT OF PUBLIC INSTRUCTION
[Filed August 17, 2015, 11:46 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-13-120.

Title of Rule and Other Identifying Information: Amending WAC 392-502-030 Approval assurances, criteria, and performance targets, to exempt online school programs, single-district providers, and affiliate providers from the WAC 392-502-030 accreditation requirement.

Hearing Location(s): Office of Superintendent of Public Instruction (OSPI), Policy Conference Room, 600 South Washington Street, Olympia, WA 98504, on September 23, 2015, at 1:00 p.m.

Date of Intended Adoption: September 25, 2015.

Submit Written Comments to: Leslie St. Pierre, Manager, Online Courses, 4507 University Way N.E., Suite 204, Seattle, WA 98105, e-mail Leslie.St.Pierre@k12.wa.us, fax (360) 753-6712, by September 23, 2015.

Assistance for Persons with Disabilities: Contact Kristin Murphy by September 16, 2015, TTY (360) 664-3631 or (360) 725-6133.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Under WAC 392-502-030, online providers, including public schools providing online courses and programs, must assure OSPI that their online programs are accredited through a designated accrediting organization. Requiring third party accreditation of online school programs imposes costs on public school districts, can be redundant, and is not consistent with OSPI's adoption of new online provider performance targets. The purpose of this proposed amendment to WAC 392-502-030 is to exempt online school programs, single-district providers, and affiliate providers from the rule's accreditation requirement.

Statutory Authority for Adoption: RCW 28A.150.290, 28A.250.020.

Statute Being Implemented: RCW 28A.250.020.

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

Name of Agency Personnel Responsible for Drafting and Implementation: Leslie St. Pierre, 4507 University Way N.E., Suite 204, Seattle, WA 98105, (206) 616-9940; and Enforcement: Peter Tamayo, 600 Washington Street S.E., Olympia, WA 98504, (360) 664-3631.

No small business economic impact statement has been prepared under chapter 19.85 RCW. Not applicable.

A cost-benefit analysis is not required under RCW 34.05.328. Not applicable.

August 17, 2015
Randy Dorn
Superintendent of
Public Instruction

AMENDATORY SECTION (Amending WSR 15-14-126, filed 7/1/15, effective 8/1/15)

WAC 392-502-030 Approval assurances, criteria, and performance targets. (1) This section sets forth the assurances, criteria, and performance targets that online providers must meet to be approved under this chapter.

(a) To be approved, online providers must provide the following assurances to the superintendent of public instruction:

(i) The online provider is accredited through an accrediting body as defined in WAC 392-502-010 and agrees to maintain accredited status for the duration of the approval period. Online providers may be candidates for accreditation at the time of application for approval provided that the provider earns full accreditation on the standard timeline. Online school programs, single-district providers, and affiliate providers are exempt from (a)(i) of this subsection.

(ii) Each course and program the online provider offers is aligned with at least eighty percent of the current applicable grade/subject area of Washington state standards. For courses with content that is not included in state standards, the online provider's courses are aligned with at least eighty percent of nationally accepted content standards set for the relevant subjects. Online providers must submit information to the superintendent regarding the standards alignment and the standards aligned.

(iii) All instruction delivered to Washington state students is delivered by Washington state certificated teachers who:

(A) Are assigned to instruct courses in a manner which meets the "highly qualified" definition under the No Child Left Behind Act and in a manner which meets the requirements set forth in chapter 181-82 WAC; and

(B) Are evaluated annually using the revised evaluative criteria and four-level rating system established in RCW 28A.405.100.

(iv) For online providers that offer high school courses, the courses offered by the online provider must be eligible for high school credit pursuant to WAC 180-51-050.

(v) All of the online provider's current and future courses in the applicable areas meet the credit/content requirements in chapter 392-410 WAC.

(vi) All advanced placement courses offered by the online provider have been approved in accordance with the college board advanced placement course audit. For advanced placement courses not yet offered at the time of application, the online provider must assure that those courses will be approved by the college board prior to offering those courses to students.

(vii) The online provider's data management systems ensure all student information remains confidential, as required by the Family Educational Rights and Privacy Act of 1974, as amended.

(viii) The online provider's web systems and content meet accessibility conformance levels specified in the list of approved provider assurances on the office of superintendent of public instruction's web site.

(ix) The online provider provides all information as directed or as requested by the office of superintendent of public instruction, the secretary for the department of education, and other federal officials for audit, program evaluation compliance, monitoring, and other purposes and to maintain all records for the current year and three previous years.

(x) The online provider informs the office of superintendent of public instruction in writing of any significant changes to the program including, but not limited to, changes in assurances, program description, fiscal status, or ownership.

(xi) The online provider upholds any pertinent federal or state laws, rules or regulations, in the delivery of the online courses or programs.

(xii) The online provider retains responsibility for the quality of courses, web systems, and content offered, regardless of any third-party contractual arrangements, partnerships or consortia, contributing to the content or delivery of the online courses or programs.

(xiii) The online school program complies with the state assessment requirements including, but not limited to, the requirements of chapter 28A.655 RCW and WAC 392-121-182, as applicable.

(xiv) All of the provider's current and future career and technical education (CTE) courses are aligned to Washington state CTE program standards and have been approved by the office of superintendent of public instruction's CTE office. CTE courses must be taught by a Washington certificated teacher who is also CTE-certificated in the subject area of the course.

(xv) The online provider agrees to abide by any additional assurances required by the superintendent of public instruction.

(xvi) The online school program agrees that all programs delivered as alternative learning experiences comply with the requirements of WAC 392-121-182. The online course provider agrees to disclose to OSPI the manner in which it supports the requirements of WAC 392-121-182 for online courses delivered outside of an online school program.

(xvii) Instructional materials used by online school programs in online courses or course work must be approved pursuant to school board policies adopted in accordance with RCW 28A.320.230.

(b) Multidistrict online providers must meet the following initial approval criteria by a preponderance of evidence submitted with the online provider's application:

(i) Course content and instructional design incorporating course goals and outcomes, materials and content organization, and student engagement.

(ii) Classroom management incorporating grading and privacy policies, internet etiquette, and expectations for communications.

(iii) Student assessment incorporating various types, frequent feedback, and appropriateness for the online learning environment.

(iv) Course evaluation and management incorporating strategies for obtaining feedback about the courses/programs and processes for quality assurance and updating content.

(v) Student support incorporating policies and systems to enhance the students' learning experience and their success.

(vi) School-based support incorporating strategies and systems to allow school-based staff to support student success.

(vii) Technology elements, requirements and support including descriptions and ease of navigation.

(viii) Staff development and support including training and online instructor performance reviews conducted on a planned and regularly scheduled basis.

(ix) Program management including timeliness and quality of teachers' responses to students, handling of fees, prompt distribution of materials and processing of enrollments, and handling fees and payments.

(x) The superintendent may require additional approval criteria pursuant to WAC 392-502-080.

(c) Beginning September 1, 2015, the online school program's course success rate must be greater than seventy percent. Programs with fewer than twenty online enrollments are not subject to this performance target.

(d) Beginning September 1, 2016, online school programs must meet or exceed each of the following annual performance targets:

(i) The online school program's percentage of students taking online math courses who meet standard on the state math assessments must be greater than forty percent. A program is not subject to this performance target if it has fewer than twenty students who have both taken an online math course and taken the state math assessment.

(ii) The online school program's percentage of students taking online English language arts courses who meet standard on the state English language arts assessments must be greater than fifty percent. A program is not subject to this performance target if it has fewer than twenty students who have both taken an online English language arts course and taken the state English language arts assessment.

(iii) The online school program's median math student growth percentile for students taking an online math course must be greater than the thirtieth percentile. A program is not subject to this performance target if it has fewer than twenty students who have both taken an online math course and have a math student growth percentile.

(iv) The online school program's median English language arts student growth percentile for students taking an online English language arts course must be greater than the fortieth percentile. A program is not subject to this performance target if it has fewer than twenty students who have both taken an online English language arts course and have an English language arts student growth percentile.

(e) Beginning September 1, 2015, online course providers' course success rate must be greater than seventy percent. Online providers must supply OSPI with student-level enrollment and performance information. Online course providers must also supply OSPI with a list of each district in the state that they served. An online course provider is not subject to this performance target if they have fewer than twenty online course enrollments.

(2) After review by the online learning advisory committee, the approval criteria with explanations and suggested supporting evidence will be posted on the superintendent of public instruction web site on or before the date the application is made available.

(3) Online provider's application will be reviewed by reviewers selected by the superintendent of public instruction for their experience and expertise. The reviewers will be provided orientations and training to review and score the online provider applications using the approval criteria and scoring protocols.

(4) Single-district provider online programs must incorporate the approval criteria developed by the superintendent of public instruction into the program design.

WSR 15-17-079
PROPOSED RULES
WASHINGTON STATE PATROL
[Filed August 17, 2015, 2:02 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-14-029.

Title of Rule and Other Identifying Information: Deferred prosecution.

Hearing Location(s): General Administration Building, 210 11th Avenue S.W., Room G3, Olympia, WA 98504, on September 24, 2015, at 8:30 a.m.

Date of Intended Adoption: September 24, 2015.

Submit Written Comments to: Deborah Collinsworth, Washington State Patrol, Criminal Records Division, P.O. Box 42619, Olympia, WA 98504, e-mail Deborah.collinsworth@wsp.wa.gov, fax (360) 534-2070, by September 15, 2015.

Assistance for Persons with Disabilities: Contact Melissa Van Gorkom by September 15, 2015, (360) 596-4017.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Rules changes are needed to clarify when deferred prosecution is included in criminal history records information.

Reasons Supporting Proposal: Updates will provide cleanup to existing language.

Statutory Authority for Adoption: RCW 10.97.080 and 10.97.090.

Statute Being Implemented: RCW 10.97.080 and 10.97.090.

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

Name of Proponent: Washington state patrol, governmental.

Name of Agency Personnel Responsible for Drafting: Deborah Collinsworth, P.O. Box 42619, Olympia, WA 98504, (360) 534-2102; Implementation and Enforcement: Washington State Patrol, P.O. Box 42600, Olympia, WA 98504, (360) 596-4000.

No small business economic impact statement has been prepared under chapter 19.85 RCW. There are no new impacts on businesses.

A cost-benefit analysis is not required under RCW 34.05.328. Not a significant rules change.

August 17, 2015
John R. Batiste
Chief

AMENDATORY SECTION (Amending WSR 80-08-057, filed 7/1/80)

WAC 446-20-040 Deferred prosecutions. A deferred prosecution under chapter 10.05 RCW of an alleged offender does not become nonconviction data until more than one year has elapsed since arrest, citation, charge, or service of warrant, or there is a final decision to dismiss charges or not to prosecute, whichever occurs first.

WSR 15-17-080
PROPOSED RULES
WASHINGTON STATE PATROL
[Filed August 17, 2015, 2:25 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-14-025.

Title of Rule and Other Identifying Information: Affirmative action.

Hearing Location(s): General Administration Building, 210 11th Avenue S.W., Room G3, Olympia, WA 98504, on September 25, 2015, at 8:30 a.m.

Date of Intended Adoption: September 25, 2015.

Submit Written Comments to: Ben Lastimado, Washington State Patrol, Human Resource Division, P.O. Box 42600, Olympia, WA 98504, e-mail ben.lastimado@wsp.wa.gov, fax (360) 704-2297, by September 15, 2015.

Assistance for Persons with Disabilities: Contact Melissa Van Gorkom by September 15, 2015, (360) 596-4017.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Rules changes are being proposed to clean up the chapter and align the affirmative action language with the requirements under current statute.

Reasons Supporting Proposal: Updates will reference current laws and provide cleanup to existing language.

Statutory Authority for Adoption: RCW 43.43.340.

Statute Being Implemented: RCW 43.43.340.

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

Name of Proponent: Washington state patrol, governmental.

Name of Agency Personnel Responsible for Drafting: Ben Lastimado, P.O. Box 42600, Olympia, WA 98504, (360) 704-2320; Implementation and Enforcement: Washington State Patrol, P.O. Box 42600, Olympia, WA 98504, (360) 596-4000.

No small business economic impact statement has been prepared under chapter 19.85 RCW. There are no new impacts on businesses.

A cost-benefit analysis is not required under RCW 34.05.328. Not a significant rules change.

August 17, 2015
John R. Batiste
Chief

NEW SECTION

WAC 446-70-005 Affirmative action rules. For the purpose of RCW 43.43.340 the Washington state patrol hereby adopts the rules contained in chapter 357-25 WAC.

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 446-70-010	Purpose.
WAC 446-70-020	Authority.
WAC 446-70-030	Goals and timetables regarding officer promotion to the ranks of RCW sergeant and lieutenant.
WAC 446-70-040	Definitions.
WAC 446-70-050	Affirmative action plan and requirements.
WAC 446-70-060	Affirmative action plan progress reporting.
WAC 446-70-070	Affirmative action plan use.
WAC 446-70-080	RCW 43.43.340 supplemental (plus 3) referrals.

WSR 15-17-084
WITHDRAWL OF PROPOSED RULES
STATE BOARD OF EDUCATION
(By the Code Reviser's Office)
[Filed August 18, 2015, 8:45 a.m.]

WAC 180-16-225 and 180-51-001, proposed by the state board of education in WSR 15-04-125, appearing in issue 15-04 of the Washington State Register, which was distributed on February 18, 2015, is withdrawn by the office of the code reviser under RCW 34.05.335(3), since the proposal was not adopted within the one hundred eighty day period allowed by the statute.

Kerry S. Radcliff, Editor
Washington State Register

WSR 15-17-091
PROPOSED RULES
DEPARTMENT OF
SOCIAL AND HEALTH SERVICES
(Developmental Disabilities Administration)
[Filed August 18, 2015, 10:42 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-09-092.

Title of Rule and Other Identifying Information: The department is proposing to amend WAC 388-828-9060 How does DDD determine your individual and family services support rating?, 388-828-9100 How does DDD determine the number to use in the adjustment of your individual and family services support rating?, 388-828-9120 How does DDD determine your individual and family services score?, and 388-832-0120 Will my IFS allocation be impacted if I am eligible for medicaid personal care services?

Hearing Location(s): Office Building 2, DSHS Headquarters, 1115 Washington, Olympia, WA 98504 (public parking at 11th and Jefferson. A map is available at http://www1.dshs.wa.gov/msa/rpau/RPAU-OB-2directions.html), on September 22, 2015, at 10:00 a.m.

Date of Intended Adoption: Not earlier than September 23, 2015.

Submit Written Comments to: DSHS Rules Coordinator, P.O. Box 45850, Olympia, WA 98504, e-mail DSHSRPAURulesCoordinator@dshs.wa.gov, fax (360) 664-6185, by 5:00 p.m., September 22, 2015.

Assistance for Persons with Disabilities: Contact Jeff Kildahl, DSHS rules consultant, by phone (360) 664-6092 or TTY (360) 664-6178, e-mail KildaJA@dshs.wa.gov.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The developmental disabilities administration (DDA) intends to make changes to these sections because the majority of individual and family services (IFS) clients will start to receive medicaid with the implementation of the IFS waiver, and DDA wants to evenly apply the adjustment based on medical acuity and activities of daily living (ADL) support needs to all clients, regardless of medicaid eligibility.

Reasons Supporting Proposal: The consequences of not making these changes would be that an estimated seventy-five percent of IFS clients would experience a reduction in their IFS allocation at their next assessment, with the receipt of medicaid.

Statutory Authority for Adoption: RCW 71A.12.030, 71A.12.140.

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

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Sheila Collins, DDA, P.O. Box 45310, Olympia, 98504-5310, (360) 725-3415.

No small business economic impact statement has been prepared under chapter 19.85 RCW. The rules do not impact small businesses or nonprofits. They only impact DSHS clients.

A cost-benefit analysis is not required under RCW 34.05.328. The proposed rules are exempt under RCW 34.05.328 (5)(b)(vii) and relate only to client medical or financial eligibility.

August 7, 2015
Katherine I. Vasquez
Rules Coordinator

AMENDATORY SECTION (Amending WSR 09-21-033, filed 10/13/09, effective 11/13/09)

WAC 388-828-9060 How does DDD determine your individual and family services support rating? (((~~(1)~~))) Your individual and family services support rating is determined by using the following table:

If your unadjusted individual and family services level is:	Then your individual and family services support rating is:
1	0
2	240
3	336
4	432
5	528

AMENDATORY SECTION (Amending WSR 08-16-121, filed 8/5/08, effective 9/5/08)

WAC 388-828-9100 How does DDD determine the number to use in the adjustment of your individual and family services support rating? DDD determines the amount of the adjustment for your individual and family services support rating using the following tables:

(((~~(1)~~)))

If your individual and family services level is 1, 2, 3, 4, or 5 ((~~and you are not eligible for medicaid personal care~~))		And your ADL support needs level for the SIS per WAC 388-828-5480			
		None	Low	Medium	High
And your medical acuity level per WAC 388-828-5700	None	57	57	76	85
	Low	57	57	76	85
	Medium	57	88	122	145
	High	57	145	245	287

(((~~(2)~~

~~If your individual and family services level is 1, 2, 3, 4, or 5 and you are eligible for medicaid personal care per chapter 388-106 WAC~~		~~And your ADL support needs level for the SIS per WAC 388-828-5480~~			
		~~None~~	~~Low~~	~~Medium~~	~~High~~
~~And your medical acuity level per WAC 388-828-5700~~	~~None~~	~~0~~	~~0~~	~~0~~	~~0~~
	~~Low~~	~~0~~	~~0~~	~~0~~	~~0~~
	~~Medium~~	~~0~~	~~0~~	~~0~~	~~0~~
	~~High~~	~~0~~	~~0~~	~~0~~	~~0~~))

Example: If your individual and family service level is 3 ((~~and you are not eligible for medicaid personal care services~~)) and your ADL support needs level is "low" and your medical acuity level is "medium," the amount of your adjustment is 88.

AMENDATORY SECTION (Amending WSR 08-16-121, filed 8/5/08, effective 9/5/08)

WAC 388-828-9120 How does DDD determine your individual and family services score? DDD adds your individual and family services support rating from WAC 388-828-9060 to the adjustment amount in WAC 388-828-9100 to determine your individual and family services score.

Example: If ((~~you are not eligible for medicaid personal care services and~~)) your individual and family services support rating is 336 and the amount of your adjustment is 122, your individual and family services score is 458.

AMENDATORY SECTION (Amending WSR 09-11-054, filed 5/13/09, effective 6/13/09)

WAC 388-832-0120 Will my IFS allocation be impacted if I am eligible for medicaid personal care services? ((~~If you meet financial and functional eligibility for medicaid personal care services, your IFS allocation will be adjusted according to WAC 388-828-9100 through 388-828-9140.~~)) Financial and functional eligibility for medicaid personal care services will not impact your IFS allocation.

WSR 15-17-093
PROPOSED RULES
PROFESSIONAL EDUCATOR STANDARDS BOARD

[Filed August 18, 2015, 11:33 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-12-033.

Title of Rule and Other Identifying Information: Amends WAC 181-79A-223 clarifying requirements for certain professionals wishing to earn an educator certificate. Professionals such as nurses, social workers, occupational therapists, physical therapists, speech/language pathologists or audiologists may earn an educational certificate in those fields by meeting their own professional requirements in addition to course work on the educational setting.

Hearing Location(s): Heathman Lodge, 7801 N.E. Greenwood Drive, Vancouver, WA 98662, on November 5, 2015, at 8:30.

Date of Intended Adoption: November 5, 2015.

Submit Written Comments to: David Brenna, 600 Washington Street, Room 400, Olympia, WA 98504, e-mail david.brenna@k12.wa.us, fax (360) 586-4548, by October 29, 2015.

Assistance for Persons with Disabilities: Contact David Brenna by October 29, 2015, (360) 725-6238.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Clarifies requirements.

Reasons Supporting Proposal: Clarifies requirements.

Statutory Authority for Adoption: Chapter 28A.410 RCW.

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

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: David Brenna, P.O. Box 42736 [47236], Olympia, WA 98504, (360) 725-6238.

No small business economic impact statement has been prepared under chapter 19.85 RCW. The proposed amendment does not have an impact on small business and therefore does not meet the requirements for a statement under RCW 19.85.030 (1) or (2).

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting David Brenna, 600 Washington Street, Olympia, WA 98504, phone (360) 725-6238, fax (360) 586-4548, e-mail david.brenna@k12.wa.us.

August 18, 2015
David Brenna
Senior Policy Analyst

AMENDATORY SECTION (Amending WSR 14-09-121, filed 4/23/14, effective 5/24/14)

WAC 181-79A-223 Academic and experience requirements for certification—School nurse, school occupational therapist, school physical therapist and school speech-language pathologist or audiologist, and school social worker. Candidates for school nurse, school occupational therapist, school physical therapist and school speech-language pathologist or audiologist and school social worker certification shall apply directly to the professional ((~~education and~~)) certification office. Such candidates shall complete the following requirements, in addition to those set

forth in WAC 181-79A-150, except state approved college/university professional preparation program. Provided, that it shall not be necessary for any candidate who holds a master's or doctorate degree to obtain the specified master's degree if the candidate provides satisfactory evidence to the superintendent of public instruction that he or she has completed all course work requirements relevant to the required master's degree and has satisfactorily completed a comprehensive examination required in such master's degree program: Provided, That if any candidate has been awarded a master's degree without a comprehensive examination, the candidate, as a condition for certification, shall successfully complete the Praxis II exam in the appropriate role.

(1) School nurse.

(a) Initial.

(i) The candidate shall hold a valid license as a registered nurse (RN) in Washington state.

(ii) The candidate shall hold a baccalaureate degree or higher in nursing from a program accredited by the National League for Nursing Accrediting Commission or the Commission on Collegiate Nursing Education.

(iii) The candidate shall successfully complete thirty clock hours or three quarter hours (two semester hours) of course work approved by the professional educator standards board which will ((~~include~~)) consist of the following course outcomes in which candidates will:

(A) Demonstrate an understanding of school and special education law;

(B) Understand and demonstrate knowledge of working within the culture of the schools, creating an environment that fosters safety, health, and learning for the students;

(C) Demonstrate knowledge of appropriate resources in the school setting;

(D) Demonstrate knowledge of collaboration with team members which may include parents, teachers, administrators, and others to support learning outcomes for all students;

(E) Demonstrate knowledge of how to support the outcomes for all students through strategies such as scientifically based practices, collaborative teaming, and ethical decision making;

(F) Use national, state, and local policies, as well as professional standards, to support decision making in educational settings and inform professional growth planning;

(G) Demonstrate an understanding of the use of human, community, and technological resources. Provided, that an individual who meets all other requirements but who has not completed the required course work shall be issued a temporary permit valid for one ((~~hundred eighty calendar days~~)) year, unless prior to the expiration date the superintendent of public instruction determines the applicant is ineligible to receive a valid certificate or endorsement, which will allow the individual to practice in the role. The candidate shall verify to OSPI the completion of the required course work during the one hundred eighty-day period.

(b) Continuing.

(i) The candidate shall have completed the requirements for the initial certificate as a school nurse and have completed forty-five quarter hours (thirty semester hours) of postbaccalaureate course work in education, nursing, or other health sciences.

(ii) The candidate shall provide documentation of one hundred eighty days of full-time equivalent or more employment in the respective role with an authorized employer—i.e., school district, educational service district, state agency, college or university, private school, or private school system—and at least thirty days of such employment with the same employer.

(2) School occupational therapist.

(a) Initial.

(i) The candidate shall hold a valid license as an occupational therapist in Washington state.

(ii) The candidate shall hold a baccalaureate (or higher) degree from an American Occupational Therapy Association approved program in occupational therapy.

(iii) The candidate shall successfully complete thirty clock hours or three quarter hours (two semester hours) of course work approved by the professional educator standards board which will ((~~include~~)) consist of the following course outcomes in which candidates will:

(A) Demonstrate an understanding of school and special education law;

(B) Understand and demonstrate knowledge of working within the culture of the schools, creating an environment that fosters safety, health, and learning for the students;

(C) Demonstrate knowledge of appropriate resources in the school setting;

(D) Demonstrate knowledge of collaboration with team members which may include parents, teachers, administrators, and others to support learning outcomes for all students;

(E) Demonstrate knowledge of how to support the outcomes for all students through strategies such as scientifically based practices, collaborative teaming, and ethical decision making;

(F) Use national, state, and local policies, as well as professional standards, to support decision making in educational settings and inform professional growth planning;

(G) Demonstrate an understanding of the use of human, community, and technological resources. Provided, that an individual who meets all other requirements but who has not completed the required course work shall be issued a temporary permit valid for one ((~~hundred eighty calendar days~~)) year, unless prior to the expiration date the superintendent of public instruction determines the applicant is ineligible to receive a valid certificate or endorsement, which will allow the individual to practice in the role. The candidate shall verify to OSPI the completion of the required course work during the one hundred eighty-day period.

(b) Continuing.

(i) The candidate shall have completed the requirements for the initial certificate as a school occupational therapist and have completed at least fifteen quarter hours (ten semester hours) of course work beyond the baccalaureate degree in occupational therapy, other health sciences or education.

(ii) The candidate shall provide documentation of one hundred eighty days of full-time equivalent or more employment in the respective role with an authorized employer—i.e., school district, educational service district, state agency, college or university, private school, or private school system—and at least thirty days of such employment with the same employer.

(3) School physical therapist.

(a) Initial.

(i) The candidate shall hold a valid license as a physical therapist in Washington state.

(ii) The candidate shall hold a baccalaureate (or higher) degree from an American Physical Therapy Association accredited program in physical therapy.

(iii) The candidate shall successfully complete thirty clock hours or three quarter hours (two semester hours) of course work approved by the professional educator standards board which will ((~~include~~)) consist of the following course outcomes in which candidates will:

(A) Demonstrate an understanding of school and special education law;

(B) Understand and demonstrate knowledge of working within the culture of the schools, creating an environment that fosters safety, health, and learning for the students;

(C) Demonstrate knowledge of appropriate resources in the school setting;

(D) Demonstrate knowledge of collaboration with team members which may include parents, teachers, administrators, and others to support learning outcomes for all students;

(E) Demonstrate knowledge of how to support the outcomes for all students through strategies such as scientifically based practices, collaborative teaming, and ethical decision making;

(F) Use national, state, and local policies, as well as professional standards, to support decision making in educational settings and inform professional growth planning;

(G) Demonstrate an understanding of the use of human, community, and technological resources. Provided, that an individual who meets all other requirements but who has not completed the required course work shall be issued a temporary permit valid for one ((~~hundred eighty calendar days~~)) year, unless prior to the expiration date the superintendent of public instruction determines the applicant is ineligible to receive a valid certificate or endorsement, which will allow the individual to practice in the role. The candidate shall verify to OSPI the completion of the required course work during the one hundred eighty-day period.

(b) Continuing.

(i) The candidate shall have completed the requirements for the initial certificate as a school physical therapist and have completed fifteen quarter hours (ten semester hours) of course work beyond the baccalaureate degree in physical therapy, other health sciences or education.

(ii) The candidate shall provide documentation of one hundred eighty days of full-time equivalent or more employment in the respective role with an authorized employer—i.e., school district, educational service district, state agency, college or university, private school, or private school system—and at least thirty days of such employment with the same employer.

(4) School speech-language pathologist or audiologist.

(a) Initial.

(i) The candidate shall have completed all course work (except special project or thesis) for a master's degree from a college or university program accredited by the American Speech and Hearing Association (ASHA) with a major in speech pathology or audiology. Such program shall include satisfactory completion of a written comprehensive examination: Provided, That if any candidate has not completed a written comprehensive examination, the candidate may present verification from ASHA of a passing score on the National Teacher's Examination in speech pathology or audiology as a condition for certification.

(ii) The candidate shall successfully complete thirty clock hours or three quarter hours (two semester hours) of course work approved by the professional educator standards board which will ((~~include~~)) consist of the following outcomes in which candidates will:

(A) Demonstrate an understanding of school and special education law;

(B) Understand and demonstrate knowledge of working within the culture of the schools, creating an environment that fosters safety, health, and learning for the students;

(C) Demonstrate knowledge of appropriate resources in the school setting;

(D) Demonstrate knowledge of collaboration with team members which may include parents, teachers, administrators, and others to support learning outcomes for all students;

(E) Demonstrate knowledge of how to support the outcomes for all students through strategies such as scientifically based practices, collaborative teaming, and ethical decision making;

(F) Use national, state, and local policies, as well as professional standards, to support decision making in educational settings and inform professional growth planning;

(G) Demonstrate an understanding of the use of human, community, and technological resources. Provided, that an individual who meets all other requirements but who has not completed the required course work shall be issued a temporary permit valid for one ((~~hundred eighty calendar days~~)) year, unless prior to the expiration date the superintendent of public instruction determines the applicant is ineligible to receive a valid certificate or endorsement, which will allow the individual to practice in the role. The candidate shall verify to OSPI the completion of the required course work during the one hundred eighty-day period.

(b) Continuing.

(i) The candidate shall hold a master's degree with a major in speech pathology or audiology.

(ii) The candidate shall provide documentation of one hundred eighty days of full-time equivalent or more employment in the respective role with an authorized employer—i.e., school district, educational service district, state agency, college or university, private school, or private school system—and at least thirty days of such employment with the same employer.

(5) School social worker.

(a) Initial.

(i) The candidate shall hold an MSW from a regionally accredited institution of higher learning.

(ii) The candidate shall successfully complete thirty clock hours or three quarter hours (two semester hours) of course work approved by the professional educator standards board which will ((~~include~~)) consist of the following outcomes in which candidates will:

(A) Demonstrate an understanding of school and special education law;

(B) Understand and demonstrate knowledge of working within the culture of the schools, creating an environment that fosters safety, health, and learning for the students;

(C) Demonstrate knowledge of appropriate resources in the school setting;

(D) Demonstrate knowledge of collaboration with team members which may include parents, teachers, administrators, and others to support learning outcomes for all students;

(E) Demonstrate knowledge of how to support the outcomes for all students through strategies such as scientifically based practices, collaborative teaming, and ethical decision making;

(F) Use national, state, and local policies, as well as professional standards, to support decision making in educational settings and inform professional growth planning;

(G) Demonstrate an understanding of the use of human, community, and technological resources. Provided, that an individual who meets all other requirements but who has not completed the required course work shall be issued a temporary permit valid for one ((~~hundred eighty calendar days~~)) year, unless prior to the expiration date the superintendent of public instruction determines the applicant is ineligible to receive a valid certificate or endorsement, which will allow the individual to practice in the role. The candidate shall verify to OSPI the completion of the required course work during the one hundred eighty-day period.

(b) Continuing.

(i) The candidate shall have completed the requirements for the initial certificate as a school social worker and have completed an annual professional growth plan or fifteen quarter hours or one hundred fifty clock hours specific to the role of the school social worker since earning the initial certificate.

(ii) The candidate shall provide documentation of one hundred eighty days of full-time equivalent or more employment in the respective role with an authorized employer—i.e., school district, educational service district, state agency, college or university, private school, or private school system—and at least thirty days of such employment with the same employer.

(6) Beginning with continuing certificates first issued after July 1, 2015, continuing certificates for school nurses and school social workers include a requirement for suicide prevention training per RCW 28A.410.226 and again every five years after receiving the continuing certificate.

(7) The professional educator standards board will review courses for approval and reapproval/disapproval per the posted schedule. All providers of the initial ESA course must maintain current approval status to offer the course.

WSR 15-17-102
PROPOSED RULES
PROFESSIONAL EDUCATOR STANDARDS BOARD

[Filed August 18, 2015, 1:48 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-08-097.

Title of Rule and Other Identifying Information: Amends WAC 181-82A-204 to waive the requirement for ninety days of experience to obtain an additional endorsement.

Hearing Location(s): Heathman Lodge, 7801 N.E. Greenwood Drive, Vancouver, WA 98662, on November 5, 2015, at 8:30.

Date of Intended Adoption: November 5, 2015.

Submit Written Comments to: David Brenna, 600 Washington Street, Room 400, Olympia, WA 98504, e-mail david.brenna@k12.wa.us, fax (360) 586-4548, by October 29, 2015.

Assistance for Persons with Disabilities: Contact David Brenna by October 29, 2015, (360) 725-6238.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Teachers are required to teach for ninety days in the subject area of their endorsement. Rule change eliminates that requirement.

Reasons Supporting Proposal: Legislation.

Statutory Authority for Adoption: Chapter 28A.410 RCW.

Statute Being Implemented: RCW 28A.410.290.

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

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: David Brenna, P.O. Box 42736 [47236], Olympia, WA 98504, (360) 725-6238.

No small business economic impact statement has been prepared under chapter 19.85 RCW. The proposed amendment does not have an impact on small business and therefore does not meet the requirements for a statement under RCW 19.85.030 (1) or (2).

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting David Brenna, 600 Washington Street, Olympia, WA 98504, phone (360) 725-6238, fax (360) 586-4548, e-mail david.brenna@k12.wa.us.

August 18, 2015
David Brenna
Senior Policy Analyst

AMENDATORY SECTION (Amending WSR 15-12-097, filed 6/2/15, effective 7/3/15)

WAC 181-82A-204 Endorsement requirements. (1) Candidates completing endorsements required to obtain a residency certificate, shall complete college/university teacher preparation programs approved by the professional educator standards board pursuant to chapter 181-78A WAC, which include methodology (see WAC 181-78A-264(5)) and field experience/internship (see WAC 181-78A-264(6)) and pursuant to endorsement program approval requirements in this chapter.

(2) In order to add an additional endorsement, the candidate shall:

(a) Have completed a state-approved endorsement program which includes methodology (see WAC 181-78A-264(5)) and addresses all endorsement-specific competencies

adopted and published by the professional educator standards board. The requirement for field experience shall be at the discretion of the college/university. Provided, that in cases where programs require a field experience/internship, the colleges/universities should make every attempt to allow the individual to complete field-based requirements for the endorsement within the confines of the individual's teaching schedule; or

(b) Achieve National Board certification in a Washington teaching endorsement area and hold a valid National Board certificate; or

(c) Pass the subject knowledge test approved by the professional educator standards board for the certificate endorsement being sought. The instructional methodology and content-related skills of the desired subject endorsement must be compatible with one or more of the current endorsement(s) on the applicant's teacher certificate, per the list of Pathway 1 endorsements adopted and published by the professional educator standards board((~~. The applicant must document a minimum of ninety days teaching experience as a teacher via full-time, part-time, or substitute experience, in a public or state approved private school, or state agency providing educational services for students, in the endorsement area that is compatible in instructional methodology and content related skills to the Pathway 1 endorsement~~)); or

(d) Pass the subject knowledge test approved by the professional educator standards board for the certificate endorsement being sought and successfully meet all eligibility criteria and process requirements for Pathway 2 endorsements as adopted and published by the professional educator standards board. The desired subject endorsement must be identified as a Pathway 2 endorsement for one or more of the current endorsement(s) on the applicant's teacher certificate, per the list of Pathway 2 endorsements adopted and published by the professional educator standards board. ((~~The applicant must document a minimum of ninety days teaching experience as a teacher via full-time, part-time, or substitute experience, in a public or state approved private school, or state agency providing educational services for students, while holding the endorsement area that is compatible in instructional methodology and content-related skills to the Pathway 2 endorsement.~~

~~(i) The ninety day teaching requirement is waived per RCW 28A.660.045 for individuals having an elementary education certificate but who are not employed in positions requiring an elementary education certificate and pursuing an endorsement in middle level mathematics or science.~~

~~(ii) The ninety day teaching requirement is waived for candidates holding a designated science endorsement who are adding a science endorsement.~~

~~(iii)~~)) Teacher preparation programs that offer Pathway 2 endorsement programs shall follow process steps as adopted by the professional educator standards board and published by the superintendent of public instruction to verify successful completion of the Pathway 2 process and to recommend adding the endorsement to the applicant's teacher certificate.

(3) Candidates from out-of-state shall be required to present verification that they completed a state-approved program (equivalent to a major) in a Washington endorsement area.

(4) Course work used to meet endorsement requirements must be completed through a regionally accredited college/university.

(5) Only course work in which an individual received a grade of C (2.0) or higher or a grade of pass on a pass-fail system of grading shall be counted toward the course work required for the approved endorsement program.

(6) Nothing within this chapter precludes a college or university from adopting additional requirements as conditions for recommendation, by such college or university, to the superintendent of public instruction for a particular subject area endorsement.

WSR 15-17-105
PROPOSED RULES
GAMBLING COMMISSION
[Filed August 18, 2015, 3:11 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-12-031.

Title of Rule and Other Identifying Information: Proposed amendment to WAC 230-15-685 Restrictions on progressive jackpots.

Hearing Location(s): Red Lion Seattle Airport, 18220 International Boulevard, Seattle, WA 98188, (206) 246-5535, on October 8, 2015, at 12:30 p.m. NOTE: Meeting dates and times are tentative. Visit our web site at www.wsgc.wa.gov and select public meeting about ten days before the meeting to confirm meeting date/location/start time.

Date of Intended Adoption: October 8, 2015.

Submit Written Comments to: Susan Newer, P.O. Box 42400, Olympia, WA 98504-2400, e-mail Susan.Newer@wsgc.wa.gov, fax (360) 486-3625, by October 1, 2015.

Assistance for Persons with Disabilities: Contact Michelle Rancour by October 1, 2015, TTY (360) 486-3637 or (360) 486-3453.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The petitioner is requesting that house-banked card game licensees be allowed to connect progressive jackpots from different card games on multiple tables within the card room. The games must have the same probability of winning the jackpot prize and the same winning hands.

The petitioner uses the example of poker based games such as Let it Ride, Mississippi Stud, and Ultimate Texas Hold'em. All are poker based games with progressive jackpots. Even though the underlying game is played differently the odds of obtaining a five card royal flush to win the progressive jackpot is the same since they are all played with a single fifty-two card deck.

Currently, progressive jackpots can only be connected for the same card game within the same card room.

Statutory Authority for Adoption: RCW 9.46.070, 9.46.-0282.

Statute Being Implemented: Not applicable.

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

Name of Proponent: Bally Gaming, a licensed manufacturer, private.

Name of Agency Personnel Responsible for Drafting: Susan Newer, Lacey, (360) 486-3466; Implementation: David Trujillo, Director, Lacey, (360) 486-3512; and Enforcement: Mark Harris, Assistant Director, Lacey, (360) 486-3579.

No small business economic impact statement has been prepared under chapter 19.85 RCW. A small business economic impact statement was not prepared because the rule change would not impose additional costs on any licensees.

A cost-benefit analysis is not required under RCW 34.05.328. The Washington state gambling commission is not an agency that is statutorily required to prepare a cost-benefit analysis under RCW 34.05.328.

August 18, 2015
Susan Newer
Rules Coordinator

AMENDATORY SECTION (Amending WSR 13-13-060, filed 6/18/13, effective 7/19/13)

WAC 230-15-685 Restrictions on progressive jackpots. House-banked card game licensees operating progressive jackpots must follow these restrictions and procedures:

(1) Progressive jackpot funds must accrue according to the rules of the game; and

(2) At each gambling table, licensees must prominently post the amount of the progressive jackpot that players can win; and

(3) Licensees must record the beginning amount of each progressive jackpot offered, including explanations for any increases or decreases in the prize amount offered. Licensees must keep this documentation with the progressive jackpot records; and

(4) Licensees may establish a maximum limit on a progressive jackpot prize. If licensees establish a limit, they must make the amount equal to, or greater than, the amount of the jackpot when they imposed the limit. They must prominently post a notice of the limit at or near the game; and

(5) Licensees may connect progressive jackpots offered on the same card game on multiple tables within the same licensed location.

(6) Licensees may connect progressive jackpots on different card games on multiple tables within the same licensed location when the following requirements are met. Only one progressive jackpot may be operated on a card game at a time and the card games must:

(a) All be from the same licensed manufacturer; and

(b) Have the same probability of winning the jackpot prize; and

(c) Have the same winning hand; and

(d) Have a progressive meter on each table that increases incrementally each time a wager is made.

WSR 15-17-108
PROPOSED RULES
NORTHWEST CLEAN AIR AGENCY

[Filed August 18, 2015, 3:25 p.m.]

Original Notice.

Proposal is exempt under RCW 70.94.141(1).

Title of Rule and Other Identifying Information: Regulation of the Northwest Clean Air Agency (NWCAA).

Hearing Location(s): NWCAA, 1600 South Second Street, Mount Vernon, WA 98273, on September 29, 2015, at 9:00 a.m.

Date of Intended Adoption: October 8, 2015.

Submit Written Comments to: Mark Buford, NWCAA, 1600 South Second Street, Mount Vernon, WA 98273, e-mail info@nwcleanair.org, fax (360) 428-1620, by September 29, 2015, at 11:00 a.m.

Assistance for Persons with Disabilities: Contact Laurie Caskey-Schreiber by September 22, 2015, (360) 428-1617.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules:

- Clarify and reconcile the rule language to better match state laws including adjusting the thresholds for both the first and second stages of impaired air quality and incorporating the ability to call a second stage of impaired air quality without having called a first stage of impaired air quality. (NWCAA 506.7)
- Update enforcement of opacity standard language to make implementation consistent and less confusing. (NWCAA 506.5)
- Correct a typographical error in the section numbering. (NWCAA Section 309)

New/Amended Regulation Section Derivations: Amended NWCAA 506.7 - Limitations on Burning Wood for Heat: Revised subsection based on RCW 70.94.473 and numbering changed to match current format.

Distributions for Section Being Replaced: None.

Reasons Supporting Proposal: See Purpose above.

Statutory Authority for Adoption: Chapter 70.94 RCW.

Statute Being Implemented: RCW 70.94.141(1).

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

Name of Proponent: NWCAA, governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Mark Asmundson, 1600 South 2nd Street, Mount Vernon, WA, (360) 428-1617.

No small business economic impact statement has been prepared under chapter 19.85 RCW. Not applicable under RCW 70.94.141.

A cost-benefit analysis is not required under RCW 34.05.328. Not applicable under RCW 70.94.141.

August 18, 2015
Mark Buford
Deputy Director

AMENDATORY SECTION

SECTION 309 - REASONABLY AVAILABLE CONTROL TECHNOLOGY

309.1 Reasonably Available Control Technology (RACT) is required for all existing sources except as otherwise provided in RCW 70.94.331(9).

309.2 Where current controls are determined by the NWCAA to be less than RACT, the NWCAA shall define RACT for that source or source category and issue a rule or an order under NWCAA 121 requiring the installation of RACT.

309.3 RACT for each source category containing three or more sources shall be determined by rule, except as provided in NWCAA 309.4.

309.4 Source-specific RACT determinations may be performed under any of the following circumstances:

(A) For replacement or substantial alteration of existing control equipment under NWCAA 300.13;

(B) When required by the federal Clean Air Act;

(C) For sources in source categories containing fewer than three sources;

(D) When an air quality problem, for which the source is a contributor, justifies a source-specific RACT determination prior to development of a categorical RACT rule; or

(E) When a source-specific RACT determination is needed to address either specific air quality problems, for which the source is a significant contributor, or source-specific economic concerns.

309.5 The Control Officer shall have the authority to perform a RACT determination, to hire a consultant to perform relevant RACT analyses in whole or in part, or to order the owner or operator to perform RACT analyses and submit the results to the NWCAA.

((~~305.6~~)) 309.6 In determining RACT, the NWCAA shall utilize the factors set forth in the RACT definition in NWCAA 200 and shall consider RACT determinations and guidance made by the EPA, other states, and local authorities for similar sources, and other relevant factors. In establishing or revising RACT requirements, the NWCAA shall address, where practicable, all air contaminants deemed to be of concern for that source or source category.

309.7 The NWCAA shall assess a fee to be paid by any source included in a RACT determination to cover the direct and indirect costs of developing, establishing, or reviewing categorical or source-specific RACT determinations. The fee for RACT determinations shall be as established in NWCAA 324.6. The amount of the fee may not exceed the direct and indirect costs of establishing the requirement for the particular source or the pro rata portion of the direct and indirect costs of establishing the requirement for the relevant source category.

309.8 Emission standards and other requirements contained in rules or regulatory orders in effect at the time of operating permit issuance shall be considered RACT for purposes of operating permit issuance or renewal.

309.9 Replacement or substantial alteration of control equipment under NWCAA 300.13 shall be subject to the New Source Review fees under NWCAA 324.2, in lieu of RACT fees under this section.

PASSED: March 14, 2013 AMENDED: October 8, 2015

AMENDATORY SECTION

SECTION 506 - SOLID FUEL BURNING DEVICES

506.1 PURPOSE.

This Section establishes emission standards, certification standards and procedures, curtailment rules, and fuel restrictions for solid fuel burning devices in order to maintain compliance with the National Ambient Air Quality Standards (NAAQS) for fine particulates and to further the policy of the NWCAA as stated in Section 102 of this Regulation.

506.2 DEFINITIONS.

Unless a different meaning is clearly required by context, words and phrases used in this Section shall have the following meaning as defined in WAC ((~~Chapter~~)) 173-433-030 ((~~WAC~~)):

ADEQUATE SOURCE OF HEAT - ((~~means~~)) a permanently installed furnace or heating system, connected or disconnected from its energy source, designed to maintain 70 ((~~seventy~~)) degrees Fahrenheit at a point three feet above the floor in all normally inhabited areas of a residence or commercial establishment.

ANTIQUE WOOD STOVE - ((~~is~~)) a stove manufactured before 1940 which has a current market value substantially greater than a common wood stove manufactured during the same time period.

CERTIFIED - ((~~means~~)) a solid fuel-burning device that meets emission performance standards when tested by an accredited independent laboratory and labeled according to procedures specified by EPA in 40 CFR 60 ((~~the Code of Federal Regulation - Title 40 Part 60~~)) Subpart AAA - Standards of Performance for Residential Wood Heaters as amended through July 1, 1990; or a solid fuel-burning device that has been determined by Ecology to meet emission performance standards, pursuant to RCW 70.94.457.

COOKSTOVE - ((~~means~~)) a wood-fired appliance designed primarily for cooking food and containing an integrally built in oven, with an internal temperature indicator and oven rack, around which the fire is vented, as well as a shaker grate, ash pan and an ash clean-out below the firebox. Any device with a fan or heat channels used to dissipate heat into the room shall not be considered a cookstove.

ECOLOGY - ((~~means~~)) the Washington State Department of Ecology.

EPA - ((~~means~~)) the United States Environmental Protection Agency.

SEASONED WOOD - ((~~means~~)) wood of any species that has been sufficiently dried so as to contain 20 ((~~twenty~~)) percent or less moisture by weight.

SOLID FUEL BURNING DEVICE - ((~~means~~)) a device that burns wood, coal, or any other non-gaseous or non-liquid fuels, and includes wood stoves or any device burning any solid fuel except those prohibited by WAC 173-433-120. This also includes devices used for aesthetic or space-heating purposes in a private residence or commercial establishment, which have a heat input of less than one million British thermal units per hour.

SUBSTANTIALLY REMODELED - ((~~means~~)) any alteration or restoration of a building exceeding 60 ((~~sixty~~)) percent of

the appraised value of such building within a 12 ((~~twelve~~))-month period.

TREATED WOOD - ((~~means~~)) wood of any species that has been chemically impregnated, painted, or similarly modified to improve resistance to insects, weathering or deterioration.

WOOD STOVE - ((~~means~~)) a wood-fueled appliance, other than a cookstove, capable of and intended for residential space heating and domestic water heating that meets the criteria contained in ((~~"~~))40 CFR 60 Subpart AAA - Standards of Performance for Residential Wood Heaters((~~"~~)). Any combination of parts, typically consisting of but not limited to, doors, legs, flue pipe collars, brackets, bolts and other hardware, when manufactured for the purpose of being assembled, with or without additional owner supplied parts, into a wood stove, is considered a wood stove.

506.3 EMISSION PERFORMANCE STANDARDS.

(A) Solid Fuel Burning Devices - A person shall not advertise to sell, offer to sell, sell, bargain, exchange, or give away any solid fuel burning device in Washington unless it has been certified and labeled in accordance with procedures and criteria specified in ((~~"~~))40 CFR 60 Subpart AAA - Standards of Performance for Residential Wood Heaters((~~"~~)), complies with WAC 173-433-100, and meets the following particulate air contaminant emission standards:

(1) Two and one-half grams per hour for catalytic wood stoves; and

(2) Four and one-half grams per hour for all other solid fuel burning devices.

(B) Fireplaces. A person shall not advertise to sell, offer to sell, sell, bargain, exchange, or give away a factory built fireplace unless it meets the 1990 EPA standards for woodstoves or equivalent standard that may be established by the state building code council by rule ((~~has been tested in accordance with procedures and criteria specified in WAC 51-50-31200~~)). Particulate emission factors for factory-built fireplaces shall not exceed 7.3 g/kg.

506.4 INSTALLATION OF SOLID FUEL HEATING DEVICES.

(A) No new solid fuel burning device shall be installed in new or existing buildings unless such device is either Oregon Department of Environmental Quality Phase II or ((~~US~~)) EPA certified to meet current Washington State standards or a pellet stove either certified or exempt from certification in accordance with ((~~CFR~~)) 40 CFR ((~~Part~~)) 60 Subpart AAA - Standards of Performance for Residential Wood Heaters. (((~~RCW 70.94.455~~)))

(B) No used solid fuel burning device shall be installed in new or existing buildings unless such device has been certified and labeled in accordance with either Oregon Department of Environmental Quality Phase II or US EPA certification standard or is a pellet stove either certified or exempt from certification by the US EPA in accordance with ((~~CFR~~)) 40 CFR ((~~Part~~)) 60 Subpart AAA - Standards of Performance for Residential Wood Heaters. (((~~RCW 70.94.455~~)))

(C) An adequate source of heat other than a solid fuel burning device is required in all new and substantially remodeled residential and commercial construction. The rule shall apply to

(1) Areas designated by a county to be an urban growth area under chapter ((~~RCW~~)) 36.70A RCW; and

(2) Areas designated by the EPA as being in non((~~-~~))attainment for particulate matter. (((~~RCW 70.94.455 and WAC 51-40-0510~~)))

(D) After January 1, 1997, no fireplace, except masonry fireplaces, shall be offered for sale unless such fireplace meets the 1990 EPA standards for wood stoves or equivalent standard established by the state building code council by rule in accordance with RCW 70.94.457 ((~~RCW~~)).

506.5 OPACITY STANDARDS.

(A) Opacity level. A person shall not cause or allow emission of a smoke plume from any solid fuel burning device to exceed an average of 20 ((~~twenty~~)) percent opacity for six consecutive minutes in any one-hour period. This restriction does not apply during the starting of a new fire for a period not to exceed 20 ((~~twenty~~)) minutes in any four-hour period.

(B) Test methods and procedures. EPA reference method 9 - Visual Determination of Opacity of Emissions from Stationary Sources shall be used to determine compliance with this Section.

(C) Enforcement. Smoke visible from a chimney, flue or exhaust duct in excess of the opacity standard shall constitute prima facie evidence of unlawful operation of an applicable solid fuel burning device. ((~~This Regulation will be enforced on a complaint basis and through observations of inspectors certified to read opacity.~~)) This presumption may be refuted by demonstration that the smoke was not caused by an applicable solid fuel burning device.

506.6 PROHIBITED FUEL TYPES

(A) A person shall not burn any substance, other than properly seasoned fuel-wood, in a solid fuel burning device (((~~RCW 70.94.477~~))).

(B) A person shall not burn paper in a solid fuel burning device other than the amount of colorless paper necessary to start a fire.

506.7 LIMITATIONS ON BURNING WOOD FOR HEAT

(A) Any person in a residence or commercial establishment which has an adequate source of heat without burning wood shall:

(1) Not burn wood in any solid fuel burning device whenever the Ecology or NWCAA ((~~department~~)) has determined under RCW 70.94.715 that any air pollution episode exists in that area;

(2) Not burn wood in any solid fuel burning device except those which are either Oregon Department of Environmental Quality Phase II or US EPA certified or certified by Ecology under RCW 70.94.457(1) or a pellet stove either certified or issued an exemption by the US EPA in accordance with 40 CFR ((~~40~~)) Part 60 ((~~Subpart AAA - Standards of Performance for Residential Wood Heaters (RCW 70.94.455)~~)), in the geographical area and for the period of time that a first stage of impaired air quality has been determined, by NWCAA or ((~~any authority~~)) Ecology, for that area. ((~~A first stage of impaired air quality is reached when:~~))

(a) A first stage of impaired air quality is reached when forecasted meteorological conditions are predicted to cause ((~~F~~))fine particulate((~~s~~)) levels to exceed ((~~are at an ambient level of thirty-five~~)) 35 micrograms per cubic meter, measured on a 24 ((~~twenty-four~~)) hour average, within 48 hours,

except for areas of fine particulate nonattainment or areas as risk for fine particulate nonattainment and

(b) A first stage burn ban for impaired air quality may be called for a county containing fine particulate nonattainment areas or areas at risk for fine particulate nonattainment, and when feasible only for the necessary portions of the county, when forecasted meteorological conditions are predicted to cause fine particulate levels to reach or exceed 30 micrograms per cubic meter, measured on a 24-hour average, within 72 hours; and ((~~Forecasted meteorological conditions are not expected to allow levels of fine particulates to decline below thirty-five (35) micrograms per cubic meter for a period of forty-eight hours or more from the time that the fine particulates are measured at the trigger level; and~~))

(3)(a) (((~~B~~))) Not burn wood in any solid fuel burning device in a geographical area and for the period of time that a second stage of impaired air quality has been determined by NWCAA or ((~~any authority~~)) Ecology, for that area. A second stage of impaired air quality is reached when:

(i) (((~~1~~))) A first stage of impaired air quality has been in force and has not been sufficient to reduce the increasing fine ((~~particle [~~))particulate((~~]~~)) pollution trend;

(ii) (((~~2~~))) Fine particulates are at an ambient level of 25 ((~~sixty~~)) micrograms (((~~60~~))) per cubic meter measured on a 24 ((~~twenty-four~~)) hour average; and

(iii) (((~~3~~))) Forecasted meteorological conditions are not expected to allow levels of fine particulates to decline below 25 ((~~sixty~~)) micrograms (((~~60~~))) per cubic meter for a period of 24 ((~~forty-eight~~)) hours or more from the time that the fine particulates are measured at the trigger level.

(b) A second stage burn ban may be called by Ecology or NWCAA without calling a first stage burn ban only when all of the following occur:

(i) Fine particulate levels have reached or exceeded 25 micrograms per cubic meter, measured on a 24-hour average;

(ii) Meteorological conditions have caused fine particulate levels to rise rapidly;

(iii) Meteorological conditions are predicted to cause fine particulate levels to exceed the 35 micrograms per cubic meter, measured on a 24-hour average, within 24 hours; and

(iv) Meteorological conditions are highly likely to prevent sufficient dispersion of fine particulate.

(c) In fine particulate nonattainment areas or areas at risk for fine particulate nonattainment, a second stage burn ban may be called for the county containing the nonattainment area or areas at risk for nonattainment, and when feasible only for the necessary portions of the county, without calling a first stage burn ban only when (3)(b)(i), (ii), and (iv) of this subsection have been met and meteorological conditions are predicted to cause fine particulate levels to reach or exceed 30 micrograms per cubic meter, measured on a 24-hour average, within 24 hours.

(B) (((~~C~~))) Upon declaration and for the duration of an air pollution episode or a first or second stage burn ban, new solid fuel shall be withheld from any solid fuel burning device that is restricted from operating under subsection (A) of this section. ((~~Any person responsible for a solid fuel burning device already in operation at the time curtailment is declared under a stage of impaired air quality or an episode shall extinguish that device by withholding new solid fuel for the duration of the episode.~~))

(C) (((~~D~~))) ((~~Compliance with the above solid fuel burning device curtailment rules may be enforced after a time period of 3 hours has elapsed from the time the curtailment is declared.~~)) Smoke visible from a chimney, flue or exhaust duct after three hours has elapsed from the time of declaration of an air pollution episode or a first or second stage burn ban ((~~the curtailment~~)) shall constitute prima facie evidence of unlawful operation of a solid fuel burning device if that solid fuel burning device is restricted from operating under subsection (A) of this section ((~~an applicable solid fuel burning device~~)). This presumption may be refuted by demonstration that the smoke was not caused by a((~~n applicable~~)) restricted solid fuel burning device.

506.8 GENERAL EMISSION STANDARDS.

(A) Emissions detrimental to persons or property. No person shall cause or permit the emission of any air contaminant from any solid fuel burning device, in sufficient amounts and of such characteristics and duration as is likely to be injurious or cause damage to human health, plant or animal life, or property; or which unreasonably interfere with enjoyment of life and property.

(B) Odors. Any person who shall cause or allow the generation of any odor from any solid fuel burning device which may interfere with any other property owner's use or enjoyment of his property must use recognized good practice and procedures to reduce these odors to a reasonable minimum.

506.9 EXEMPTIONS.

(A) The provisions of Section 506.7 shall not apply to any person who possesses a valid written exemption approved by the NWCAA. The NWCAA may allow written exemptions to any person who demonstrates any of the following to the satisfaction of the NWCAA:

(1) An economic need to burn solid fuel for residential space heating purposes by qualifying for energy assistance under the low income energy assistance program.

(2) That his/her heating system, other than a solid fuel heating device, is inoperable for reasons other than his/her own actions.

(a) That there is no adequate source of heat and the structure was constructed or substantially remodeled prior to July 1, 1992.

(b) That there is no adequate source of heat and the structure was constructed or substantially remodeled after July 1, 1992 and is outside an urban growth area, as defined in chapter ((~~RCW~~)) 36.70A RCW.

(B) Written exemptions shall be valid for a period determined by the NWCAA and shall not exceed one year from the date of approval.

PASSED: July 14, 2005 AMENDED: November 8, 2007, October 8, 2015

Reviser's note: The typographical error in the above material occurred in the copy filed by the Northwest Clean Air Agency and appears in the Register pursuant to the requirements of RCW 34.08.040.

WSR 15-17-113
PROPOSED RULES
WASHINGTON STATE PATROL
[Filed August 18, 2015, 5:07 p.m.]

Supplemental Notice to WSR 14-24-043.

Preproposal statement of inquiry was filed as WSR 14-17-107.

Title of Rule and Other Identifying Information: Chapter 212-17 WAC, Fireworks.

Hearing Location(s): General Administration (GA) Building, Room G-3, 210 11th Avenue, Olympia, WA 98504-2600, on September 24, 2015, at 1:00 p.m.

Date of Intended Adoption: October 1, 2015.

Submit Written Comments to: Dan Johnson, P.O. Box 42642, Olympia, WA 98501-2642 [98504-2642], e-mail dan.johnson@wsp.wa.gov, fax (360) 596-3913, by September 15, 2015.

Assistance for Persons with Disabilities: Contact Melissa Van Gorkom by September 15, 2015, (360) 596-4017.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The proposed changes will include but may not be limited to:

- Adoption of established national and industry standards and updates to the state standards which will remove a number of sections and the entire appendix of the existing rules.
- Consolidation of the definitions and removal of redundant definitions for things already defined in chapter 70.77 RCW.
- Identification of rule violations and penalties.
- Establish different levels of a pyrotechnic operator consistent with industry and other states.
- Identify when federal licenses are required with fireworks that are designated explosives.

Reasons Supporting Proposal: Provide clarification regarding the process.

Clearly articulate restrictions, requirements and penalties which will reduce liability and increase public safety.

Statutory Authority for Adoption: RCW 70.77.250.

Statute Being Implemented: Chapter 70.77 RCW.

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

Name of Proponent: Washington state department of transportation, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Dan Johnson, GA Building, P.O. Box 42642, Olympia, WA 98504, (360) 596-3913; and Enforcement: WSP Fire Protection Bureau, GA Building, P.O. Box 42642, Olympia, WA 98504, (360) 596-4000.

A small business economic impact statement has been prepared under chapter 19.85 RCW.

Small Business Economic Impact Statement

SUMMARY OF PROPOSED RULES: The Washington state patrol, fire protection bureau (FPB), licensing section is proposing amendments to chapter 212-17 WAC, Fireworks.

The purpose of the chapter is to develop rules to implement the state fireworks law from chapter 70.77 RCW.

The proposed major changes to the chapter are:

- Reorganization of the entire chapter.
- Adoption of several standards regarding fireworks (manufacture, storage, retail sales, public display, proximate display and flame effect in close proximity to an audience).
- Adoption of American Pyrotechnic Association (APA) standard 87-1 which is the standard for fireworks construction and approval for transportation.
- Define and identify violations and associated penalties.
- Removal of duplicative or redundant language.
- Eliminating unnecessary rules or definitions.

SMALL BUSINESS ECONOMIC IMPACT STATEMENT (SBEIS)—DETERMINATION OF NEED: Chapter 19.85 RCW, the Regulatory Fairness Act, requires that the economic impact of proposed regulations be analyzed in relation to small businesses. The statute defines small businesses as those business entities that employ fifty or fewer people and are independently owned and operated.

These proposed rules impact fireworks manufacturers, importers, wholesalers, retail sales and pyrotechnic companies. These businesses fall under the following North American Industry Classification System (NAICS) codes:

325998 Fireworks manufacturing.

423920 Fireworks merchant wholesalers.

424690 Explosives (except ammunition, fireworks) merchant wholesalers.

453998 Fireworks shops (i.e., permanent location).

713990 Fireworks display services.

Preparation of an SBEIS is required when a proposed rule has the potential of placing a disproportionate economic impact on small businesses. The statute outlines information that must be included in an SBEIS.

The fireworks licensing section has analyzed the proposed rule amendments and has determined that small businesses will be impacted by these changes, with (some) costs considered "more than minor" and disproportionate to small businesses.

INDUSTRY ANALYSIS: The fireworks licensing section is responsible for the issuance of fireworks licenses to manufacturers, importers, wholesalers, retail sales, general display and pyrotechnic operators licenses. As part of their licensing and monitoring, the program maintains an internal database of current and past fireworks licensees. Using this database gives more accurate information about impacted small businesses for this analysis than the four-digit NAICS codes.

The fireworks licensing section has determined that there are no known existing agencies that meet the criteria for small businesses under RCW 19.85.020. These proposed rules impact those with or without a fireworks license.

INVOLVEMENT OF SMALL BUSINESSES: In discussions with a number of stakeholders, which is represented by fireworks companies and individuals who are fireworks licensees and personnel from authorities having jurisdiction, they have asked for a number of changes to be made, asking for this rule to updated.

The defining and identifying violations and associated penalties for noncompliance would apply to a releative [rela-

tive] small number of licensees. Most violations are committed by pesons [persons] not requiring a license.

COST OF COMPLIANCE: Under chapter 19.85 RCW, the licensing section has considered annual costs to small businesses that are fifty dollars or more per licensee. To consider the cost of compliance, FPB has elected to look at cost per type of license. This is because several licenses are issued by the FPB and each license allows for a different activity to occur.

Two licenses have potential costs to small businesses that could exceed fifty dollars per license. These would be the fireworks importer and retail fireworks licenses.

Those licenses issued to a fireworks wholesaler, importer and manufacturer would see potentially the largest penalties based upon a penalty per package. Penalties of this nature have been rarely issued as this violation hasn't been clearly defined or identified. A licensee would only be issued a civil penalty if they are importing, selling or possessing illegal fireworks. The number of violations are not anticipated to increase.

GENERAL COSTS: The licensing section analysis revealed that there are costs imposed by the proposed amendments. These costs are associated with the identification of rule violations and penalty assessment.

SPECIFIC COST - FIREWORKS TESTING: This would apply to an importer of fireworks. Fireworks that are imported into Washington come primarily from China. To ensure these fireworks meet the requirements of a consumer firework, they are subject to inspection and testing by the United States Consumer Product Safety Commission. Other states allow only those fireworks that are third party tested to be sold.

Of the twenty-six licensed importers:

- Sixteen already submit to third party testing.
- Six purchase their fireworks from wholesalers outside of the state [of] Washington and do not import.
- Four do not participate at this. These are primarily public display companies which do not have a third party testing program available.

Any cost associated would be when an importer changes from purchasing domestically outside of Washignton [Washington] to importing from China.

SPECIFIC COST - RETAIL FIREWORK SALES - SIGNAGE: Propossed [Proposed] changes to the distance requirements would impact all of the retail fireworks sales facilities as the distance for "No Fireworks Discharge" and "No Smoking" would change. Currently the signs read:

- "NO FIREWORKS DISCHARGE WITHIN 100 FEET"
- "NO SMOKING WITHIN 20 FEET"

The adopted standard changes the distances to:

- "NO FIREWORKS DISCHARGE WITHIN 300 FEET"
- "NO SMOKING WITHIN 25 FEET"

Surveying those fireworks wholesalers that have the most fireworks stands indicate this wouldn't have an increased cost as most signs are used for only one fireworks season. Current inventory of signs can be altered until new ones are obtained. Depending on the quality of the signs the cost would be under $100 per retail license if they needed to be replaced.

Of the nine hundred forty retail fireworks stand licenses issued in 2014, six hundred seventy or seventy-one percent were issued through a licensed wholesaler.

DISPROPORTIONATE ECONOMIC IMPACT ANALYSIS: When proposed rule changes cause more than minor costs to small businesses, the Regulatory Fairness Act requires an analysis that compares these costs between small businesses and ten percent of the largest businesses.

Why the cost would appear to be considered disproportionate is that the assessment of penalties in some instances would be based upon the number of packages in violation. A penalty based on the number of packages in violation. A container of illegal fireworks would have the same penalty issued but depending on the company size or revenue this would appear disproportionate. The impact of any assessed penalty or suspension of a license would vary by the affected size of the licensee.

MITIGATING COSTS: The licensing section has plans for mitigating disproportionate costs for small businesses by offering an informal hearing process in which penalties can be mitigated based upon severity and contractor compliance.

EVALUATION OF PROBABLE COST AND PROBABLE BENEFITS: Since the proposed amendments "make significant amendments to a policy or regulatory program" under RCW 34.05.328 (5)(c)(iii), the FPB has determined the proposed rules to be "significant" as defined by the legislature.

As required by RCW 34.05.328 (1)(d), the FPB has analyzed the probable costs and probable benefits of the proposed amendments, taking into account both the qualitative and quantitative benefits and costs.

BENEFITS FOR PROPOSED RULES: The benefit of the proposed rule changes is that it clearly articulates the violations associated with specific rules and penalties. This should aid local law enforcement and fire officials when taking enforcement action.

The rule has also adopted the standards developed by the National Fire Protection Association (NFPA) and the American Pyrotechnic Association for use and construction of fireworks and updated standards with regard to storage of fireworks. Adoption of these national standard[s] and cleanup to the state standards will provide consistency between jurisdictions.

JOBS CREATED OR LOST: The licensing section does not believe any jobs will be lost as a result of small businesses complying with these rules. The rule has required certain requirements be met of licensees. These requirements have not changed.

CONCLUSION: The licensing section has given careful consideration to the impact of proposed rules in Title 212 WAC, fireworks on small businesses. To comply with the Regulatory Fairness Act, chapter 19.85 RCW, the licensing section has analyzed impacts on small businesses and proposed ways to mitigate costs considered more than minor and disproportionate.

Please contact Dan Johnson if you have any questions at (360) 596-3913.

A copy of the statement may be obtained by contacting Melissa Van Gorkom, P.O. Box 42600, Olympia, WA

98504-2600, phone (360) 596-4017, fax (360) 596-4015, e-mail WSPRules@wsp.wa.gov.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Melissa Van Gorkom, P.O. Box 42600, Olympia, WA 98504-2600, phone (360) 596-4017, fax (360) 596-4015, e-mail WSPRules@wsp.wa.gov.

August 18, 2015
John R. Batiste
Chief

AMENDATORY SECTION (Amending WSR 82-22-068, filed 11/2/82)

WAC 212-17-015 Scope. These rules apply to ((~~fireworks~~)) the manufacture, storage, transportation, sale, importation, possession, classification, and discharge of fireworks of every class or kind in this state. With the exception of importation regulations, this chapter does not apply to tribal fireworks stands operated by an enrolled tribal member on tribal lands or allotted lands within an established Indian reservation pursuant to chapter 37.12 RCW.

Exceptions:
(1) Explosives, as defined and regulated under the state explosives law, chapter 70.74 RCW;
(2) Firearms and ammunition, including blank cartridges and pistols of the type used at sporting events or theatrical productions;
(3) Research or experiments with rockets or missiles, including model rockets and model rocket motors designed, sold and used for the purpose of propelling recoverable aero models;
(4) Toy paper and/or plastic caps, ((~~manufactured in accordance with DOT regulations, 49 C.F.R. 173.100(p), 1981, as of October 29, 1982,~~)) or toy pistols, toy canes, toy guns, or other devices in which toy paper and/or plastic caps are used;
(5) Emergency signaling devices including, but not limited to, devices intended for signaling, illuminating, and incendiary purposes such as:
(a) Railway torpedoes;
(b) Airplane flares;
(c) Illuminating projectiles;
(d) Incendiary and smoke projectiles;
(e) Flash cartridges (formerly classified as special fireworks);
(6) Line throwing rocket classified as UN0453 with DOT regulations 49 C.F.R. 171-173.

NEW SECTION

WAC 212-17-021 Adoption of code. (1) The state fire marshal adopts the following standards in effect on the effective date of this section unless otherwise outlined in this chapter:

(a) National Fire Protection Association (NFPA) codes:

(i) NFPA 140 2013 edition, Standard on motion picture and television production, studio soundstages, approved production facilities, and production locations.

(ii) NFPA 160 2011 edition, Standard for the use of flame effects before an audience.

(iii) NFPA 1123 2013 edition, Code for fireworks display.

(iv) NFPA 1126 2011 edition, Standard for the use of pyrotechnics before a proximate audience.

(b) American Pyrotechnic Association (APA) standard 87-01 2004 edition, Standard for construction and approval for transportation of fireworks, novelties, and theatrical pyrotechnics.

(2) If there is a conflict between a standard and rule, the standard will be followed unless the rule is more stringent.

(3) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-025 Definition and classification—"Fireworks." ((~~The term "fireworks" shall mean any composition or device for the purpose of producing a visible or an audible effect by combustion, deflagration, or detonation, and which meets the definition of articles pyrotechnic, consumer, or display fireworks.~~)) (1) **Consumer fireworks** as defined in RCW 70.77.136 includes the following devices manufactured in accordance with the American Pyrotechnics Association Standards outlined in WAC 212-17-021:

(a) Ground and hand-held sparkling devices;
(i) Wire sparkler/dipped stick;
(ii) Cylindrical fountain;
(iii) Cone fountain;
(iv) Illuminating torch;
(v) Wheel;
(vi) Ground spinner;
(vii) Flitter sparkler;
(viii) Toy smoke device;
(b) Aerial device;
(i) Helicopter, aerial spinner;
(ii) Roman candles;
(iii) Mine and shell devices;
(iv) Aerial shell kit, reloadable tube.
(c) Multiple tube fireworks devices - Cake.
(d) New fireworks items as defined in RCW 70.77.236 may be added to the list of consumer fireworks if approved by the state fire marshal.

(2) **"Dangerous fireworks"** means:

(a) Any firework in its originally manufactured form that meets the standards for a consumer firework as established in this chapter, that has been altered, modified, enhanced, manipulated, tampered, or disassembled.

(b) Fireworks that are examined or tested for compliance with standards established for consumer fireworks and determined to possess characteristics of design or construction that make such item unsafe for use by any person not specially qualified or trained in the use of fireworks. The determination may be made by:

(i) The consumer product safety commission;

(ii) Bureau of Alcohol, Tobacco, Firearms and Explosives;

(iii) State fire marshal's office; or

(iv) Department of labor and industries.

(c) All fireworks designed and intended by the manufacturer to create the element of surprise upon the user.

(d) Fireworks that explode upon impact or by friction, unless otherwise classified by the state fire marshal pursuant to this chapter.

(3) **"Display fireworks"** means pyrotechnic devices for professional use similar to consumer fireworks in chemical composition and construction but not intended for consumer use. Types of display fireworks:

(a) Aerial shell that is:

(i) Cylindrical or spherical cartridge containing:

(A) Lift charge;

(B) Burst charge;

(C) Effect composition.

(ii) Commonly sized from two to six inches in diameter; and

(iii) Fired from metal, high-density polyethylene (HDPE), fiberglass, or heavy cardboard tubes.

(b) Salute that is:

(i) Paper-wrapped, cardboard tube, or sphere containing explosive composition in excess of 130 mg (2 grains); and

(ii) Upon ignition, produces noise and a flash of light.

(4) **"Explosive pest control devices (EPCDs)"** means pest control pyrotechnics or agricultural and wildlife fireworks devices used for pest control efforts within the agricultural, aquacultural (commercial fishing operations), horticultural, and aviation industries when wildlife damage agriculture, property, or threaten public safety or health.

Commonly known types of EPCDs are:

(a) **"Bird bombs, shell crackers or cracker shells"** means 12 gauge shotgun shells containing a sound and flash explosive charge that is designed to explode in air or on the surface of the water at a distance of seventy-five to one hundred yards from the point of discharge.

(b) **"Screamer rockets or banger rockets"** means units ignited using a hand-held launcher, similar to a .22 short caliber starter pistol, that fly through the air, emitting a loud whistling sound (screamers) similar to other whistling type fireworks, or end in an impulsive report similar to a firecracker.

(c) **"Seal bomb"** means underwater firecrackers available domestically, similar to "M-80" firecrackers and contain approximately 2.3 grams of "flash and sound" charge mixture in a sealed cardboard tube, fitted with an eight to nine second waterproof fuse. UN0471 Class 1.4E explosives or NA0412 Class 1.4E explosive.

(d) **"Rocket nets"** means a net that is propelled by regulated explosive materials to capture or scare away pest wildlife.

(e) **"Rope firecrackers"** or **"rope salutes"** means the fuses of large firecrackers are inserted through cotton rope. As the rope burns, the fuses are ignited.

(5) **"Flame effect"** means the combustion of solids, liquids, or gases to produce thermal, physical, visual, or audible phenomena before an audience in one of the three methods:

(a) "Automatic flame effect" means a flame effect that is supervised and fired by an automatic control system.

(b) "Manual flame effect" means a flame effect that is operated manually without the use of an automatic control system.

(c) "Portable flame effects" means flame effects that are designed and installed, either in a permanent or temporary installation, and that are designed to move or be moved in the course of operation or installation.

(6) **"Forbidden devices"** means any device for sale to the public that produces an audible effect (other than a whistle) by a charge of more than 130 mg (2 grains) of explosive composition per report.

(7) **"Igniter"** means device used for the electrical ignition of fireworks and pyrotechnic articles that contains a small amount of pyrotechnic material that ignites when a specified electric current flows through the leads.

(8) **"Prohibited components"** means no component of any consumer fireworks device or novelty may upon functioning, project or disperse any metal, glass, or brittle plastic fragments.

(9) **"Theatrical pyrotechnics"** means pyrotechnics that are approved as:

(a) UN0431, Articles, Pyrotechnic 1.4G;

(b) UN0432, Articles, Pyrotechnic 1.4S;

(c) UN0430, Articles, Pyrotechnic 1.3G; and

(d) Do not bear a warning label that resembles the required wording on a consumer fireworks device.

(10) **"Trick and novelty devices"** means any small fireworks devices that are not regulated as explosives and are not classified as consumer or display fireworks by the United States Department of Transportation.

(a) These devices must still comply with all labeling requirements of the Consumer Product Safety Commission applicable to consumer fireworks devices as required in WAC 212-17-055 and includes the following items as defined in APA 87-1:

(i) Snakes, glow worm.

(ii) Party popper.

(iii) Snapper.

(iv) Toy smoke devices.

(v) Toy caps.

(b) Trick and novelty devices does not include any kind of sparklers as outlined in subsection (1)(a) of this section.

(11) For the purpose of this chapter the following terms will have the same meaning as APA 87-1 adopted under WAC 212-17-021:

(a) Chemical composition.

(b) Explosive composition.

(c) Pyrotechnic composition.

NEW SECTION

WAC 212-17-028 Definitions—General. (1) **"Citation"** means a document issued by the office of the state fire marshal pursuant to chapter 70.77 RCW to issue a civil penalty for a violation of RCW 70.77.480 through 70.77.520. A citation may include, but is not limited to, a description of the violation(s) and a notice of civil penalty assessment.

(2) **"Building"** means any structure used or intended for supporting or sheltering any use or occupancy.

(3) **"Consumer fireworks retail sales (CFRS) facility"** means a permanent or temporary structure, CFRS stand, tent, canopy, or membrane structure that is used primarily for the retail display and sale of consumer fireworks to the public.

(4) **"Facility"** means a consumer fireworks retail sales facility, distribution facility, or manufacturing facility.

(5) **"Formal hearing"** is a hearing before a hearings officer where the laws, rules, and evidence are presented, considered, and a proposed opinion issued.

(6) **"Hazard"** means a condition which could result in fire loss, injury, or damage to a person or property.

(7) **"Hearings request"** means the written request for a formal hearing to contest a civil penalty.

(8) **"Inhabited building"** means a building regularly occupied in whole or in part as a habitation for people, or any place of religious worship, schoolhouse, railroad station, store or other structure where people are accustomed to assemble, except any building or structure occupied in connection with the manufacture, transportation, storage or use of explosive materials.

(9) **"International Building Code"** means the edition currently adopted by chapter 51-50 WAC.

(10) **"International Fire Code"** means the edition currently adopted by chapter 51-54A WAC.

(11) **"Magazine"** means a structure, other than an explosives manufacturing building approved for the storage of explosive materials.

(12) **"Permanent structure"** means an enclosure or shelter erected for a period of thirty days or more used for the sales, at retail or wholesale, of legal fireworks of any kind.

(13) **"Person"** means one or more individuals, legal representatives, partnerships, joint ventures, associations, corporations (whether or not organized for profit), business trusts, or any organized group of persons and includes the state, state agencies, counties, municipal corporations, school districts, and other public corporations.

(14) **"Private display"** means an entertainment feature where the public is not invited or admitted to view the display or discharge of display fireworks.

(15) **"Private way"** means any privately owned driveway, lane, access way, or similar parcel of land essentially unobstructed from the ground to the sky which serves as access from private property to a public road.

(16) **"Public road"** means any street or alley essentially unobstructed from the ground to the sky which is deeded, dedicated, or otherwise permanently appropriated to the public for public use.

(17) **"Recognized testing laboratory"** means a nationally recognized testing laboratory approved by the state fire marshal.

(18) **"State fire marshal"** means the director of the fire protection bureau of the Washington state patrol as appointed by the chief or his or her designee.

(19) **"Temperature overheat protection"** means a device which immediately interrupts the power to the heating element of a portable heating unit when the portable heating unit exceeds its designed operating temperature.

(20) **"Temporary power drop"** means an electrical service connection to a temporary retail fireworks stand.

(21) **"Temporary storage"** means a structure used for storage of consumer fireworks directly related to a CFRS facility and authorized under WAC 212-17-117.

(22) **"Temporary structure"** means an enclosure or shelter erected for a period of less than thirty days and not otherwise defined in the International Fire Code as a canopy.

(23) **"Tip-over protection"** means a device which immediately interrupts the power to the heating element of a portable heating unit when the portable heating unit is tipped or tilted more than forty-five degrees from its designed operating position.

AMENDATORY SECTION (Amending WSR 84-23-009, filed 11/9/84)

WAC 212-17-045 ((~~Definition and classification —~~ "))Explosive pest control devices (EPCDs) or "agricultural and wildlife fireworks." ((~~The term "agricultural and wildlife fireworks" shall mean (1) fireworks devices, including but not limited to, firecrackers containing more than 50 mg (.772 grains) of pyrotechnic composition designed to produce audible effects, which are distributed to farmers, ranchers and growers through a wildlife management program administered by the United States Department of Interior (or by equivalent state or local governmental agencies); and, such distribution is in response to a written application describing the wildlife management problem that requires use of such devices, is of a quantity no greater than required to control the problem described, and is where other means of control is unavailable or inadequate or, (2) seal control units, purchased under a Certificate of Inclusion, issued by the United States Department of Commerce, National Oceanic and Atmosphere Administration, or sold by bona fide dealers to licensed commercial fishermen or licensed commercial fishing boat owners for marine mammal control.~~)) (1) No state fireworks license is required to purchase or use explosive pest control devices (EPCDs); however, as they are classified explosive devices and regulated by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), a federal explosives permit is required.

(2) In order to purchase or use EPCDs, a federal explosives permit is required unless purchased by a government agency in accordance with RCW 70.77.311.

(3) For commercial fishers and licensed commercial fishing boat owners to receive or purchase EPCDs for use on pinnipeds (seals and sea lions), a written plan is needed to receive a Certificate of Inclusion, issued by the United States Department of Commerce, National Oceanic and Atmospheric Administration.

(a) The marine mammal management plan should describe the wildlife management problem that requires use of such devices.

(b) The frequency and duration of using EPCDs.

(c) The quantity of EPCDs is of a quantity no greater than required to control the problem described.

(4) Unless specifically required to be used, EPCDs are not to be used when a burn ban is in place or there is an increased fire danger.

(5) EPCDs are not to be used in a reckless or malicious manner that is not reasonable or prudent that threatens to injure or kill wildlife or persons.

(6) The state fire marshal will notify the Washington state department of fish and wildlife of any violations.

(7) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-050 Firework device chemical content, construction. (1) All consumer fireworks devices ((~~shall~~)) must meet the ((~~following~~)) chemical content, design, and construction requirements((~~.~~

~~(1) Prohibited chemicals. Fireworks devices shall not contain any of the following chemicals:~~

~~(a) Arsenic sulfide, arsenates, or arsenites.~~

~~(b) Boron.~~

~~(c) Chlorates, except:~~

~~(i) In colored smoke mixtures in which an equal or greater amount of sodium bicarbonate is included;~~

~~(ii) In caps and party poppers;~~

~~(iii) In those small items wherein the total powder content does not exceed four grams of which not greater than fifteen percent is potassium, sodium, or barium chlorate.~~

~~(d) Gallates or gallic acid.~~

~~(e) Magnesium (magnesium/aluminum alloys, called magnalium, are permitted).~~

~~(f) Mercury salts.~~

~~(g) Phosphorus (red or white). EXCEPT that red phosphorus is permissible in caps and party poppers.~~

~~(h) Picrates or picric acid.~~

~~(i) Thiocyanates.~~

~~(j) Titanium, except in particle size greater than 100-mesh.~~

~~(k) Zirconium.~~

~~(2) Fuses.~~

~~(a) Fireworks devices that require a fuse shall:~~

~~(i) Utilize only a fuse that has been treated or coated in such manner as to reduce the possibility of side ignition. Devices such as ground spinners that require a restricted orifice for proper thrust and contain less than 6 grams of pyrotechnic composition are exempt from this requirement.~~

~~(ii) Utilize only a fuse which will burn at least three seconds but not more than six seconds before ignition of the device.~~

~~(b) The fuse shall be securely attached so that it will support either the weight of the fireworks device plus eight ounces dead weight or double the weight of the device, whichever is less, without separation from the fireworks device.~~

~~(3) Bases. The base or bottom of fireworks devices that are operated in a standing upright position shall have the minimum horizontal dimensions or the diameter of the base equal to at least one-third of the height of the device including any base or cap affixed thereto.~~

~~(4) Pyrotechnic leakage. The pyrotechnic chamber in fireworks devices shall be sealed in a manner that prevents leakage of the pyrotechnic composition during shipping, handling and normal operation.~~

~~(5) Burnout and blowout. The pyrotechnic chamber in fireworks devices shall be constructed in a manner to allow functioning in a normal manner without burnout or blowout.~~

~~(6) Handles and spikes. Fireworks devices that are intended to be hand-held and are so labeled shall incorporate a handle at least four inches in length. Handles shall remain firmly attached during transportation, handling and full operation of the device, or shall consist of an integral section of the device at least four inches below the pyrotechnic chamber, except sparklers 10" or less in length shall have handles at least 3" in length. Spikes provided with fireworks devices shall protrude at least two inches from the base of the device and shall have a blunt tip not less than 1/8 inch in diameter or 1/8 inch square.~~

~~(7) Wheel devices. Drivers in fireworks devices commonly known as "wheels" shall be securely attached to the device so that they will not come loose in transportation, handling, and normal operation. Wheel devices intended to operate in a fixed location shall be designed in such a manner that the axle remains attached to the device during normal operation.~~

~~(8) Toy smoke devices and flitter devices.~~

~~(a) Toy smoke devices shall be so constructed that they will neither burst nor produce external flame (excluding the fuse and small but brief bursts of flame accompanying normal smoke production) during normal operation.~~

~~(b) Toy smoke devices and flitter devices shall not be of such color and configuration so as to be confused with illegal explosive devices such as M-80 salutes, silver salutes, or cherry bombs.~~

~~(c) Toy smoke devices shall not incorporate plastic as an exterior material if the pyrotechnic composition comes in direct contact with the plastic.~~

~~(9) Rockets with sticks. Rockets with sticks (including sky rockets and bottle rockets) shall utilize a straight and rigid stick to provide a direct and stable flight. Such sticks shall remain straight and rigid and attached to the driver so as to prevent the stick from being damaged or detached during transportation, handling, or normal operation.~~

~~(10) Party poppers. Party poppers (also known by other names such as "champagne party poppers" and "party surprise poppers" shall not contain more than 0.25 grains of pyrotechnic composition. Such devices may contain nonflammable soft paper or cloth inserts~~)) required by the American Pyrotechnic Association Standard adopted under WAC 212-17-021, and the U.S. DOT regulations and Consumer Product Safety Commission standards.

(2) Consumer fireworks devices will not contain:

(a) Prohibited components.

(b) Forbidden devices.

(c) Any chemicals listed as prohibited in the American Pyrotechnic Association Standard adopted under WAC 212-17-021 and Consumer Product Safety Commission standards.

(i) Any fireworks device that is suspected by an authority having jurisdiction of containing prohibited chemicals will be sent to the Consumer Product Safety Commission for laboratory testing through the state fire marshal's office.

(ii) The manufacturer or importer may send samples for independent testing by a recognized testing laboratory at their own cost.

(iii) For a licensed manufacturer, importer, and wholesaler any similar devices are to be segregated from inventory of products that can be sold or used until the findings of the testing laboratory indicate:

(A) The device(s) meet the chemical content in APA 87-1 and can be put into the owner's inventory for sale or use.

(B) The presence of prohibited chemicals which will result in the owner having the responsibility to make arrangements to destroy the devices.

Any items destroyed will need to be witnessed by the authority having jurisdiction or government official such as a police officer, fire marshal, or federal enforcement agent.

(3) Violations of this section are defined in WAC 212-17-515.

NEW SECTION

WAC 212-17-053 Altered consumer fireworks—Dangerous firework. (1) It is illegal to alter any firework from its originally manufactured form except as provided in subsection (3) of this section.

(2) It is illegal to possess, sell, purchase, store, or discharge any dangerous fireworks.

(3) The altering of a consumer or display firework can only be done legally when:

(a) For the purpose of this section a licensed pyrotechnic operator or person(s) under the direct supervision of a licensed pyrotechnic operator altering a fuse as part of a public display for consumer fireworks that are electronically fired is not considered a dangerous fireworks.

(b) A person without a pyrotechnic operator's license cannot alter fireworks.

This would include using an igniter attached to the fuse for electronically firing of the device.

This does not include the use of:

(i) A nonpyrogen type igniter that clips onto the fuse and a heated wire is the source of ignition.

(ii) Other nonregulated igniters approved by the Bureau of Alcohol, Tobacco, Firearms and Explosives.

(c) This section does not apply to law enforcement, government agency, testing laboratory, or designated hazardous material transportation carrier who is transporting dangerous fireworks to a destruction site.

(4) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-055 Firework device, labeling. ((~~(1) Any consumer fireworks device not required to have a specific label by 16 C.F.R. 1500.14 (b)(7), 1981, as of October 29, 1982, shall carry a warning label indicating to the user where and how the item is to be used and necessary safety precautions to be observed.~~

~~(2) Every fireworks device, or fireworks device container where the device is packaged in an immediate container intended or suitable for delivery to the ultimate consumer, shall be conspicuously labeled with the name and place of business of the manufacturer, packer, distributor, or seller and the United States Department of Transportation designation as "Division 1.4G consumer fireworks" or "Division 1.3G special fireworks."~~

~~(3) All label wording shall be prominently located, in the English language, and in conspicuous and legible type in contrast by typography, layout, or color with the printed matter on the fireworks device or container.~~)) (1) Fireworks intended for consumer sale and use must be labeled in conformance with the requirements of the Federal Hazardous Substances Act (FHSA) and regulations promulgated thereunder in Title 16 C.F.R., § 1500.

(2) All outside packaging containing fireworks must be marked and labeled in conformance with Title 49 C.F.R., Part 172.

(a) For consumer fireworks all label wording must be:

(i) Prominently located;

(ii) In the English language; and

(iii) In conspicuous and legible type in contrast by typography, layout, or color with the printed matter on the fireworks device or container.

(b) For display fireworks aerial shells, each shell must bear a label containing the following information:

(i) A description of the size of the shell (e.g., "3 in. (76 mm) shell").

(ii) A description of the type of shell (e.g., "2-break with report").

(iii) A warning statement reading:

"WARNING: DANGEROUS EXPLOSIVE.
IF FOUND, DO NOT HANDLE.
CONTACT LOCAL FIRE OR POLICE DEPARTMENT."

(iv) The name and location of business of the manufacturer, importer, or distributor.

(c) For proximate or theatrical fireworks, articles intended for indoor use:

(i) Must be so marked, and labels must include the following information:

(A) Accurate performance characteristics of the device.

(B) For fountains, gerbs, and other preloads, duration, height, and diameter of the effect, as applicable.

(ii) A warning label providing instructions to a trained operator is permitted for theatrical pyrotechnics that are approved as UN0431, Articles, Pyrotechnic, 1.4G but will not bear a warning label that resembles the required wording on a consumer fireworks device.

(iii) Theatrical pyrotechnics may or may not have an ignition device attached.

(iv) All requests for approval of a device as articles, pyrotechnic must be accompanied by a signed certification stating that the article is intended for professional use in the entertainment industry and will not be offered for sale to the general public.

(A) Approvals for classification as articles, pyrotechnic will be evaluated based on the weight of pyrotechnic composition in the individual article, and compared to the allowable weights for the corresponding category of 1.4G consumer fireworks.

(B) If a 1.4G classification is desired for an article containing more pyrotechnic composition than is permitted for a comparable consumer firework, the DOT approval procedure in Title 49 C.F.R., § 173.56 (b)(1) will be followed.

(3) Any firework that does not conform to the requirements of this section regarding labeling is to be confiscated for destruction as a dangerous firework in accordance with the Consumer Product Safety Commission's timeline. The cost associated with destruction of any firework in violation of this section will be at the possessor's expense.

(4) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-060 Public purchase and use of fireworks. (1) The public may purchase and use consumer fireworks ((~~only~~)) from licensed ((~~retail fireworks stands between noon, June 28th and 9:00 p.m. July 5th of each year. Purchase or discharge is prohibited between the hours of 11:00 p.m. and 9:00 a.m., except on July 4th, in which fireworks can be discharged between the hours of 9:00 a.m. and 12:00 midnight. Possession and discharge of fireworks is lawful during this period only, except as provided in subsection (2) of this section.~~

~~(2) Religious organizations or private organizations or adult persons may be authorized to purchase consumer fireworks or such audible ground devices as firecrackers, salutes, and chasers, as defined in WAC 212-17-040 (3) and (4) from licensed manufacturers, importers, or wholesalers for use on prescribed dates and locations for religious or specific purposes, when a permit is obtained from the fire chief or other designated local official. Application shall be on forms provided by the director of fire protection and shall contain the following information:~~

~~(a) The name and mailing address of the organization or person desiring to purchase and discharge the fireworks;~~

~~(b) The date and time of the proposed discharge;~~

~~(c) The location of the proposed discharge;~~

~~(d) The quantity and type of fireworks desired to be purchased and discharged;~~

~~(e) The reason or purpose of the discharge; and~~

~~(f) The signature of the applicant, following a statement that: "The applicant understands and agrees to comply with all provisions of the application and requirements of the approving authority, will discharge the fireworks only in a manner that will not endanger persons or property or constitute a nuisance, and assumes full responsibility for all consequences of the discharge, intended or not." Upon approval by the fire official, the applicant may submit a copy of the approval to any licensed wholesaler as proof of authorization to purchase the fireworks listed therein. The applicant shall retain the approval and have it available for inspection by any public official at the actual discharge of the fireworks.~~

~~(3) The purchase or receipt of mail-order fireworks through any medium of either interstate or intrastate commerce is prohibited unless the purchaser has first obtained an importers license~~)) CFRS facilities only:

(a) During the periods provided in RCW 70.77.395.

(b) With a permit issued by the local authority having jurisdiction under RCW 70.77.311(2) as follows:

(i) Application must be on forms provided by the state fire marshal (may be attached to any permit application form from a jurisdiction) and will contain the following information:

(A) The name and mailing address of the organization or person desiring to purchase and discharge the fireworks;

(B) The date and time of the proposed discharge;

(C) The location of the proposed discharge;

(D) The quantity and type of fireworks desired to be purchased and discharged;

(E) The reason or purpose of the discharge; and

(F) The signature of the applicant, following a statement that: "The applicant understands and agrees to comply with all provisions of the application and requirements of the approving authority, will discharge the fireworks only in a manner that will not endanger persons or property or constitute a nuisance, and assumes full responsibility for all consequences of the discharge, intended or not."

(ii) Upon approval by the fire official, the applicant will provide a copy of the approval to any licensed wholesaler as proof of authorization to purchase the fireworks listed therein.

(iii) The applicant must retain the approval and have it available for inspection by any public official at the actual discharge of the fireworks.

(2) A local jurisdiction may deny an application for a special permit to purchase or use fireworks under RCW 70.77.311 when the local jurisdiction has an established ban or restriction on fireworks greater than that listed in RCW 70.77.395.

(3) This section does not apply to public displays of fireworks.

(4) Penalties for violations of this section are provided in WAC 212-17-515.

NEW SECTION

WAC 212-17-062 Storage of consumer fireworks for personal use. (1) Storage of consumer fireworks for personal use where the net weight of the pyrotechnic content exceeds more than one hundred twenty-five pounds must comply with permanent storage, as defined in WAC 212-17-115, and must be permitted through the local authority having jurisdiction.

Where the actual weight of the pyrotechnic composition of consumer fireworks is not known, twenty-five percent of the gross weight of the consumer fireworks, including packaging, may be used to determine the weight of the pyrotechnic composition.

(2) Penalties for violations of this section are provided in WAC 212-17-515.

PART II—((~~MANUFACTURER~~)) FIREWORKS LICENSES—MANUFACTURER, IMPORTER AND WHOLESALER

AMENDATORY SECTION (Amending WSR 88-08-027, filed 3/31/88)

WAC 212-17-065 Fireworks ((~~manufacturer—~~)) general. (1) Before receiving a state license under RCW 70.77.315 or local permit, persons intending to manufacture, import, or wholesale fireworks in this state ((~~shall~~)) must procure a federal and state license ((~~from the director of fire protection and a permit from the local governmental agency having jurisdiction prior to engaging in business. Applications for license shall be made on forms provided by the director of fire protection and the annual license fee shall accompany the application.~~)) where required.

(2) All state license applications ((~~shall~~)) must be made on or before January 31 of the year for which the license is desired((~~. Fireworks manufacturers domiciled in other than the state of Washington shall have a designated agent in the state of Washington, registered with the director of fire protection~~)) as provided in RCW 70.77.325.

(3) All facilities and structures used for manufacturing, wholesaling, and storage of fireworks are subject to this chapter and all local ordinances relating to building, design, construction, location, and zoning.

(4) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 88-08-027, filed 3/31/88)

WAC 212-17-070 Fireworks ((~~manufacturer—~~)) licensing. (1) Upon receipt of application and license fee, the ((~~director of fire protection~~)) state fire marshal will cause an investigation to be made. The state fire marshal will grant or deny a license application within ninety days following the receipt of a properly submitted or amended application.

(a) If the investigation discloses compliance with state laws governing the manufacture, import, or wholesale of fireworks and that granting of a license would not be contrary to public safety or welfare, a license will be granted.

(b) If the license is denied, then the applicant ((~~shall~~)) will be notified in writing of the reason why the license was denied, and ((~~he shall~~)) will:

(i) Be given an opportunity to make such alterations and corrections as are deemed necessary. ((~~License applications shall be either granted or denied by the director of fire protection within ninety days following receipt of a properly submitted or amended application.~~))

(ii) Have the right to request a hearing as provided in RCW 70.77.370 and this chapter.

(2) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 82-22-068, filed 11/2/82)

WAC 212-17-080 Fireworks ((~~manufacturer—~~)) license limitations. (1) Manufacturer:

(a) A fireworks manufacturer license, together with a permit from local authorities having jurisdiction, authorizes the holder to engage only in the business of manufacturing fireworks of all types and their sale and transportation to licensed wholesalers in Washington.

(b) If ((~~they~~)) the manufacturer desires to engage in other types of fireworks business, ((~~they shall~~)) the manufacturer must first procure the necessary license.

(((~~(2)~~))) (c) By virtue of its license, a licensed fireworks manufacturer is permitted to sell fireworks for direct shipment out of this state. Such shipment must be made by a public carrier or by the manufacturer in vehicles owned or leased by the manufacturer.

(2) Importer:

(a) A fireworks importer's license authorizes the holder to import fireworks into this state. This authorization is limited to:

(i) Procurement, delivery, or receipt of firework shipments into the state;

(ii) Buying or contracting of fireworks for shipment into the state;

(iii) An enrolled tribal member importing fireworks into the state for delivery to the registered member's tribal land;

(iv) Transportation of any type of fireworks licensed for and in compliance with 49 C.F.R., Parts 171 through 183;

(v) Storage of all classes and types of fireworks if there are no restrictions or provisions by the local authority having jurisdiction issuing a permit.

(b) An importer's license does not allow for the distribution or selling of fireworks at retail.

(3) Wholesaler:

(a) A fireworks wholesaler's license authorizes the holder to engage only in the sale of fireworks at wholesale.

(b) A fireworks wholesaler's licensee can sell fireworks to:

(i) Licensed retailers;

(ii) Holder of a general display license;

(iii) Other licensed wholesalers;

(iv) Religious organizations, private organizations, or adult persons that have a permit issued by the local authority having jurisdictions to purchase specific fireworks items in accordance with WAC 212-17-061.

(c) A licensed fireworks wholesaler is authorized to sell fireworks for direct shipment out of this state, provided that:

(i) Such shipment is made by a public carrier, or in vehicles owned or leased by the wholesaler; and

(ii) If the purchaser's state requires a permit to purchase, possess, transport, store, distribute, sell, or otherwise deal with fireworks, the purchaser must possess and present the license to the wholesaler for inspection at the time of sale.

(4) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-085 Fireworks ((~~manufacturer—~~)) records and reports. ((~~Manufacturers shall,~~)) (1) License holders will maintain written reports on the following information for each license type for a period of three years, and submit reports for each type of license when requested to do so((~~, submit written reports~~)) to the ((~~chief of the Washington state patrol, through the director of fire protection on~~)) state fire marshal:

(a) Manufacturer: Production, sale, and distribution of fireworks and name of the person to whom such fireworks were sold.

(b) Wholesaler: Imports, purchases, sales, and consumption of fireworks items by kind and class.

(c) Importer: Imports, purchases, sales of fireworks items by kind and class.

(d) All licensees:

(i) Third-party testing documentation to show, that if used properly, compliance of any consumer fireworks they distribute, sell, offer for sale, exchange for consideration, or transfer will work. The third-party testing entity must be approved by the Consumer Product Safety Commission.

(ii) Reports of the location and amount in storage of all class and types of fireworks in their possession at the time records are requested.

(e) License holders will have up to ten business days to submit the requested reports to the state fire marshal unless otherwise specified by the state fire marshal due to report of an injury, accident or other safety issue.

(2) Penalties for violations of this section are provided in WAC 212-17-515.

((~~PART III—WHOLESALER~~))

AMENDATORY SECTION (Amending WSR 82-22-068, filed 11/2/82)

WAC 212-17-130 Fireworks ((~~wholesaler—Local ordinances~~)) restrictions. ((~~Applicants, before applying for a license should determine that their facilities conform to local zoning, health and building safety standards, fire safety requirements, and any other local ordinances pertaining to storage of fireworks. (See appendix.)~~)) The storage, transportation, sale, and transfer of ownership by manufacturers of all classes and types of fireworks will be subject to the restrictions and provisions of chapter 70.77 RCW and this chapter.

AMENDATORY SECTION (Amending WSR 82-22-068, filed 11/2/82)

WAC 212-17-145 Fireworks ((~~wholesaler—~~)) importing requirements. ((~~Wholesalers who engage in the business of importing fireworks shall first procure a state license as is required for import licensees.~~)) (1) Any importer whose fireworks have been laboratory tested by the Consumer Product Safety Commission (CPSC) and found not to be in compliance with the standards in 16 C.F.R. Part 1500 and 1507 must notify the state fire marshal within five business days. Notification to the state fire marshal will include:

(a) A copy of the letter of advice and notice of noncompliance from the CPSC that provides the:

(i) Product name, type, and class of firework.

(ii) Requirement(s) the product did not conform to.

(b) Current and proposed storage location of the fireworks.

(2) Upon receiving the notification, the state fire marshal will notify:

(a) The local jurisdiction in which the firework is being stored.

(b) Other state and local agencies that may license or regulate explosives and explosives storage.

(3) The importer will hold such hazardous substance and not distribute it until further notice from CPSC which may be in the form of a "Letter of Advice (LOA)."

(4) Overloaded consumer fireworks described as fireworks, UN0336 1.4G that have a quantity of explosive and/or pyrotechnic composition that exceeds the limits for type of firework will be:

(a) Classified as fireworks, UN0335 1.3G.

(b) Stored in an approved, licensed explosive magazine approved for the storage of UN0335 1.3G fireworks.

(5) The following violations of this section are classified as serious threat to public safety and each day of noncompliance will be considered a separate offense:

(a) Failing to notify the state fire marshal within five business days that imported fireworks sampled and laboratory tested by the CPSC failed to conform to CPSC standards.

(b) Storing fireworks that have been identified as overloaded fireworks in a nonapproved facility.

(6) Notwithstanding the existence or use of any other remedy, any licensed fireworks importer or wholesaler violating this section may have its license suspended or revoked.

(7) Penalties for violations of this section are provided in WAC 212-17-515.

((~~PART IV—IMPORTER~~))

PART ((~~V~~)) III—FIREWORKS RETAILER

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-185 Retailer((~~s~~)) of fireworks—License and permit. (1) Persons desiring to engage in the business of selling fireworks at retail ((~~shall~~)) must:

(a) Secure a license from the ((~~director of the Washington state patrol fire protection bureau.~~

~~(2) In addition to the state license,~~)) state fire marshal.

(b) Obtain a permit ((~~must be obtained~~)) from the local governmental officials having jurisdiction.

(((~~(a) The application shall be made on forms provided by the director of fire protection and shall be accompanied by the license fee of forty dollars.~~

~~(b) License applications shall be made on or before May 1 of the year for which the license is desired.~~

~~(c) The director of fire protection shall grant or deny the license within fifteen days of receipt of the application.~~

~~(d) Applicants are cautioned to first determine whether a local retail sales permit for fireworks can be obtained.~~

~~(3)~~))) (2) A license and permit are valid and effective from January 1 of the year in which the application is made and ending January 31 of the following year.

(3) A retailer's license to sell fireworks ((~~shall~~)) will not:

(a) Authorize the licensee to engage in any other fireworks activity. ((~~Retailers are limited to selling only those fireworks which have been approved for sale to the public and appear on the list of approved fireworks published annually by the director of fire protection. A copy of the list shall be prominently posted at each retail outlet.~~)) (b) Be used for the purchase of fireworks at wholesale:

(i) If a CFRS facility is not permitted to open for the sale of consumer fireworks to the public; or

(ii) If the intent is to use the consumer fireworks for personal use.

(c) Be transferable, except that any license purchased by a licensed wholesaler may have the business or nonprofit group name added in addition to the wholesalers if required by the local authority having jurisdiction issuing the fireworks permit. The wholesaler will need to have a written agreement similar to any other retail license issued through the wholesaler.

(4) If the license is denied, the applicant will be notified in writing of the reason of the denial, and will:

(a) Be given an opportunity to make such alterations and corrections as are deemed necessary.

(b) Have the right to request a hearing as outlined in WAC 212-17-475.

(5) Applications for licenses must include the name of the wholesaler(s) that consumer fireworks will be purchased from.

(6) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-198 ((~~Retailers of~~)) Fireworks—List. ((~~The following is the list of fireworks that may be sold to the public.~~

~~(1) Ground and hand-held sparkling devices.~~

~~(a) Dipped stick, sparkler. Stick, or wire coated with pyrotechnic composition that produces a shower of sparks upon ignition. Total pyrotechnic composition may not exceed 100 grams per item. Those devices containing any perchlorate or chlorate salts may not exceed 5 grams of pyrotechnic composition per item. Wire sparklers which contain no magnesium and which contain less than 100 grams of composition per item, not Class C explosives under DOT regulations, are included in this category.~~

~~(b) Cylindrical fountain. Cylindrical tubes not more than 3/4 inch (19 mm) inside diameter, containing up to 75 grams of pyrotechnic composition. Upon ignition, a shower of colored sparks, and sometimes a whistling effect is produced. This device may be provided with a spike for insertion into the ground (spike fountain), a wood or plastic base for placing on the ground (base fountain), or a wood or cardboard handle, if intended to be hand-held (handle fountain).~~

~~(c) Cone fountain. Cardboard or heavy paper cone containing up to 50 grams of pyrotechnic composition. The effect is the same as that of a cylindrical fountain.~~

~~(d) Illuminating torch. Cylindrical tube containing up to 100 grams of pyrotechnic composition. Upon ignition, colored fire is produced. May be spike, base, or hand-held.~~

~~(e) Wheel. Pyrotechnic device attached to a post or tree by means of a nail or string. Each wheel may contain up to six "driver" units; tubes not exceeding 1/2 inch (12.5 mm) inside diameter and containing up to 60 grams of pyrotechnic composition. Total pyrotechnic composition of each wheel shall not exceed 240 grams. Upon ignition, the wheel revolves, producing a shower of color and sparks and, sometimes, a whistling effect.~~

~~(f) Ground spinner. Small device similar to a wheel in design and effect and placed on the ground and ignited. A shower of sparks and color is produced by the rapidly spinning device.~~

~~(g) Flitter sparkler. Narrow paper tube filled with pyrotechnic composition that produces color and sparks upon ignition. This device does not have a fuse for ignition. The paper at one end of the tube is ignited to make the device function.~~

~~(2) Aerial devices.~~

~~(a) Helicopter, aerial spinner. A tube not more than 1/2 inch (12.5 mm) inside diameter and containing up to 20 grams of pyrotechnic composition. A propeller or blade is attached, which, upon ignition, lifts the rapidly spinning device into the air. A visible or audible effect is produced at the height of flight.~~

~~(b) Roman candles. Heavy paper or cardboard tube not exceeding 3/8 inch (9.5 mm) inside diameter and containing up to 20 grams of pyrotechnic composition. Upon ignition, up to ten "stars" (pellets of pressed pyrotechnic composition that burn with bright color) are individually expelled at several-second intervals.~~

~~(c) Mine, shell. Heavy cardboard or paper tube up to 2 1/2 inches (63.5 mm) inside diameter attached to a wood or plastic base and containing up to 40 grams of pyrotechnic composition. Upon ignition, "stars," firecrackers, or other devices are propelled into the air. The tube remains on the ground.~~

~~(d) Aerial shell. A 1 3/4" or smaller cylindrical or spherical cartridge containing up to 40 grams of chemical composition.~~

~~(e) Mortar. A 1 3/4" or smaller cardboard tube in which aerial shells are discharged into the air.~~

~~(3) Combination items. Fireworks devices containing combinations of two or more of the effects described in this section.~~

~~(4) Smoke device. Tube or sphere containing pyrotechnic composition that, upon ignition, produces white or colored smoke as the primary effect.~~

~~(5) Division 1.4G explosives classified on January 1, 1984 as consumer fireworks by the United States Department of Transportation except that the term shall not include firecrackers, salutes, chasers, skyrockets or missile-type rockets.~~)) (1) Retailers are limited to offering for sale or selling only those consumer fireworks which have been approved for sale to the public and appear on the list of approved fireworks published annually by the state fire marshal.

(2) Retailers must post prominently at each retail outlet this list of the approved consumer fireworks.

(3) The state fire marshal will provide the list to the retailers when licenses are issued.

(4) Fireworks prohibited under RCW 70.77.401 will not be used or possessed in the state of Washington except as provided in RCW 70.77.311(1).

(5) Penalties for violations of this section are provided in WAC 212-17-515.

NEW SECTION

WAC 212-17-21504 Retailers—Purchase and sale of fireworks. (1) A retail licensee must purchase only Division 1.4G consumer fireworks, not otherwise prohibited by chapter 70.77 RCW, this chapter, or local ordinance from state-licensed wholesalers.

(2) Sale of consumer fireworks:

(a) Will occur only from a licensed consumer fireworks retail sales (CFRS) facility. Retail sales of fireworks may occur at a non-CFRS facility when:

(i) An inert sample package of the consumer fireworks is displayed for sale inside a fixed place of business and a CFRS facility meeting all of the requirements in this chapter is placed outside of the fixed place of business.

(ii) The fireworks are paid for inside the business, the customer is provided a receipt of purchase after the sales transaction is complete, and the customer shows proof of purchase and takes possession of the firework package at the CFRS facility.

(b) May occur online as presale from a licensed Washington fireworks wholesaler or retailer provided that the fireworks are delivered to fireworks stand where delivery to the consumer will take place at a CFRS facility during the authorized time periods outlined in RCW 70.77.395 and where the sale, possession, and discharge of fireworks are allowed in the jurisdiction.

(i) Any advertisements for sale of fireworks will contain the fireworks license number and expiration date. Advertising the sale of fireworks by unlicensed persons is prohibited.

(ii) The purchase or receipt of fireworks must be through a Washington licensed fireworks wholesaler or retailer.

(3) Holiday related products incidental but related to these products, may be sold in consumer fireworks retail sales facilities.

(4) Failure to comply at any time with the provisions of this section will constitute a violation of chapter 70.77 RCW and may result in:

(a) The temporary suspension of the license or permit;

(b) Immediate revocation of the license or permit for:

(i) A serious health or public safety violation, if the violation poses an immediate risk to any person, the action will become effective immediately. The duration of the revocation will be based upon the action:

(A) Willful, reckless, or malicious acts will cause the license to be revoked for the license year.

(B) Accidental or negligent acts will cause the license to be revoked until the licensee can show measures to correct and prevent further violations have been put in place (i.e., training).

(ii) Information provided to obtain a license or permit is subsequently found to be inaccurate or would have prevented the issuance of a license or permit.

(A) The license will be revoked through the remainder of the license year.

(B) The person, group, or business may be denied a future license.

(c) Surrendering the fireworks license to the state fire marshal.

(d) Surrendering the fireworks permit to the issuing jurisdiction.

(e) Temporary closure of the CFRS facility or storage structure, the seizure or forfeiture of some or all of the fireworks, or other criminal penalties as provided by law.

(5) If the license or permit is suspended or denied, the applicant will:

(a) Be notified in writing of the reason why license was denied;

(b) Be given an opportunity to make such alterations and corrections as are deemed necessary by the state fire marshal;

(c) Have the right to request a hearing as outlined in WAC 212-17-475.

(6) Penalties for violations of this section are provided in WAC 212-17-515.

PART IV—CONSUMER FIREWORKS RETAIL SALES FACILITIES (CFRS)

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-21505 ((~~Retailers of fireworks—General provisions.~~)) CFRS facilities. (((~~(1) The state of Washington hereby fully occupies the entire field of regulation relating to the construction and use of temporary and permanent structures for the retail sale and storage of fireworks including: The location of and areas surrounding, the operation of and the cleanup after the use of said structures, pursuant to RCW 70.77.270.~~

~~(2) The state of Washington hereby preempts the authority of local jurisdictions with respect to the retail sale and associated storage of consumer fireworks from temporary structures. This rule constitutes the entire and exclusive authority for regulation of all such matters. Subject to the limitations imposed by chapter 70.77 RCW, a city or county may ban fireworks; or a city or county may restrict the dates of sale, purchase, possession and use of fireworks; or a city or county may restrict the types of fireworks that may be sold and purchased within its boundaries. If a city or county allows the sale of fireworks classified as consumer fireworks from temporary structures these rules preempt that city's or that county's authority to enact or enforce any other regulations.~~

~~(3) Except as prescribed by this rule, the use of permanent structures or temporary structures over four hundred square feet for fireworks sales and storage shall be subject to the provisions of the International Fire Code and the International Building Code, and local ordinances.~~

~~(4) The use of temporary structures for the temporary sale or storage of consumer fireworks are exempt from the International Building Code, International Fire Code and local ordinances except that where a city or county ordinance regulates the sale or use of fireworks as a part of that city's or that county's building code or fire code, those provisions of that county's or that city's building code or fire code which are not in conflict with this rule are not hereby preempted or affected.~~

~~(5) Each license and permit shall be issued and shall remain valid and effective for the thirteen-month period beginning on January 1 of the year in which application is made and ending January 31 of the following year.~~

~~(6) Only Division 1.4G consumer fireworks, obtained from state licensed wholesalers, not otherwise prohibited by chapter 70.77 RCW or local ordinance, and holiday related products incidental but related to these products, may be sold in retail fireworks stands.~~

~~(7) Except as limited by local ordinance, fireworks may be sold from 12:00 noon to 11:00 p.m. on June 28 through 9:00 p.m. on July 5. Fireworks may not be sold between the hours of 11:00 p.m. and 9:00 a.m. from June 28 through July~~

~~3. Fireworks may not be sold from 12:00 midnight on July 4 through 9:00 a.m. on July 5.~~

~~(8) Except as limited by local ordinance, fireworks may be sold from 12:00 noon to 11:00 p.m. on each day from the 27th of December through the 31st of December of each year.~~

~~(9) Licensees shall familiarize all persons working in a retail fireworks stand with the provisions of these rules.~~

~~(10) Failure to comply at any time with the provisions of this rule or any other applicable regulation shall constitute a violation of chapter 70.77 RCW and may result in the temporary suspension or immediate revocation of the license or permit, closure of the fireworks sales or storage structure, the seizure and/or forfeiture of some or all of the fireworks, and other criminal penalties as specified by law.~~

~~(11) The local authority having jurisdiction, with the concurrence of the state fire marshal, is authorized to modify any of the provisions of WAC 212-17-21509, 212-17-21511, 212-17-21513, 212-17-21515, and 212-17-21517 upon written application by the licensee or a duly authorized representative~~)) (1) Consumer fireworks will only be permitted to be sold at retail in any of the following structures:

(a) Temporary, stable structures made from wood, metal, fiberglass, or other material. Any temporary fireworks retail stand greater than four hundred square feet will meet the requirements of a permanent structure, except tents or canopies as defined in the International Fire Code;

(b) Tents, canopies, or structures utilizing temporary membrane material which must be made from fire retardant material or treated with a fire retardant as identified in the International Fire Code. When those requirements are in conflict with other provisions of these rules, the more restrictive provisions will apply;

(c) Permanent or temporary structures over four hundred square feet constructed in accordance with the building code and local ordinances enforced by the authority having jurisdiction;

(d) Trailers or shipping containers may be used as a CFRS facility only if they comply with the requirements of a CFRS facility.

(2) Vehicles, such as vans, buses, motor homes, travel trailers, trucks, and automobiles will not be allowed to operate as a CFRS facility.

(3) A structure must be permitted through the local authority having jurisdiction to operate as a CFRS facility. The local authority having jurisdiction may prescribe rules regarding CFRS facilities that are consistent with WAC 212-17-21509 through 212-17-21515, where there are practical difficulties in the way of carrying out the provisions of these sections((~~, provided that the spirit of the rule shall be complied with, public safety secured and substantial justice done. The~~)) provided that the particulars of such modification ((~~shall~~)) must:

(a) Be registered with the state fire marshal and the fireworks license issued will include a notation as to the modification approved.

(b) Be applied to the retail licensee, not the retail sales location or wholesaler.

(4) Any break in licensing will void any approved modifications.

(5) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-21509 ((~~Retailers of fireworks —~~)) Location. (1) CFRS facilities will be permitted only in the county shown on the license. If the county needs to be changed, or other corrections made, the license will be surrendered to the state fire marshal and the state fire marshal will issue a new license for the new county. Any corrections written on a license will void the license.

(2) CFRS facilities will only be located at the address for which the permit from the local jurisdiction was approved and placed according to the approved site plan.

(3) Activities or uses subject to this rule ((~~shall~~)) will not be limited in location except where such activities or uses are prohibited or controlled by local development regulation, traffic safety or road construction standards.

(((~~(2) Temporary retail fireworks stands shall~~))) (4) The CFRS facilities will not be located more than one hundred fifty feet from a private way, fire department access road, public road, street or highway as measured by an approved route around the exterior of the stand.

The minimum requirements for a private way ((~~shall~~)) will be determined by the local authority having jurisdiction, but ((~~shall~~)) will not exceed the requirements of locally adopted street, road and access standards.

(((~~(3)~~))) (5) Any two ((~~retail fireworks stands shall~~)) CFRS facilities must be at least one hundred feet apart or ((~~shall~~)) will be separated by a road, street or highway not less than thirty feet in width.

(((~~(4) Retail fireworks~~))) (6) CFRS stands ((~~shall~~)) must be located as ((~~required by Table 212-17-21509 in this section.~~)) follows:

(a) The minimum required area surrounding the ((~~stand shall~~)) CFRS facility must be marked or flagged, except that flagging and marking ((~~shall~~)) CFRS facility will not block a sidewalk or pedestrian pathway.

(b) Flagging need not exceed twenty feet in any direction.

((**~~Retail Fireworks Stands—Minimum Clearances~~**

	~~Buildings~~	~~Combustibles~~	~~Property Line~~	~~Parking~~	~~Motor Vehicle Traffic PUBLIC ROAD*~~	~~Motor Vehicle Traffic PRIVATE WAY~~
~~BACK OF STAND~~	~~20 FT.~~	~~20 FT.~~	~~5 FT.~~	~~20 FT.~~	~~20 FT.~~	~~5 FT.~~

((~~Retail Fireworks Stands - Minimum Clearances~~						
	~~Buildings~~	~~Combustibles~~	~~Property Line~~	~~Parking~~	~~Motor Vehicle Traffic PUBLIC ROAD*~~	~~Motor Vehicle Traffic PRIVATE WAY~~
~~SIDE OF STAND~~	~~20 FT.~~	~~20 FT.~~	~~5 FT.~~	~~20 FT.~~	~~20 FT.~~	~~5 FT.~~
~~FRONT OF STAND~~	~~40 FT. 20 FT.**~~	~~40 FT. 20 FT.**~~	~~20 FT.~~	~~20 FT.~~	~~20 FT.~~	~~20 FT.~~

~~NOTE:~~ ~~Clearance distances are not cumulative~~

~~*~~ ~~Measured from the outer edge of the nearest traffic lane.~~

~~**~~ ~~If stand is equipped with 135 fusible links which will automatically close all sales doors in case of fire, or is equipped with a wire-mesh screen with openings of not more than one inch which covers not less than 90% of all sales openings.~~

~~(5) Retail fireworks stands shall~~))

Minimum Setbacks and Clearances						
	Buildings	Combustibles	Tents	Parking	Stands	Storage
Tents	20 feet	20 feet	20 feet	10 feet	20 feet	20 feet
Stands	20 feet	10 feet	20 feet	10 feet	100 feet	20 feet
	Property Line	Public Road		Fuel Dispensing Devices	Bulk Fuel	Generator
Tents	5 feet	20 feet		50 feet	300 feet	20 feet
Stands	5 feet	20 feet		50 feet	300 feet	20 feet

(7) CFRS facilities will not be located closer than ((~~one hundred~~)):

(a) Fifty feet from any motor vehicle dispensing station, retail propane dispensing station, flammable liquid storage, or combustible liquid storage. ((~~Retail fireworks stands shall not be located closer than~~)) Measurements will be taken from the pump, island, or dispensing device above ground tank storage or lids of underground tanks to the CFRS.

(b) Three hundred feet from any bulk storage of flammable or combustible liquid or gas, including bulk plant dispensing areas.

((~~EXCEPTION:~~ ~~1. Fuel for generators as allowed by WAC 212-17-21513(4).~~

~~2. Fuel within the tanks of motor vehicles.~~))

(8) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-21511 ((~~Retailers of fireworks—Area~~)) Signs around the retail fireworks ((~~stand~~)) sales facility. (1) The minimum areas around the ((~~retail fireworks stand~~)) CFRS facility specified in WAC 212-17-21509 ((~~shall~~)) will be kept free of accumulation of dry grass, dry brush and combustible debris. No parking ((~~shall~~)) will be permitted within this minimum area.

(2) No motor vehicle or trailer may be parked within ((~~twenty~~)) ten feet of a ((~~retail fireworks stand~~)) CFRS facility except when delivering, loading or unloading fireworks.

(3) Fireworks ((~~shall~~)) will not be discharged within ((~~one~~)) three hundred feet of a ((~~retail fireworks stand~~)) CFRS facility. Signs reading "NO FIREWORKS DISCHARGE WITHIN ((~~100~~)) 300 FEET" will be in letters at least ((~~two~~)) four inches high, with a principal stroke of not less than one-half inch, on contrasting background, ((~~shall~~)) will be conspicuously posted on all four sides of the stand.

(4) No smoking ((~~shall~~)) will be allowed within the ((~~retail fireworks stand~~)) CFRS facility or within the minimum flagged off area. Signs reading "NO SMOKING WITHIN ((~~20~~)) 25 FEET" will be in letters at least two inches high, with principal stroke of not less than one-half inch, on a contrasting background, ((~~shall~~)) will be conspicuously posted on all four sides of the stand.

(5) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-21513 ((~~Retailers of fireworks—Stand use and construction.~~)) CFRS facility electrical and heating. (((~~(1) Fireworks may be sold from:~~

~~(a) A permanent structure which meets provisions of WAC 212-17-21505(3).~~

~~(b) Temporary, stable structures made from wood, metal, fiberglass or other material. Any temporary fireworks retail stand greater than four hundred square feet shall meet the requirements of a permanent structure, except tents or canopies as defined in the International Fire Code.~~

(c) Tents, canopies, or structures utilizing temporary membrane material. All tents, canopies or temporary membrane materials structures shall be made from fire retardant material or treated with a fire retardant as identified in the International Fire Code. Any tent, canopy or temporary membrane material structure falling within the scope of the International Fire Code shall comply with those requirements. When those requirements are in conflict with other provisions of these rules, the more restrictive provisions shall apply.

(2) Battery powered equipment, electrical equipment and electrical cords which are used in conjunction with a retail fireworks stand or a temporary storage structure or location must be listed by a recognized laboratory and used in accordance with that listing.)) (1) If electrical power is supplied by an extension cord, the size ((of the cord, the)) and length of the cord and, the amperage and ((the)) voltage supplied ((shall)) will be in compliance with the requirements of the current edition of National Electrical Code((, current edition)). The cord ((shall)) must be protected as necessary from "drive-over" and other physical damage.

((No additional permits from a city or county or state official having jurisdiction shall be required for these temporary uses except as specified in subsection (5) of this section.

(3))) (2) All heating units ((shall)) must:

(a) Be listed by a recognized testing laboratory; and ((shall))

(b) Be used in accordance with the listing((. Heating sources shall)); and

(c) Have "tip-over" and temperature overheat protection((. All heating devices shall)); and

(d) Have sealed type elements (i.e., oil filled or water filled radiator type). Open flame heating devices are prohibited.

(((4))) (3) Generators which use combustible fuel and which are at least twenty feet from the ((retail fireworks stand)) CFRS facility or the temporary fireworks storage structure ((shall)) will be allowed. Generator fuel ((shall)) will be limited to not more than five gallons and stored at least twenty feet from all ((stands)) CFRS facilities.

(((5))) (4) Compliance with the National Electrical Code, current edition, ((shall)) will be required for all new, ((permanent)) electrical installations, including temporary power drops((, subject to possible permit fees.

(6) Retail sales of fireworks and other products which are holiday related shall be from buildings used for no other purpose)).

(5) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-21515 ((Retailers of fireworks—)) Operation of ((retail fireworks stands)) CFRS facility. (((1) A clear aisle or walkway not less than twenty-four inches wide shall be maintained inside the full length of the structure. Customers shall only be permitted inside a temporary retail fireworks stand that is greater than four hundred square feet and which meets minimum exit requirements of the International Building Code and International Fire Code, as now or amended hereafter.

(2) Each temporary retail fireworks stand must have at least two exits, at least twenty-eight inches in width, located at opposite ends of the structure. Exits must remain unlocked and unobstructed during the hours of operation or when the stand is occupied.

(3))) (1) Licensees must familiarize all persons working in a CFRS facility with the provisions of these rules.

(2) Sleeping inside a ((retail fireworks stand)) CFRS facility or an associated temporary fireworks storage facility is prohibited.

(((4))) (3) The location of the nearest permanently mounted telephone or electronic means of contacting 911 must be posted inside the ((retail fireworks stand)) CFRS facility and persons working in the ((stand shall)) facility must be informed of that location.

(((5))) (4) The local emergency telephone number ((shall)) will be conspicuously posted inside the ((retail fireworks stand)) CFRS facility.

(((6))) (5) Each ((retail fireworks stand shall)) CFRS facility will be equipped with at least two approved, pressurized two and one-half gallon water-type fire extinguishers, located so that a maximum distance of travel required to reach an extinguisher from any point does not exceed thirty-five feet.

(((7))) (6) No open flames nor any type of open flame equipment ((shall)) will be allowed in any ((retail fireworks stand.

(8) Retail fireworks stands shall be secured when unoccupied and not open for business if fireworks are kept in the structure during these times. Retail fireworks stands shall never be locked when occupied. The fireworks may be removed and transferred to a temporary storage structure or location approved as a part of the license and permit.

(9))) CFRS facility.

(7) At least one adult person, eighteen years of age or older ((shall)) will be present at all times in every ((retail fireworks stand)) CFRS facility during the hours of sale to the public and ((shall)) will be responsible for supervision of the ((retail fireworks stand)) CFRS facility and its operation.

(8) No person, other than customers, under the age of sixteen ((shall)) will be allowed within a ((retail fireworks stand)) CFRS facility when it is open to the public.

(9) Fireworks, except for prepackaged assortments, boxes, or similarly packaged containers of more than one item, whether of the same or different kind, must be displayed in a manner which prevents the fireworks from being handled by the public or a customer without the direct intervention of the licensee or his or her representative who ((shall)) will maintain visual contact.

(10) ((Retail fireworks stands)) CFRS facilities may be required to be inspected by the state fire marshal and/or the local jurisdiction issuing the permit prior to opening for business and other inspections may occur on other days as warranted but there ((shall)) will be no additional charge for all such inspections.

(11) ((In order to obtain return of a clean-up bond if required by the local authority having jurisdiction as a condition of permit, the cleanup of debris associated with the retail

~~fireworks activity and the removal of all structures authorized by the license and permit shall occur on or before the last day of the storage period specified in these rules.~~

~~(12)~~)) Fireworks retailers ((~~shall~~)) will:

(a) Not knowingly sell fireworks to persons under the age of sixteen.

(((~~a~~))) (b) Have a sign reading "no sale of fireworks to persons under the age of sixteen years. PHOTO ID REQUIRED" in letters at least two inches high, with a principal stroke of not less than one-half inch, on contrasting background, ((~~shall~~)) will be conspicuously posted on the front of each ((~~retail fireworks stand~~)) CFRS facility.

(((~~(b) Sellers shall~~))) (c) Require proof of age by means of display of a driver's license or photo identification card showing date of birth issued by a public or private school, state, federal or foreign government. No other forms of identification ((~~shall~~)) will be accepted.

(12) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-21519 ((~~Retailers of fireworks—~~)) Cleanup. (1) At the end of the legal selling period, all fireworks must remain in the ((~~retail fireworks stand~~)) CFRS facility, temporary storage or structure location authorized by the retail permit or another location approved by the local authority having jurisdiction or his or her designee until returned to the suppliers from which they were obtained, or until transferred to an approved location.

(2) Cities and counties may require a clean-up bond, not to exceed five hundred dollars, as a condition of the permit, to ensure the removal of all structures and debris from the site.

(3) In order to obtain return of a clean-up bond, cleanup of debris associated with the retail fireworks activity and the removal of all temporary storage and structures authorized by the license and permit ((~~shall~~)) will be completed no later than 11:59 p.m., July 15 for the Fourth of July selling period or no later than 11:59 p.m., January 10 for the New Year's selling season.

(4) Failure of the licensee to comply with subsection (3) of this section ((~~shall~~)) will constitute forfeiture of the clean-up bond and the licensee shall be liable for any clean-up costs incurred by the city or county which exceed the amount of the bond.

(5) Penalties for violations of this section are provided in WAC 212-17-515.

PART ((~~VI~~)) V—PYROTECHNIC OPERATOR

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-220 Pyrotechnic operators—General. (1) Pyrotechnic operators are licensed to conduct ((~~public~~)) displays of fireworks and articles pyrotechnic.

(2) No public display license ((~~is~~)) will be issued unless at least one licensed pyrotechnic operator is listed on the application as being responsible for conducting the display.

(3) An operator must be at least twenty-one years old and licensed in accordance with any and all applicable federal, state, and local laws.

(4) Penalties for this section are provided in WAC 212-17-515.

NEW SECTION

WAC 212-17-223 Pyrotechnic operator license types. (1) A pyrotechnic operator is prohibited from conducting a public display of fireworks without a general display license under WAC 212-17-250. Each operator does not need a general display license if he or she is shooting displays for a company that has a general display license.

(2) The license types and displays allowed to be conducted are:

(a) Pyrotechnic operator license - Conducts an outdoor public display of fireworks following the requirements of NFPA 1123.

(b) Proximate display operator license - Conducts a proximate display before a proximate audience following the requirements of NFPA 1126.

(c) Flame effects operator license - Conducts a flame special effects following the requirements of NFPA 160.

(d) Special effects operator license - Conducts a special effects display used in connection with a television, theatrical, or motion picture production which may or may not be presented before a live audience.

(3) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 88-08-027, filed 3/31/88)

WAC 212-17-225 ((~~Pyrotechnic operators —~~))Application for license. (1) Application for license ((~~shall~~)) must be made on forms prepared by the ((~~director of fire protection and shall~~)) state fire marshal and must be accompanied by the annual license fee.

(2) Every applicant for a pyrotechnic operators license ((~~shall~~)) must:

(a) Take and pass a written examination administered by the ((~~director of fire protection and shall~~)) state fire marshal or the equivalent out-of-state exam;

(b) Submit evidence attesting to the qualifications and experience of the applicant, including participation in the firing of at least six public displays as an assistant, at least one of which ((~~shall~~)) must have been in the current or preceding year, for the type of operator's license they are applying for; and

(c) A name and date of birth background check through the Washington state patrol criminal records division. Costs for the name and date of birth check will be the responsibility of the applicant. A name and date of birth check is not required if:

(i) The person has a valid ATF explosives license; or

(ii) They are employed or contracted to supervise a display for a general display licensee that has an ATF explosives license and the applicant is listed as an approved employee possessor.

(3) All information submitted regarding the experience must be true and accurate.

(4) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-230 ((~~Pyrotechnic operators—~~))Examination, investigation and licensing. (1) Upon receipt of application and license fee, the ((~~director of fire protection shall~~)) state fire marshal will cause an investigation to be made as to the experience and competency of the applicant to conduct and supervise a public or proximate display of fireworks in a safe manner. The investigation will include:

(a) Verification of past experience in assisting in ((~~public~~)) displays ((~~shall be verified~~)) with the licensed pyrotechnic operator under whose supervision the applicant assisted((~~. If experience requirements are satisfactory, the director of fire protection shall schedule~~)) for the type of license applying for.

(b) A written examination for the applicant, if experience requirements are satisfactory.

(i) A passing score of at least eighty percent ((~~shall~~)) must be attained on the written examination.

(ii) An applicant failing the written examination may reapply within thirty days to retake the examination.

(iii) No reexamination ((~~shall~~)) will be taken within thirty days of the previous and no more than two examinations may be taken by the applicant in the same ((~~calendar year. Any applicant failing to appear for the written examination at the time and location established or who fails the written examination and fails to reapply within thirty days, or fails the examination on the second attempt, is deemed to have forfeited the license fee. All applicants shall submit to background check through the Washington state patrol criminal records division. Costs for the background check shall be the responsibility of the applicant.~~)) ninety calendar day period.

(iv) License fees are forfeited for any applicant who fails:

(A) To appear for the written examination at the time and location established;

(B) The written examination and does not reapply within thirty days or fails the written examination on the second attempt.

(2) The ((~~director of fire protection shall~~)) state fire marshal will grant or deny the license on the basis of the successful completion of the investigation and examination.

NEW SECTION

WAC 212-17-232 License renewals. (1) Renewal of pyrotechnic operator's licenses begins January 2nd of each calendar year for those operator licenses that will expire January 31st. The renewal application must:

(a) Be on forms provided by the state fire marshal.

(b) Provide evidence of experience within the past thirteen months as an operator or assistant as part of at least one display.

(c) Be signed.

(d) Include the annual license fee.

(2) Persons whose operator license is expired longer than the twelve months will be required to submit his or her application as a new applicant.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-235 Pyrotechnic operators—Responsibility. (1) The pyrotechnic operator ((~~shall be~~)) is responsible for:

(a) Properly setting up the fireworks public display in accordance with the rules and regulations of the ((~~director of fire protection. He/she shall determine~~)) state fire marshal.

(b) Determining that all the mortars((~~,~~)) and set pieces((~~,~~)) are properly installed and that the proper safety precautions have been taken to ((~~insure~~)) ensure the safety of persons and property. ((~~He/she shall have~~))

(c) Having charge of all activities directly related to handling, preparing and firing all fireworks at the public display, including fixing lifting charges and quick match as needed to aerial shells.

((~~The pyrotechnic operator shall refuse~~)) (d) Refusing to fire any fireworks that are deemed by him/her to be unsafe or where its discharge might jeopardize life or property.

(e) Strictly observing the provisions of chapter 70.77 RCW and this chapter.

(2) Penalties for violations of this section are provided in WAC 212-17-515.

PART ((~~VII~~)) VI—PUBLIC DISPLAY LICENSE

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-250 ((~~Public displays of fireworks—~~)) Application, state license. (1) Application for ((~~fireworks public~~)) a general display license ((~~shall~~)) must be made on forms provided by the ((~~director of fire protection and shall be accompanied by the prescribed license fee~~)) state fire marshal.

(2) The application for a general display license to hold public displays of fireworks will be accompanied by:

(a) The prescribed license fee for a general display license; and

(b) A surety bond or a certificate evidencing public liability insurance. Such bond and public liability insurance must be noncancellable except upon fifteen days' written notice by the insurer to the state fire marshal.

(3) Failing to submit the license fee, a bond or certificate of liability insurance will be reason to deny a license application.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-260 ((~~Public displays of fireworks—~~)) General display license((~~s~~)). ((~~Application for a "general" license to hold public displays of fireworks shall be accompanied by a surety bond or a certificate evidencing public liability insurance. Such bond and public liability insurance shall~~

~~be noncancellable except upon fifteen days' written notice by the insurer to the director of fire protection.~~)) (1) Persons desiring to hold a public display of fireworks will secure a general display license from the state fire marshal.

(2) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-270 ((~~Public displays of fireworks—~~)) Local permit, application for. (1) A permit issued by the authority having jurisdiction is required before conducting any type of public fireworks display.

(2) Application for local permit must be made at least ten calendar days before the public fireworks display.

(3) When applying for permit, the applicant ((~~shall~~)) must submit information and evidence to local fire authorities covering the following:

(((~~1~~))) (a) The name of the organization sponsoring the display, if other than the applicant.

(((~~2~~))) (b) The date the display is to be held.

(((~~3~~))) (c) The exact location for the display.

(((~~4~~))) (d) The name and license number of the pyrotechnic operator who is to supervise discharge of the fireworks and the name of at least one experienced assistant.

(((~~5~~))) (e) The number of set pieces, shells (specify single or multiple break), and other items.

(((~~6~~))) (f) The manner and place of storage of such fireworks prior to the display.

(((~~7~~))) (g) A diagram of the grounds on which the display is to be held showing the point at which the fireworks are to be discharged, the location of all buildings, highways, and other lines of communication, the lines behind which the audience will be restrained, the location of all nearby trees, telegraph or telephone lines, or other overhead obstruction.

(((~~8~~))) (h) Documentary proof of procurement of:

(i) Surety bond;

(ii) Public liability insurance; or

(iii) A ((~~director of fire protection's "general license"~~)) state fire marshal's general display license for the public display of fireworks.

(((~~9~~))) (4) Permittee ((~~shall~~)) will be responsible for compliance with the provisions under which a public display permit has been granted.

(5) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-275 ((~~Public displays of fireworks—~~)) Investigation. The ((~~officer~~)) authority having jurisdiction to whom the application for permit is made ((~~shall~~)) must:

(1) Make, or cause to be made, investigation of site of the proposed display for the purpose of determining if the fireworks will be of such a character or so located as to be hazardous to property or dangerous to any person. ((~~He shall also~~))

(2) Determine whether the provisions of ((~~the state fireworks law and these rules and regulations~~)) chapter 70.77 RCW and this chapter are complied with in the case of a particular display. ((~~He shall,~~))

(3) In the exercise of reasonable discretion, grant or deny the application subject to reasonable conditions, if any, as he may prescribe, taking into account locations, parking of vehicles, controlling spectators, storage and firing fireworks, and precautions in general against danger to life and property from fire, explosion, and panic.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-280 ((~~Public displays of fireworks—~~)) Permits may not be granted, when. No ((~~permit shall be granted for any~~)) public display of fireworks will be allowed where the discharge, failure to fire, faulty firing, or fallout of any fireworks or other objects would endanger persons, buildings, structures, forests, brush, or other grass covered land. This includes, but may not be limited to, when a burn ban is in effect.

PART ((~~VIII~~)) VII—PUBLIC DISPLAYS

AMENDATORY SECTION (Amending WSR 06-12-010, filed 5/26/06, effective 6/26/06)

WAC 212-17-295 ((~~Public display—~~))General. (1) The intent of this ((~~chapter shall be~~)) part is to provide requirements for clearances upon which the authority having jurisdiction ((~~shall~~)) will base its approval of an outdoor fireworks display site.

(2) Where added safety precautions have been taken, or particularly favorable conditions exist, the authority having jurisdiction ((~~shall~~)) will be permitted to decrease the required separation distances as it deems appropriate, upon demonstration that the hazard has been reduced or the risk has been properly protected.

(3) Where unusual or safety-threatening conditions exist, the authority having jurisdiction ((~~shall~~)) will be permitted to increase the required separation distances as it deems necessary.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-345 Public display—Reports. (1) After every public display, it ((~~shall~~)) will be the responsibility of the licensed pyrotechnic operator in charge of the display to submit a written report to the director of fire protection, within ten days following the display, covering:

(((~~1~~))) (a) A brief report of any duds, defective shells, with manufacturer's name, and the type and size of shell.

(((~~2~~))) (b) A brief account of the cause of injury to any person(s) from fireworks and such person's name and address.

(((~~3~~))) (c) A brief account of any fires caused by fireworks.

(((~~4~~))) (d) Any violation of the state fireworks law or of these regulations relating to public display fireworks, with special observations on any irregularities on the part of persons present at the firing site.

((~~(5)~~)) (e) The names of pyrotechnic assistants who satisfactorily assisted in all phases of the display, if other than those shown on the license.

(2) Failure to file this report ((~~shall~~)) will constitute grounds for revocation of the operator's current license and/or rejection of his application for his license renewal.

(3) Penalties for violations of this section are provided in WAC 212-17-515.

((~~PART IX—PROXIMATE DISPLAYS~~))

PART ((~~X~~)) VIII—TRANSPORTATION

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-425 Transportation—General. (1) Licensees are authorized to transport the class and quantity of fireworks for which they have a license to possess from the point of acceptance from a licensed source to an approved storage facility or use site.

(2) Transportation ((~~shall~~)) will be in accordance with the regulations of the United States Department of Transportation and the laws of the state of Washington governing the transportation of Division 1.3G and 1.4G explosives.

(3) Nothing in these rules will restrict the right of any person to transport in a private vehicle, fireworks which have been legally purchased for personal use.

(4) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-430 Transportation—By common carrier. (1) No common carrier, as defined in RCW 81.29.010, ((~~shall~~)) will deliver fireworks from an out-of-state shipper to any person or firm within this state without first determining:

(a) That the person or firm possesses an importer's license, issued by the ((~~director of fire protection~~)) state fire marshal to receive them((~~,~~)); or

(b) The shipper has an importer's license, issued by the ((~~director of fire protection~~)) state fire marshal to ship them into this state.

(2) Penalties for violations of this section are provided in WAC 212-17-515.

PART ((~~XI~~)) IX—STORAGE

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-435 Storage—General. (1) Storage of fireworks ((~~shall~~)) must be free from any condition which increases or may cause an increase of the hazard or menace of fire or explosion or which may obstruct, delay or hinder, or may become the cause of any obstruction, delay or hindrance, to the prevention or extinguishment of fire.

(2) Penalties for violations of this section are provided in WAC 212-17-515.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-440 Storage—Explosive safety. (1) Any person storing fireworks ((~~shall~~)) must have a license for the possession (manufacturer, wholesaler, importer, retailer, display) and, in addition, a permit from the ((~~local fire~~)) authority having jurisdiction for the storage site.

(2) If the approved storage location is outside the authority having jurisdiction issuing the permit, the authority issuing the permit must notify the appropriate authorities of the jurisdiction in which the storage is to be located.

(3) Storage ((~~shall~~)) must be in accordance with requirements of the local ((~~fire official, who may use the safety practices in the appendix of these rules as guidelines~~)) authority having jurisdiction in approving the storage permit.

(4) No common carrier will store fireworks while in transit within a facility without first obtaining a storage permit from the local fire authority.

(5) Penalties for violations of this section are provided in WAC 212-17-515.

NEW SECTION

WAC 212-17-442 Fireworks permanent storage. (1) Permanent fireworks storage is:

(a) Subject to this chapter when the period of time of storage is other than, or longer than that specified for temporary storage under WAC 212-17-446.

(b) Subject to the International Fire Code, the International Building Code, and local ordinances.

(2) Storage of fireworks in a facility, not authorized by the license and permit is prohibited.

(3) Penalties for violations of this section are provided in WAC 212-17-515.

NEW SECTION

WAC 212-17-446 Temporary storage associated with CFRS operation. (1) Temporary storage associated with retail fireworks sales meeting the requirements of this section may only be from June 13th through July 31st and from December 12th through January 10th of the following year.

(2) A temporary storage, structure or location must be authorized as a part of a license and permit and meet the requirements specified herein.

(3) Temporary storage or temporary structures may be inspected prior to use and other inspections may occur on other days as warranted. There will be no additional charge for all such inspections.

(4) Fireworks may be stored:

(a) In a locked or secured CFRS facility; or

(b) In a locked or secured truck, container, trailer, other vehicle or anything similar which is not less than twenty feet from the CFRS facility during hours of retail sales;

(c) In a locked or secured truck, container, trailer, other vehicle or anything similar which is not less than twenty feet from an inhabited building;

(d) In a magazine which meets the minimum standards of Type 4 as prescribed by the International Fire Code, and which is not less than ten feet from an inhabited building; or

(e) In a locked or secured metal or wooden garage, shed, barn or other accessory structure, or anything similar which is not less than:

(i) Twenty feet from an inhabited building for storage of fireworks for one or two retail stands; or

(ii) Thirty feet from an inhabited building for storage of fireworks for three or more stands.

(5) For the purpose of this section the system used to lock or secure the storage structure as outlined under subsection (4)(e) of this section, must include one of the following combinations:

(a) Two mortise locks;

(b) Two padlocks in separate hasps and staples;

(c) A mortise lock and a padlock;

(d) A mortise lock that needs two keys to be opened; or

(e) A three-point lock or an equivalent lock that secures the door to the frame at more than one point.

(6) Padlocks must:

(a) Be made of steel;

(b) Have at least five tumblers;

(c) Have at least a 3/8 inch (9.5 mm) casehardened shackle;

(d) Be protected by steel hoods installed to discourage the insertion of bolt cutters.

(7) The local authority having jurisdiction may reduce the minimum separation requirements of this section provided that safety of life and property is not diminished.

(8) No open flames nor any type of open flame equipment will be allowed in any temporary storage or temporary structure.

(9) No cooking is permitted in a CFRS facility or in a temporary storage or structure.

(10) Penalties for violations of this section are provided in WAC 212-17-515.

((~~PART X—COMPLIANCE WITH ADOPTED STANDARDS~~))

PART ((~~XII~~)) X—FINES AND PENALTIES

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-460 General rules. (1) These rules establish civil penalty criteria for ((~~Types I, II, III, and IV Violations and the instances for each type of~~)) violations of chapter 70.77 RCW and this chapter.

(2) ((~~These rules apply to persons who violate the requirements of chapters 70.77 RCW and/or chapter 212-17 WAC.~~

~~(3)~~)) Each separate instance of noncompliance with chapters 70.77 RCW and/or 212-17 WAC ((~~shall~~)) will be considered a separate violation.

(3) For the purpose of determining separate instances, the state of the product at the time of violation will be considered.

(a) An unopened shipping box containing twenty items that are in violation would be one violation.

(b) Possession of an open or partial box or twenty individual items in violation would be considered twenty separate violations.

(4) Each day that a violation continues ((~~shall~~)) will be considered a separate violation.

(5) The distribution, sale, use, manufacture, or possession of any amount of illegal fireworks is prohibited and subject to citation and penalty.

(6) In addition to the issuance of citations and penalties under these rules, the state fire marshal and local ((~~fire marshal~~)) authority having jurisdiction acting in accordance with chapters 70.77 RCW and/or 212-17 WAC may confiscate:

(a) ((~~May confiscate~~)) Any amount of illegal fireworks; and

(b) ((~~May confiscate~~)) Other fireworks possessed by persons violating chapters 70.77 RCW and/or 212-17 WAC.

(7) In addition to the issuance of citations, penalties, and the confiscation of fireworks, the state fire marshal may also revoke, suspend, or deny any fireworks license provided for under chapter 70.77 RCW to any person who fails to pay a penalty(ies) assessed under these rules.

(8) The penalty for each violation shall range from $0 to $1,000 per ((~~day and occurrence~~)) violation.

NEW SECTION

WAC 212-17-461 Revocation of license. The state fire marshal may deny, suspend, or revoke a license:

(1) Upon receiving evidence that any appointee has failed to comply or no longer complies with any requirement or provision of law or this chapter. The following process must be used:

(a) The state fire marshal must give the licensee notice of the action and an opportunity to be heard as prescribed in chapter 34.05 RCW, before denial, suspension, or revocation of the license.

(b) Upon receiving notice of the action, the licensee may, within twenty days from the date of the notice of action, request in writing to the state fire marshal a hearing on the denial, suspension, or revocation of the letter of appointment. An adjudicative proceeding will be commenced within ninety days of the receipt of a hearing request. Failure to request a hearing, or failure to appear at a requested hearing, a prehearing conference, or any other stage of an adjudicative proceeding, will constitute default and may result in the entry of a final order under RCW 34.05.440.

(c) Upon receiving a hearing request, the state fire marshal's office may, at the request of the licensee, or on its own initiative, schedule an informal settlement conference which will be without prejudice to the rights of the parties. The informal settlement conference will be held in a mutually agreed upon location at a mutually agreed upon time and may result in a settlement agreement. If no agreement is reached, a hearing will be scheduled as provided in chapter 34.05 RCW.

(2) Without prior notification if the state fire marshal finds that there is danger to the public health, safety, or welfare which requires immediate action. In every summary suspension of a license, an order signed by the state fire marshal or designee must be entered, in compliance with the provi-

sions of RCW 34.05.479. Administrative proceedings consistent with chapter 34.05 RCW for revocation or other action shall be promptly instituted and determined. The state fire marshal must give notice as is practicable to the licensee.

(3) Immediately if the licensee's insurance bond is canceled.

(4) If the licensee voluntarily relinquishes the letter, the state fire marshal will be advised in writing of this voluntary relinquishment. After receiving notice, the state fire marshal will attempt to obtain the licensee's license. If the licensee requests reissuance of the license, the state fire marshal may require a new application.

(5) If the licensee's violations are subject to suspension for the first violation are categorized as major violations any subsequent or continuing major violation may be cause for termination unless the state fire marshal imposes additional suspensions for longer periods, if deemed appropriate.

(a) When considering punitive action for a major violation, the state fire marshal may take into consideration all major and minor violations that occurred within thirty-six months before the date of the current violation.

(b) Terms of disciplinary action - Minor violations of this chapter may be cause for disciplinary action in the following manner:

(i) First violation within a twelve-month period - Letter of written reprimand;

(ii) Second violation within a twelve-month period - Thirty-day suspension;

(iii) Third violation within a twelve-month period - Sixty-day suspension;

(iv) Fourth violation within a twelve-month period - Revocation of the license.

(c) The state fire marshal may increase or decrease the suspension period based on finding aggravating or mitigating factors as provided in WAC 212-17-465.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-465 Violation types and penalty assessments. (((~~(1) Penalties shall be assessed according to violation type.~~

~~(2) The types of violations are:~~

~~(a) Least - Type I;~~

~~(b) Minimal - Type II;~~

~~(c) Moderate - Type III;~~

~~(d) Severe - Type IV.~~)) (1) The state fire marshal may impose a different penalty than the standard penalties outlined in WAC 212-17-515 based on the following mitigating or aggravating circumstances:

(a) Mitigating circumstances are those that may result in fewer days of suspension or a lower monetary penalty assessed. A licensee may demonstrate by implementation of safety or business policies or practices that reduce the risk of future violations. Examples include, but are not limited to:

(i) Having a signed acknowledgment of the practice on file for each employee;

(ii) Having an employee training plan that includes annual training on fireworks laws.

(b) Aggravating circumstances are those that will result in increased days of suspension, increased monetary penalties, or revocation of a fireworks license. Examples include, but are not limited to:

(i) Business operations or behaviors that create an increased risk for a violation;

(ii) Repeated importation of fireworks that do not meet the standards when inspected by the U.S. Consumer Product Safety Commission;

(iii) Intentional commission of a violation;

(iv) Disregard for the safety of others that may or may not have resulted in an actual injury; or

(v) Repeated offenses where citations have been issued for the same violation during a given time period.

(c) In addition to the examples in (a) and (b) of this subsection, the state fire marshal will provide and maintain a list of business practices for reference as examples where business policies or practices may constitute mitigating or aggravating circumstances. This list will not be all inclusive for determining mitigating or aggravating circumstances, and may be modified by the state fire marshal. The list will be accessible to all stakeholders and the general public via the internet.

(2) The state fire marshal may offer a monetary option in lieu of suspension based on mitigating circumstances during a settlement conference as outlined in this chapter.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-470 Violation assessment at the local level. (1) Local fire authorities ((~~shall~~)) will have the authority to issue civil penalty citations for violations of chapters 70.77 RCW and/or 212-17 WAC.

(2) A citation may impose a penalty or provide a warning.

(3) After issuing the citation notice, the citation ((~~shall~~)) will be forwarded to ((~~the office of~~)) the state fire marshal within ten days of issuance. ((~~Where possible,~~)) Each citation ((~~shall~~)) will be accompanied by a copy of the issuing authority's written report, inspection sheets, evidence receipt, or any other forms that are completed during the process of issuing citations.

(4) The ((~~office of the~~)) state fire marshal ((~~shall~~)) will review the information contained in the citation and any accompanying documentation.

(5) If the evidence exists that a violation occurred, the state fire marshal will issue ((~~a notice of civil penalty based upon the information contained in the citation and any accompanying documentation~~)) an administrative violation notice which will include:

(a) A brief narrative description of the charged violation(s);

(b) The date(s) of the violation(s);

(c) A copy of the law(s) or regulation(s) allegedly violated;

(d) A summary of the licensee's or permit holder's options as outlined in this chapter; and

(e) The penalty.

(6) The civil penalty will be delivered using registered mail.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-475 Hearings for civil penalties. (1) Any person may request a hearing regarding the assessment of a civil penalty.

(2) Hearings requests ((~~shall~~)) will be filed with the office of the state fire marshal within fourteen days from the date of the service of civil penalty.

(3) Any person who requests a hearing ((~~shall~~)) will be entitled to a hearing.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-480 Informal conference. (1) The ((~~office of the~~)) state fire marshal will provide an opportunity for a person to informally discuss a civil penalty that has been assessed against them.

(2) An informal conference may be requested prior to a request for a formal hearing; however, a formal hearing ((~~shall~~)) must be requested within twenty-eight days of the date of service of the notice of civil penalty.

(3) The request for an informal conference may be in any form((~~:~~)) and must:

(a) ((~~Shall~~)) Be addressed to the office of the state fire marshal; and

(b) ((~~Shall~~)) Clearly state the subject to be discussed.

(c) ((~~An informal conference concerning civil penalties shall not exceed the~~)) Be requested within fourteen days ((~~allowed for filing a formal hearing request~~)).

(d) If the parties agree, an informal conference may be held by telephone.

(e) As the result of an informal conference, the state fire marshal may, for good cause, amend, withdraw, or reduce a civil penalty.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-485 Formal hearing. (1) A person may request a formal hearing at any time before or after an informal conference, as long as the twenty-eight day period for requesting a hearing has not lapsed.

(2) The office of the state fire marshal will arrange for a hearings officer to conduct the formal hearing through the office of administrative hearings.

(3) The office of ((~~the state fire marshal~~)) administrative hearings will set a date, time, and location for the formal hearing.

(4) The office of ((~~the state fire marshal~~)) administrative hearings will notify, by letter, the person requesting the hearing (or their designated representative) of the date, time, location and the hearings officer conducting the formal hearing.

(5) The hearings officer will hear the case and render a proposed opinion and order including recommended findings of fact and conclusions of law, according to chapter 34.05 RCW.

(6) The formal hearing ((~~shall~~)) will be conducted as follows:

(a) The hearings officer will act as an impartial third party.

(b) It is not necessary for the person that requested the hearing to be represented by legal council.

(c) Testimony ((~~shall~~)) will be taken under oath.

(d) All evidence of a type commonly relied upon by a reasonably prudent person in the conduct of their serious affairs is admissible.

(e) Hearsay evidence is admissible if it meets statutory standards for being reliable and trustworthy.

(7) The proposed opinion and order ((~~shall~~)) will be reviewed by the state fire marshal and, if accepted, finalized and issued as a final order.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-490 Penalty adjustment. (1) The assessment of ((~~adjustment of penalties~~)) penalty adjustments for amounts other than those set by chapter 70.77 RCW ((~~shall~~)) will be done only by the state fire marshal through a hearings process either formally or informally.

(2) The assessment of penalties for not being in conformance with chapters 70.77 RCW and/or 212-17 WAC may be made only after considering:

(a) The gravity and magnitude of the violation;

(b) The person's previous record;

(c) Such other considerations as the state fire marshal may consider appropriate.

(3) During a formal hearing or informal conference, ((~~the office of~~)) the state fire marshal may modify or adjust the citation, cited violations, or penalties assessed in order to meet the requirements of these rules and to ensure uniformity and consistency in their application statewide.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-495 Payment of civil penalty. (1) The penalty ((~~shall~~)) must be paid to ((~~the office of~~)) the state fire marshal immediately after an order assessing a civil penalty becomes final by operation of law or on an appeal.

(2) The attorney general may bring an action in the name of the Washington state patrol, through the director of fire protection, in the superior court of Thurston County or of any county in which the violator may do business to collect any penalty imposed under chapter 70.77 RCW.

AMENDATORY SECTION (Amending WSR 05-12-033, filed 5/24/05, effective 6/24/05)

WAC 212-17-515 ((~~Type IV violations.~~)) Violation/ penalty matrix. (((~~(1) Type IV violations are subject to penalties ranging from one hundred twenty five dollars to one thousand dollars per day depending on instance and in accordance with WAC 212-17-390.~~

~~(2) Examples of Type IV violations include, but are not limited to:~~

~~(a) Possession of fifty dollars or more of 1.3G fireworks without the necessary license issued by the office of the state fire marshal and the required permit from the local authority having jurisdiction;~~

~~(b) Conducting a public fireworks display without the necessary license issued by the office of the state fire marshal and the required permit from the local authority having jurisdiction;~~

~~(c) Purchase of any amount of 1.3G fireworks without the necessary licenses issued by the office of the state fire marshal and/or, where required, the local authority having jurisdiction;~~

~~(d) Conducting a public display using illegal or unauthorized fireworks;~~

~~(e) Intentional or indiscriminate use of fireworks which injure someone or cause more than two hundred fifty dollars in property damage;~~

~~(f) Wholesale sales of fireworks without a valid Washington state wholesalers license;~~

~~(g) Importing, or causing to be imported, fireworks into the state of Washington without a valid Washington state importers license.~~))

WAC - Literal	Description	1st violation	2nd offense or aggravating factors to increase penalty		3rd offense or aggravating factors to increase penalty	
212-17-045 (2) and (3)	Possession of an EPCD without a written management plan.	Warning to $250	$500		$1,000	
212-17-045(4)	Improper use of EPCD during a burn ban period.	Warning to $500	$750	Used during a burn ban period or increased fire danger in the area where the device was used. Fire caused by item that results in a minor injury or property damage (under $25,000).	$1,000	Used during a burn ban period or increased fire danger in the area where the device was used. Fire caused by item that results in a permanent injury, loss of life or major property damage (excess of $25,000).
212-17-045(5)	Use of EPCD that threatens to injure or kill wildlife or persons.	Warning to $500	$750	Injury occurs to wildlife or persons.	$1,000	Wildlife or person killed by use of the EPCD.
212-17-050 (1) and (2)	Importing, manufacturing, selling or possessing a firework with prohibited components, devices or chemicals.	$25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	Attempt is made to disguise the item as another product that does not contain prohibited chemicals.
212-17-050 (2)(c)(iii)	Failing to segregate similar devices from inventory of products that can be sold or used until the laboratory test results are known.	$25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-053(2)	Possess, purchase or discharge dangerous fireworks.	$25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-053(2)	Offering for sale, storage or manufacturing a dangerous firework.	$50 per item or $500 whichever is greater.	$75 per item or $750 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-053	Altering a firework without a pyrotechnic license.	$250	$500	Conducting a fireworks display for hire.	$1,000	Selling altered fireworks.

WAC - Literal	Description	1st violation	2nd offense or aggravating factors to increase penalty		3rd offense or aggravating factors to increase penalty	
212-17-055 (2)(c)(iii)(B)	Importing or manufacturing any firework device without receiving an approval from the U.S. DOT per 49 C.F.R. Part 173.56(b).	$25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-055(2)	Importing or manufacturing a firework without the required labeling.	$25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-060(1)	Purchase or use of fireworks outside of time period or from an unlicensed stand.	$25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	If a permit application was denied for under 212-17-060 (2)(i) and (ii).
212-17-062(1)	Storage of consumer fireworks for personal use in a residential or commercial setting in excess of 125 net explosive weight without a permit from the local authority having jurisdiction.	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.	Storage is in a location where fireworks are banned or prohibited.	$100 per item or $1,000 whichever is greater.	Storage occurred after an application for permit was submitted and denied by the local authority having jurisdiction.
212-17-065(1)	Fail to obtain a license or permit to manufacture, import and wholesale consumer fireworks. (Includes hobbyist or personal use.)	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-065(1)	Fail to obtain a license or permit to manufacture, import and wholesale fireworks. (Commercial use.)	Warning to $50 per item or $500 whichever is greater.	$75 per item or $750 whichever is greater.	Aware of license and permit requirements as a previous license and permit holder.	$100 per item or $1,000 whichever is greater.	Permit application for activity submitted and denied.
212-17-070	Manufacturing, importing, and wholesaling fireworks after an application has been denied.	Warning to $100 per item or $1,000 whichever is greater.	$100 per item or $1,000 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-080	Violation of license limitations.	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-085(1)	Fail to keep records for the required 3 year period.	Warning to $50 per missing record or $500 whichever is greater.	$75 per missing record or $750 whichever is greater.		$100 per missing record or $1,000 whichever is greater.	
212-17-085(1)	Fail to produce records and reports when requested .	Warning to $50 per missing record or $500 whichever is greater.	$75 per missing record or $750 whichever is greater.	Fail to comply after 96 hours from close of business that documents were to be provided.	$100 per missing record or $1,000 whichever is greater.	Fail to comply after 96 hours from close of business that documents were to be provided.

WAC - Literal	Description	1st violation	2nd offense or aggravating factors to increase penalty		3rd offense or aggravating factors to increase penalty	
212-17-145(1)	Failing to notify the state fire marshal within 5 days of receiving notice from the CPSC that fireworks imported by the licensee have been laboratory tested and failed to meet the CPSC requirements for consumer fireworks.	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.	Two products imported at the same time failed to CPSC standards.	$100 per item or $1,000 whichever is greater.	More than three products imported at the same time failed to CPSC standards.
212-17-145(4)	Storing imported fireworks that are overloaded (laboratory tested by the CPSC) in a nonapproved facility.	Warning to $50 per item or $500 whichever is greater.	$75 per item or $750 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-185 (1)(a)	Conducting retail sales of fireworks without a license.	Warning to $250	$500	Aware of license and permit requirements as a previous license and permit holder.	$1,000	Permit application for activity submitted and denied.
212-17-185 (1)(b)	Conducting retail sales of fireworks without a permit issued from the local jurisdiction having authority.	Warning to $250	$500	Fireworks license issued but no permit.	$1,000	Permit application for activity submitted and denied.
212-17-185 (3)(b)	Obtaining a license only to purchase fireworks at wholesaler for personal use.	Warning to $250	$500	Fireworks license issued but no permit.	$1,000	Permit application for activity submitted and denied.
212-17-198(1)	Selling or offering for sale of unapproved consumer fireworks to the public.	Warning to $50 per item or $500 whichever is greater.	$75 per item or $750 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-198(2)	Retail sales licensee failing to display the list of approved consumer fireworks.	Warning to $250	$500		$1,000	
212-17-198(4)	Possession of prohibited fireworks (rockets, firecrackers, missiles, salutes or chasers).	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.	Net explosive weight of prohibited firework in excess of 10 gross pounds.	$150 per item or $1,000 whichever is greater.	Net explosive weight of prohibited firework in excess of 25 gross pounds.
212-17-198(4)	Use of prohibited fireworks (missiles, rockets, firecrackers, salutes or chasers).	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.	Fire caused by item that results in an injury requiring treatment on-site or property damage (under $25,000).	$150 per item or $1,000 whichever is greater.	Fire caused by item that results in an injury requiring treatment at a hospital, loss of life or major property damage (excess of $25,000).
212-17-21504(1)	Retailer purchasing any consumer fireworks from a nonlicensed wholesaler.	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	

WAC - Literal	Description	1st violation	2nd offense or aggravating factors to increase penalty		3rd offense or aggravating factors to increase penalty	
212-17-21504(2)	Retailer selling or delivering fireworks from location other than in a manner authorized.	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.		$100 per item or $1,000 whichever is greater.	
212-17-21504 (2)(b)(i)	Advertisement violation.	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.	Aware of license and permit requirements as a previous license and permit holder.	$100 per item or $1,000 whichever is greater.	License or permit application for activity submitted and denied.
212-17-21504 (2)(b)(ii)	Purchase of consumer fireworks from unlicensed wholesaler in Washington.	Warning to $25 per item or $250 whichever is greater.	$50 per item or $500 whichever is greater.	Fireworks ordered in excess of 125 pounds gross net explosive weight.	$100 per item or $1,000 whichever is greater.	Fireworks ordered in excess of 300 pounds of gross net explosive weight.
212-17-21505	Violation of local permit or rules for CFRS facility requirements.	Warning to $250	$500	Aware of license and permit requirements as a previous license and permit holder.	$1,000	Permit application for activity submitted and denied.
212-17-21505	Conducting retail sales from an unapproved CFRS facility.	Warning to $500	$750	Aware of license and permit requirements as a previous license and permit holder.	$1,000	Permit application for activity submitted and denied.
212-17-21511	Discharge of fireworks within 300 feet of the CFRS facility.	Warning to $250	$500		$1,000	
212-17-21519	Fail to cleanup and remove CFRS facility.	Warning to $250	$500		$1,000	
212-17-220	Unlicensed/underaged pyrotechnic operator conducting a fireworks display.	Warning to $250	$500	Pyrotechnic operator's license expired no more than 6 months (July 31st).	$1,000	Licensed pyrotechnic operator's information submitted for permit is different than person conducting display.
212-17-223(2)	Conducting a fireworks display without a general display license.	Warning to $250	$500	Expired license, aware of license requirements as a previous license holder.	$1,000	Denied or failed to qualify for the level of pyrotechnic license needed.
212-17-225(3)	Submitting an application for a pyrotechnic operator's license with false or inaccurate information.	Warning to $500	$750	Information provided was for a higher level license, i.e., proximate or special effects.	$1,000	Person is disqualified by the ATF from being a user/possessor.
212-17-235(1)	Failing to supervise personnel or the handling, preparing and firing of a fireworks display.	Warning to $250	$500	Results in an injury requiring treatment on-site or a fire causing property damage (under $25,000).	$1,000	Pyrotechnic operator listed on the permit is absent when the display is being setup/inspected. Results in an injury requiring treatment at a hospital, loss of life or a fire causing major property damage (excess of $25,000).

WAC - Literal	Description	1st violation	2nd offense or aggravating factors to increase penalty		3rd offense or aggravating factors to increase penalty	
212-17-260	Conducting a fireworks display without a general display license.	Warning to $250	$500	Aware of license requirements as a previous license holder.	$1,000	Application for a general display license was denied or license was suspended or revoked.
212-17-270(1)	Conducting a fireworks display without obtaining a permit from the local authority having jurisdiction.	Warning to $500	$750	Aware of permit requirements as a previous permit holder.	$1,000	
212-17-270(4)	Public display permittee failed to comply with the provisions of a public display permit.	Warning to $250	$500	Display starting later than allowed by permit.	$1,000	
212-17-345	Failure to submit a report to the state fire marshal for any public display conducted.	Warning to $25 per report or $250 whichever is greater.	$50 per item or $500 whichever is greater.	Display had a fire causing an injury requiring treatment on-site or property damage (under $25,000).	$1,000	Display had a fire causing an injury requiring treatment at a hospital, loss of life or major property damage (excess of $25,000).
212-17-425	Carrier delivering fireworks without having the proper license to transport such class and quantity of fireworks.	Warning to $50 per report or $500 whichever is greater.	$75 per item or $750 whichever is greater.	Fireworks delivery in excess of 125 pounds net weight of explosive, but less than 500 net weight of explosive.	$100 per item or $1,000 whichever is greater.	Fireworks delivery in excess of 501 pounds net weight of explosive.
212-17-430	Common carrier delivering fireworks to a person or firm within Washington state without a valid importer's license.	Warning to $50 per report or $500 whichever is greater.	$75 per item or $750 whichever is greater.	Fireworks delivery in excess of 125 pounds net weight of explosive, but less than 500 net weight of explosive.	$100 per item or $1,000 whichever is greater.	Fireworks delivery in excess of 501 pounds net weight of explosive.
212-17-435	Storage of fireworks that present an increased hazard or menace of fire or explosion.	Warning to $50 per report or $500 whichever is greater.	$75 per item or $750 whichever is greater.	Fireworks storage in excess of 125 pounds net weight of explosive, but less than 500 net weight of explosive.	$100 per item or $1,000 whichever is greater.	Fireworks storage in excess of 501 pounds net weight of explosive.
212-17-440	Common carrier storage without a fireworks license or permit.	Warning to $50 per report or $500 whichever is greater.	$75 per item or $750 whichever is greater.	Fireworks storage in excess of 125 pounds net weight of explosive, but less than 500 net weight of explosive.	$100 per item or $1,000 whichever is greater.	Fireworks storage in excess of 501 pounds net weight of explosive.
212-17-442	Permanent storage of any fireworks by a licensed person in an unapproved facility without proper license/permit/approval.	Warning to $50 per item or $500 whichever is greater.	$75 per item or $750 whichever is greater.	Aware of license and permit requirements as a previous license and permit holder.	$100 per item or $1,000 whichever is greater.	Permit application for storage submitted and denied by local AHJ.

WAC - Literal	Description	1st violation	2nd offense or aggravating factors to increase penalty		3rd offense or aggravating factors to increase penalty	
212-17-446 (2) and (4)	No permit for temporary storage or in violation of the requirements.	Warning to $250.	$500	Aware of license and permit requirements as a previous license and permit holder.	$1,000	Permit application for activity submitted and denied.

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 212-17-001 Title.
WAC 212-17-010 Purpose.
WAC 212-17-020 Authority.
WAC 212-17-030 Definition and classification—"Trick and novelty devices."
WAC 212-17-032 Definition and classification—"Articles pyrotechnic."
WAC 212-17-035 Definition and classification—"Consumer fireworks."
WAC 212-17-040 Definition and classification—"Display fireworks."
WAC 212-17-042 Definition and classification—"Special effects."
WAC 212-17-075 Fireworks manufacturer—Local ordinances.
WAC 212-17-090 Fireworks manufacturer—Restrictions.
WAC 212-17-095 Fireworks manufacturer—Building and structures.
WAC 212-17-100 Fireworks manufacturer—Personnel.
WAC 212-17-105 Fireworks manufacturer—Visitors.
WAC 212-17-110 Fireworks manufacturer—Fire nuisance.
WAC 212-17-115 Fireworks wholesaler—General.
WAC 212-17-120 Fireworks wholesaler—Licensing.
WAC 212-17-125 Fireworks wholesaler—Investigation.
WAC 212-17-135 Fireworks wholesaler—License limitations.
WAC 212-17-140 Fireworks wholesaler—Records and reports.
WAC 212-17-150 Fireworks wholesaler—Personnel.
WAC 212-17-155 Fireworks wholesaler—Visitors.
WAC 212-17-160 Fireworks wholesaler—Fire nuisance.
WAC 212-17-165 Importers of fireworks—General.
WAC 212-17-170 Importers of fireworks—Licensing.
WAC 212-17-175 Importers of fireworks—License scope.
WAC 212-17-180 Importers of fireworks—Restrictions.
WAC 212-17-203 Retailers of fireworks—List to be posted.
WAC 212-17-21503 Retailers of fireworks—Definitions.
WAC 212-17-21507 Retailers of fireworks—Transportation.
WAC 212-17-21517 Retailers of fireworks—Temporary fireworks storage associated with the retail fireworks stand operation.
WAC 212-17-240 Pyrotechnic operators—Observance of laws, rules and regulations.
WAC 212-17-245 Public displays of fireworks—General.
WAC 212-17-255 Public displays of fireworks—Type of license.
WAC 212-17-285 Public displays of fireworks—Spectators.
WAC 212-17-290 Public displays of fireworks—Pyrotechnic operators.
WAC 212-17-300 Public display—Definitions.
WAC 212-17-305 Public display—Construction of shells.
WAC 212-17-310 Public display—Storage of shells.
WAC 212-17-315 Public display—Installation of mortars.
WAC 212-17-317 Public display—Electrical firing unit.
WAC 212-17-320 Public display—Site selection.
WAC 212-17-321 Public display—Installation of buried mortars.
WAC 212-17-323 Installation of mortar racks.
WAC 212-17-325 Public display—Discharge site.
WAC 212-17-327 Requirements for chain fusing.
WAC 212-17-330 Public display—Operation.
WAC 212-17-335 Public display—Firing of shells.
WAC 212-17-340 Public display—Ground pieces.
WAC 212-17-342 Public display—Floating vessels and platforms.
WAC 212-17-350 Proximate display—Use of proximate before an audience.
WAC 212-17-352 Transportation—By common carrier.
WAC 212-17-355 Proximate display—Proximate permit.

WAC 212-17-360	Proximate display—Pyrotechnic display plans.
WAC 212-17-362	Storage—By common carrier.
WAC 212-17-365	Proximate display—Pyrotechnic display demonstrations.
WAC 212-17-370	Proximate display—Definitions.
WAC 212-17-375	Proximate display—Transportation of pyrotechnic material.
WAC 212-17-380	Proximate display—Storage of pyrotechnic materials and WAC devices.
WAC 212-17-385	Proximate display—Separation from heat sources.
WAC 212-17-390	Proximate display—Identification of pyrotechnic devices or binary systems.
WAC 212-17-395	Proximate display—General fire protection.
WAC 212-17-400	Proximate display—Firing prerequisites.
WAC 212-17-405	Proximate display—Firing safeguards.
WAC 212-17-410	Proximate display—Separation distances from audience.
WAC 212-17-415	Proximate display—Performance.
WAC 212-17-420	Proximate display—After the performance.
WAC 212-17-445	Storage—By common carrier.
WAC 212-17-450	Fines and penalties.
WAC 212-17-455	Definitions.
WAC 212-17-500	Type I violations.
WAC 212-17-505	Type II violations.
WAC 212-17-510	Type III violations.
WAC 212-17-900	Appendix.

WSR 15-17-119
PROPOSED RULES
PUGET SOUND CLEAN AIR AGENCY

[Filed August 19, 2015, 9:41 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: Amend Regulation I, Sections 3.11 (Civil Penalties) and 3.25 (Federal Regulation Reference Date).

Hearing Location(s): Puget Sound Clean Air Agency (PSCAA), 1904 3rd Avenue, Suite 105, Seattle, WA 98101, on September 24, 2015, at 8:45 a.m.

Date of Intended Adoption: September 24, 2015.

Submit Written Comments to: Rob Switalski, PSCAA, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, e-mail robs@pscleanair.org, fax (206) 343-7522, by September 23, 2015.

Assistance for Persons with Disabilities: Contact agency receptionist, (206) 689-4010, by September 17, 2015, TTY (800) 833-6388 or (800) 833-6385 (Braille).

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: **Section 3.11** - the agency's practice for many years has been to adjust the maximum civil penalty amount as allowed by law. The proposed adjustment to the maximum civil penalty amount accounts for inflation, as authorized by RCW 70.94.431 and as determined by the state office of the economic and revenue forecast council. Without this adjustment, the maximum penalty amount would effectively decrease each year. The CPI for the Seattle/Tacoma/Bremerton area increased by 1.14 percent for the 2014 calendar year, which amounts to an increase of $202 in the maximum civil penalty amount.

The proposed amendment does not affect the way the agency determines actual civil penalty amounts in individual cases. This continues to be done following civil penalty worksheets previously approved by the board.

Section 3.25 - this section currently provides that whenever federal rules are referenced in agency regulations, the effective date of the federal regulations referred to is July 1, 2014. This provides certainty so that persons affected by the regulations and agency staff know which version of a federal regulation to reference. For many years, the agency's practice has been to update this date annually to stay current with federal regulations. Following this practice, the proposed amendments would change the reference date to July 1, 2015.

Reasons Supporting Proposal: There are no benefits or costs associated with the proposed amendments.

Statutory Authority for Adoption: Chapter 70.94 RCW.

Statute Being Implemented: RCW 70.94.141.

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

Name of Proponent: PSCAA, governmental.

Name of Agency Personnel Responsible for Drafting: Steve Van Slyke, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4052; Implementation and Enforcement: Laurie Halvorson, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4030.

No small business economic impact statement has been prepared under chapter 19.85 RCW. This agency is not subject to the small business economic impact provision of the Administrative Procedure Act, and the agency is not a school district.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 does not apply to local air agencies, per RCW 70.94.141.

August 19, 2015
Craig Kenworthy
Executive Director

AMENDATORY SECTION

REGULATION I, SECTION 3.11 CIVIL PENALTIES

(a) Any person who violates any of the provisions of chapter 70.94 RCW or any of the rules or regulations in force pursuant thereto, may incur a civil penalty in an amount not to exceed $((~~17,781.00~~)) 17,983.00, per day for each violation.

(b) Any person who fails to take action as specified by an order issued pursuant to chapter 70.94 RCW or Regulations I, II, and III of the Puget Sound Clean Air Agency shall be liable for a civil penalty of not more than $((~~17,781.00~~)) 17,983.00, for each day of continued noncompliance.

(c) Within 30 days of the date of receipt of a Notice and Order of Civil Penalty, the person incurring the penalty may apply in writing to the Control Officer for the remission or mitigation of the penalty. To be considered timely, a mitigation request must be actually received by the Agency, during regular office hours, within 30 days of the date of receipt of a Notice and Order of Civil Penalty. This time period shall be calculated by excluding the first day and including the last, unless the last day is a Saturday, Sunday, or legal holiday, and then it is excluded and the next succeeding day that is not a Saturday, Sunday, or legal holiday is included. The date stamped by the Agency on the mitigation request is prima facie evidence of the date the Agency received the request.

(d) A mitigation request must contain the following:

(1) The name, mailing address, telephone number, and telefacsimile number (if available) of the party requesting mitigation;

(2) A copy of the Notice and Order of Civil Penalty involved;

(3) A short and plain statement showing the grounds upon which the party requesting mitigation considers such order to be unjust or unlawful;

(4) A clear and concise statement of facts upon which the party requesting mitigation relies to sustain his or her grounds for mitigation;

(5) The relief sought, including the specific nature and extent; and

(6) A statement that the party requesting mitigation has read the mitigation request and believes the contents to be true, followed by the party's signature.

The Control Officer shall remit or mitigate the penalty only upon a demonstration by the requestor of extraordinary circumstances such as the presence of information or factors not considered in setting the original penalty.

(e) Any civil penalty may also be appealed to the Pollution Control Hearings Board pursuant to chapter 43.21B RCW and chapter 371-08 WAC. An appeal must be filed with the Hearings Board and served on the Agency within 30 days of the date of receipt of the Notice and Order of Civil Penalty or the notice of disposition on the application for relief from penalty.

(f) A civil penalty shall become due and payable on the later of:

(1) 30 days after receipt of the notice imposing the penalty;

(2) 30 days after receipt of the notice of disposition on application for relief from penalty, if such application is made; or

(3) 30 days after receipt of the notice of decision of the Hearings Board if the penalty is appealed.

(g) If the amount of the civil penalty is not paid to the Agency within 30 days after it becomes due and payable, the Agency may bring action to recover the penalty in King County Superior Court or in the superior court of any county in which the violator does business. In these actions, the procedures and rules of evidence shall be the same as in an ordinary civil action.

(h) Civil penalties incurred but not paid shall accrue interest beginning on the 91st day following the date that the penalty becomes due and payable, at the highest rate allowed by RCW 19.52.020 on the date that the penalty becomes due and payable. If violations or penalties are appealed, interest shall not begin to accrue until the 31st day following final resolution of the appeal.

(i) To secure the penalty incurred under this section, the Agency shall have a lien on any vessel used or operated in violation of Regulations I, II, and III which shall be enforced as provided in RCW 60.36.050.

AMENDATORY SECTION

REGULATION I, SECTION 3.25 FEDERAL REGULATION REFERENCE DATE

Whenever federal regulations are referenced in Regulation I, II, or III, the effective date shall be July 1, ((~~2014~~)) 2015.

WSR 15-17-120
PROPOSED RULES
PUGET SOUND CLEAN AIR AGENCY

[Filed August 19, 2015, 9:42 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: Amend Regulation I, Section 5.03 (Applicability of Registration Program).

Hearing Location(s): Puget Sound Clean Air Agency (PSCAA), 1904 3rd Avenue, Suite 105, Seattle, WA 98101, on September 24, 2015, at 8:45 a.m.

Date of Intended Adoption: September 24, 2015.

Submit Written Comments to: Rob Switalski, PSCAA, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, e-mail robs@pscleanair.org, fax (206) 343-7522, by September 23, 2015.

Assistance for Persons with Disabilities: Contact agency receptionist, (206) 689-4010, by September 17, 2015, TTY (800) 833-6388 or (800) 833-6385 (Braille).

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: This is a nonproject action for a technical amendment for the registration program that is being proposed to extend exemptions for emer-

gency generators that are powered by spark ignited engines. These exemptions are parallel to those already available for compression ignition (diesel) engine emergency generators.

Reasons Supporting Proposal: The benefit of this proposal is reducing administrative costs that do not result in environmental gain. The registration program will remain focused on the areas of highest environmental importance. Also, the agency will be able to fulfill its obligations associated with EPA delegation of rule implementation. This is a cost savings to the potentially affected sources and this agency.

Statutory Authority for Adoption: Chapter 70.94 RCW.

Statute Being Implemented: RCW 70.94.141.

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

Name of Proponent: PSCAA, governmental.

Name of Agency Personnel Responsible for Drafting: Steve Van Slyke, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4052; Implementation and Enforcement: Laurie Halvorson, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4030.

No small business economic impact statement has been prepared under chapter 19.85 RCW. This agency is not subject to the small business economic impact provision of the Administrative Procedure Act, and the agency is not a school district.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 does not apply to local air agencies, per RCW 70.94.141.

August 19, 2015
Craig Kenworthy
Executive Director

AMENDATORY SECTION

REGULATION I, SECTION 5.03 APPLICABILITY OF REGISTRATION PROGRAM

(a) The requirements of this article shall apply only to:

(1) Sources subject to a federal emission standard under:

(A) 40 CFR Part 60 (except Subparts B, S, BB, and AAA, ((~~and~~)) the provisions of Subpart IIII pertaining to owners and operators of emergency stationary compression ignition internal combustion engines, and the provisions of Subpart JJJJ pertaining to owners and operators of emergency stationary spark ignited internal combustion engines);

(B) 40 CFR Part 61 (except Subparts B, H, I, K, Q, R, T, W, and the provisions of Subpart M pertaining to asbestos on roadways, asbestos demolition and renovation activities, and asbestos spraying);

(C) 40 CFR Part 62; or

(D) 40 CFR Part 63 (except Subpart LL, the provisions of Subparts S and MM pertaining to kraft and sulfite pulp mills, the provisions of Subpart ZZZZ pertaining to emergency and limited-use stationary reciprocating internal combustion engines, Subpart BBBBBB pertaining to bulk gasoline plants, and Subparts WWWWW, CCCCCC, HHHHHH, WWWWWW, XXXXXX, YYYYYY, and ZZZZZZ);

(2) Sources with a federally enforceable emission limitation established in order to avoid operating permit program applicability under Article 7 of this regulation;

(3) Sources with annual emissions:

(A) Greater than or equal to 2.50 tons of any single hazardous air pollutant (HAP);

(B) Greater than or equal to 6.25 tons of total hazardous air pollutants (HAP); or

(C) Greater than or equal to 25.0 tons of carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter ($PM_{2.5}$ or PM_{10}), sulfur oxides (SO_x), or volatile organic compounds (VOC);

(4) Sources subject to the following sections of Regulation I, II, or III:

(A) Refuse burning equipment subject to Section 9.05 of Regulation I (including crematories);

(B) Fuel burning equipment or refuse burning equipment burning oil that exceeds any limit in Section 9.08 of Regulation I and sources marketing oil to such sources;

(C) Fuel burning equipment subject to Section 9.09 of Regulation I with a rated heat input greater than or equal to 1 MMBtu/hr of any fuel other than natural gas, propane, butane, or distillate oil, or greater than or equal to 10 MMBtu/hr of any fuel;

(D) Sources with spray-coating operations subject to Section 9.16 of Regulation I;

(E) Petroleum refineries subject to Section 2.03 of Regulation II;

(F) Gasoline loading terminals subject to Section 2.05 of Regulation II;

(G) Gasoline dispensing facilities subject to Section 2.07 of Regulation II;

(H) Volatile organic compound storage tanks subject to Section 3.02 of Regulation II;

(I) Can and paper coating facilities subject to Section 3.03 of Regulation II;

(J) Motor vehicle and mobile equipment coating operations subject to Section 3.04 of Regulation II;

(K) Flexographic and rotogravure printing facilities subject to Section 3.05 of Regulation II;

(L) Polyester, vinylester, gelcoat, and resin operations subject to Section 3.08 of Regulation II;

(M) Aerospace component coating operations subject to Section 3.09 of Regulation II;

(N) Crushing operations subject to Section 9.18; or

(O) Ethylene oxide sterilizers subject to Section 3.07 of Regulation III;

(5) Sources with any of the following gas or odor control equipment having a rated capacity of greater than or equal to 200 cfm (≥4" diameter inlet):

(A) Activated carbon adsorption;

(B) Afterburner;

(C) Barometric condenser;

(D) Biofilter;

(E) Catalytic afterburner;

(F) Catalytic oxidizer;

(G) Chemical oxidation;

(H) Condenser;

(I) Dry sorbent injection;

(J) Flaring;

(K) Non-selective catalytic reduction;
(L) Refrigerated condenser;
(M) Selective catalytic reduction; or
(N) Wet scrubber;
(6) Sources with any of the following particulate control equipment having a rated capacity of greater than or equal to 2,000 cfm (≥10" diameter inlet):
(A) Baghouse;
(B) Demister;
(C) Electrostatic precipitator;
(D) HEPA (high efficiency particulate air) filter;
(E) HVAF (high velocity air filter);
(F) Mat or panel filter;
(G) Mist eliminator;
(H) Multiple cyclones;
(I) Rotoclone;
(J) Screen;
(K) Venturi scrubber;
(L) Water curtain; or
(M) Wet electrostatic precipitator;
(7) Sources with a single cyclone having a rated capacity of greater than or equal to 20,000 cfm (≥27" diameter inlet);
(8) Sources with any of the following equipment:
(A) Asphalt batch plants;
(B) Burn-off ovens;
(C) Coffee roasters;
(D) Commercial composting with raw materials from off-site;
(E) Commercial smokehouses with odor control equipment;
(F) Concrete batch plants (ready-mix concrete);
(G) Galvanizing;
(H) Iron or steel foundries;
(I) Microchip or printed circuit board manufacturing;
(J) Rendering plants;
(K) Rock crushers or concrete crushers;
(L) Sewage treatment plants with odor control equipment;
(M) Shipyards;
(N) Steel mills;
(O) Wood preserving lines or retorts; or
(P) Dry cleaners using perchloroethylene; and
(9) Sources with equipment (or control equipment) that has been determined by the Control Officer to warrant registration through review of a Notice of Construction application under Section 6.03(a) or a Notification under Section 6.03(b) of this regulation, due to the amount and nature of air contaminants produced, or the potential to contribute to air pollution, and with special reference to effects on health, economic and social factors, and physical effects on property.
(b) The requirements of this article shall not apply to:
(1) Motor vehicles;
(2) Nonroad engines or nonroad vehicles as defined in Section 216 of the federal Clean Air Act;
(3) Sources that require an operating permit under Article 7 of this regulation;
(4) Solid fuel burning devices subject to Article 13 of this regulation; or
(5) Any source, including any listed in Sections 5.03 (a)(4) through 5.03(a)(9) of this regulation, that has been determined through review by the Control Officer not to warrant registration, due to the amount and nature of air contaminants produced or the potential to contribute to air pollution, and with special reference to effects on health, economic and social factors, and physical effects on property.
(c) It shall be unlawful for any person to cause or allow the operation of any source subject to registration under this section, unless it meets all the requirements of Article 5 of this regulation.
(d) An exemption from new source review under Article 6 of this regulation shall not be construed as an exemption from registration under this article. In addition, an exemption from registration under this article shall not be construed as an exemption from any other provision of Regulation I, II, or III.

WSR 15-17-121
PROPOSED RULES
PUGET SOUND CLEAN AIR AGENCY
[Filed August 19, 2015, 9:43 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: Amend Regulation I, Section 6.03 (Notice of Construction).
Hearing Location(s): Puget Sound Clean Air Agency (PSCAA), 1904 3rd Avenue, Suite 105, Seattle, WA 98101, on September 24, 2015, at 8:45 a.m.
Date of Intended Adoption: September 24, 2015.
Submit Written Comments to: Rob Switalski, PSCAA, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, e-mail robs@pscleanair.org, fax (206) 343-7522, by September 23, 2015.
Assistance for Persons with Disabilities: Contact agency receptionist, (206) 689-4010, by September 17, 2015, TTY (800) 833-6388 or (800) 833-6385 (Braille).
Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: This is a nonproject action for a technical amendment for the notice of construction (NOC) program (specifically, the categorical exemption part of that section), that is being proposed to extend exemptions for emergency generators that are powered by spark ignited engines. These exemptions are parallel to those already available for compression ignition (diesel) engine emergency generators.
Reasons Supporting Proposal: The benefit of this proposal is reducing administrative costs that do not result in environmental gain. The NOC program will remain focused on the areas of highest environmental importance. Also, the agency will be able to fulfill its obligations associated with EPA delegation of rule implementation. This is a cost savings to the potentially affected sources and this agency.
Statutory Authority for Adoption: Chapter 70.94 RCW.
Statute Being Implemented: RCW 70.94.141.
Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: PSCAA, governmental.

Name of Agency Personnel Responsible for Drafting: Steve Van Slyke, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4052; Implementation and Enforcement: Laurie Halvorson, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4030.

No small business economic impact statement has been prepared under chapter 19.85 RCW. This agency is not subject to the small business economic impact provision of the Administrative Procedure Act, and the agency is not a school district.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 does not apply to local air agencies, per RCW 70.94.141.

August 19, 2015
Craig Kenworthy
Executive Director

AMENDATORY SECTION

REGULATION I, SECTION 6.03 NOTICE OF CONSTRUCTION

(a) It shall be unlawful for any person to cause or allow the establishment of a new source, or the replacement or substantial alteration of control equipment installed on an existing source, unless a "Notice of Construction application" has been filed and an "Order of Approval" has been issued by the Agency. The exemptions in Sections 6.03 (b) and (c) of this regulation shall not apply to:

(1) Any project that qualifies as construction, reconstruction, or modification of an affected facility within the meaning of 40 CFR Part 60 (New Source Performance Standards), except for Subpart AAA (New Residential Wood Heaters), Subpart BB (Kraft Pulp Mills), Subpart S (Primary Aluminum Reduction Plants), Subpart OOO (Nonmetallic Mineral Processing Plants), ((~~and~~)) Subpart IIII pertaining to owners and operators of emergency stationary compression ignition internal combustion engines, and Subpart JJJJ pertaining to owners and operators of emergency stationary spark ignited internal combustion engines; and for relocation of affected facilities under Subpart I (Hot Mix Asphalt Facilities) for which an Order of Approval has been previously issued by the Agency;

(2) Any project that qualifies as a new or modified source within the meaning of 40 CFR 61.02 (National Emission Standards for Hazardous Air Pollutants), except for Subpart B (Radon from Underground Uranium Mines), Subpart H (Emissions of Radionuclides other than Radon from Department of Energy Facilities), Subpart I (Radionuclides from Federal Facilities other than Nuclear Regulatory Commission Licensees and not covered by Subpart H), Subpart K (Radionuclides from Elemental Phosphorus Plants), Subpart Q (Radon from Department of Energy Facilities), Subpart R (Radon from Phosphogypsum Stacks), Subpart T (Radon from Disposal of Uranium Mill Tailings), Subpart W (Radon from Operating Mill Tailings), and for demolition and renovation projects subject to Subpart M (Asbestos);

(3) Any project that qualifies as a new source as defined under 40 CFR 63.2 (National Emission Standards for Hazardous Air Pollutants for Source Categories), except for the provisions of Subpart M (Dry Cleaning Facilities) pertaining to area source perchloroethylene dry cleaners, Subpart LL (Primary Aluminum Reduction Plants), the provisions of Subpart S (Pulp and Paper Industry) and Subpart MM (Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills) pertaining to kraft and sulfite pulp mills, the provisions of Subpart ZZZZ (Reciprocating Internal Combustion Engines) pertaining to emergency and limited-use stationary reciprocating internal combustion engines, Subpart DDDDD (Industrial, Commercial, and Institutional Boilers and Process Heaters), Subpart WWWWW (Hospitals: Ethylene Oxide Sterilizers), Subpart CCCCCC (Gasoline Dispensing Facilities), Subpart HHHHHH (Paint Stripping and Miscellaneous Surface Coating Operations), Subpart WWWWWW (Plating and Polishing Operations), Subpart XXXXXX (Nine Metal Fabrication and Finishing Source Categories), Subpart YYYYYY (Ferroalloys Production Facilities), and Subpart ZZZZZZ (Aluminum, Copper, and Other Nonferrous Foundries);

(4) Any new major stationary source or major modification as defined under WAC 173-400-030; and

(5) Any stationary source previously exempted from review that is cited by the Agency for causing air pollution under Section 9.11 of this regulation.

(b) **Notifications.** A Notice of Construction application and Order of Approval are not required for the new sources identified in this section, provided that a complete notification is filed with the Agency. It shall be unlawful for any person to cause or allow establishment of a new source identified in this section unless a complete notification has been filed with the Agency:

Liquid Storage and Transfer

(1) Storage tanks used exclusively for:

(A) Gasoline dispensing and having a rated capacity of ≥1,001 gallons, PROVIDED THAT they are installed in accordance with the current California Air Resources Board Executive Orders;

(B) Organic liquids with a true vapor pressure of 2.2-4.0 psia and having a rated capacity of 20,000-39,999 gallons; or

(C) Organic liquids with a true vapor pressure of 0.5-0.75 psia and having a rated capacity ≥40,000 gallons.

(2) Loading and unloading equipment used exclusively for the storage tanks exempted above, including gasoline dispensers at gasoline stations.

Relocation of Portable Batch Plants

(3) Relocation of the following portable facilities: asphalt batch plants, nonmetallic mineral processing plants, and concrete batch plants for which an Order of Approval has been previously issued by the Agency. *All the conditions in the previously issued Order of Approval remain in effect.*

Dry Cleaning

(4) Unvented, dry-to-dry, dry-cleaning system that uses perchloroethylene as the cleaning solvent and is equipped with emission control equipment to recover the cleaning solvent, PROVIDED THAT the system and installation comply with all requirements of 40 CFR 63, Subpart M (Dry Cleaning Facilities).

Printing

(5) Non-heatset, web offset presses and wholesale, sheet-fed offset presses (lithographic or letterpress) using

exclusively soy-based or kerosene-like oil-based inks, fountain solutions with ≤6% VOC by volume or ≤8.5% if refrigerated to <60°F, and cleaning solvents with a vapor pressure ≤25mm Hg or a VOC content ≤30% by volume.

Water Treatment

(6) Industrial and commercial wastewater evaporators (except flame impingement) used exclusively for wastewater generated on-site that meets all discharge limits for disposal into the local municipal sewer system (including metals, cyanide, fats/oils/grease, pH, flammable or explosive materials, organic compounds, hydrogen sulfide, solids, and food waste). *A letter from the local sewer district documenting compliance is required in order to use this exemption.*

Sanding Equipment

(7) Sanding equipment controlled by a fabric filter with an airflow of 2,000-5,000 cfm and an air-to-cloth ratio of <3.5:1 (for reverse-air or manual cleaning) or <12:1 (for pulse-jet cleaning).

Ventilation and Control Equipment

(8) Vacuum-cleaning systems used exclusively for industrial, commercial, or residential housekeeping purposes controlled by a fabric filter with an airflow of 2,000-5,000 cfm and an air-to-cloth ratio of <3.5:1 (for mechanical or manual cleaning) or <12:1 (for pulse-jet cleaning).

(9) Replacement of an existing paint spray booth that has previously received an Order of Approval, with like kind equipment and for spray coating operations that continue to operate consistent with the previously issued Order of Approval. *All the conditions in the previously issued Order of Approval remain in effect.*

Miscellaneous

(10) Any source not otherwise exempt under Section 6.03(c) of this regulation that has been determined through review of a Notice of Construction application by the Control Officer not to warrant an Order of Approval because it has a de minimis impact on air quality and does not pose a threat to human health or the environment.

Coffee Roasters

(11) Batch coffee roasters with a maximum rated capacity of 10 lbs per batch or less.

(c) **Exemptions.** A Notice of Construction application and Order of Approval are not required for the following new sources, provided that sufficient records are kept to document the exemption:

Combustion

(1) Fuel-burning equipment (except when combusting pollutants generated by a non-exempt source) having a rated capacity:

(A) <10 million Btu per hour heat input burning exclusively distillate fuel oil, natural gas, propane, butane, biodiesel that meets ASTM D 6751 specifications (or any combination thereof);

(B) <0.5 million Btu per hour heat output burning waste-derived fuel (including fuel oil not meeting the specifications in Section 9.08 of this regulation); or

(C) <1 million Btu per hour heat input burning any other fuel.

(2) All stationary gas turbines with a rated heat input <10 million Btu per hour.

(3) Stationary internal combustion engines having a rated capacity:

(A) <50 horsepower output;

(B) Used solely for instructional purposes at research, teaching, or educational facilities; or

(C) Portable or standby units operated <500 hours per year, PROVIDED THAT they are not operated at a facility with a power supply contract that offers a lower rate in exchange for the power supplier's ability to curtail energy consumption with prior notice.

(4) Relocation of portable, stationary internal combustion engines or gas turbines for which an Order of Approval has been previously issued by the Agency.

(5) All nonroad compression ignition engines subject to 40 CFR Part 89 and land-based nonroad compression engines subject to 40 CFR Part 1039.

Metallurgy

(6) Crucible furnaces, pot furnaces, or induction furnaces with a capacity ≤1,000 pounds, PROVIDED THAT no sweating or distilling is conducted, and PROVIDED THAT only precious metals, or an alloy containing >50% aluminum, magnesium, tin, zinc, or copper is melted.

(7) Crucible furnaces or pot furnaces with a capacity ≤450 cubic inches of any molten metal.

(8) Ladles used in pouring molten metals.

(9) Foundry sand-mold forming equipment.

(10) Shell core and shell-mold manufacturing machines.

(11) Molds used for the casting of metals.

(12) Die casting machines with a rated capacity ≤1,000 pounds that are not used for copper alloys.

(13) Equipment used for heating metals immediately prior to forging, pressing, rolling, or drawing, if any combustion equipment is also exempt.

(14) Forming equipment used exclusively for forging, rolling, or drawing of metals, if any combustion equipment is also exempt.

(15) Heat treatment equipment used exclusively for metals, if any combustion equipment is also exempt.

(16) Equipment used exclusively for case hardening, carburizing, cyaniding, nitriding, carbonitriding, siliconizing, or diffusion treating of metals, if any combustion equipment is also exempt.

(17) Atmosphere generators used in connection with metal heat-treating processes.

(18) Sintering equipment used exclusively for metals other than lead, PROVIDED THAT no coke or limestone is used, if any combustion equipment is also exempt.

(19) Welding equipment, and thermal cutting of metals other than stainless steel. Exceptions or specific conditions that apply to these exemptions are identified as follows:

(A) Thermal cutting of stainless steel (defined as an alloy with a minimum chromium content of 10.5%, by weight) installed after November 1, 2013 shall not be exempt;

(B) Thermal cutting of stainless steel performed solely for plant maintenance activities shall be exempt;

(C) Thermal cutting of stainless steel refers to all thermal cutting technologies, including but not limited to, plasma arc, air carbon arc, laser, powder torch, and oxy-fuel technologies.

(20) Soldering or brazing, or equipment, including brazing ovens.

(21) Equipment used exclusively for surface preparation, passivation, deoxidation, and/or stripping that meets all of the following tank content criteria:

(A) ≤50 grams of VOC per liter;

(B) No acids other than boric, formic, acetic, phosphoric, sulfuric, or ≤12% hydrochloric; and

(C) May contain alkaline oxidizing agents, hydrogen peroxide, salt solutions, sodium hydroxide, and water in any concentration.

Associated rinse tanks and waste storage tanks used exclusively to store the solutions drained from this equipment are also exempt. (This exemption does not include anodizing, hard anodizing, chemical milling, circuit board etching using ammonia-based etchant, electrocleaning, or the stripping of chromium, except sulfuric acid and/or boric acid anodizing with a total bath concentration of ≤20% by weight and using ≤10,000 amp-hours per day, or phosphoric acid anodizing with a bath concentration of ≤15% by weight of phosphoric acid and using ≤20,000 amp-hours per day.)

(22) Equipment used exclusively for electrolytic plating (except the use of chromic and/or hydrochloric acid) or electrolytic stripping (except the use of chromic, hydrochloric, nitric, or sulfuric acid) of brass, bronze, copper, iron, tin, zinc, precious metals, and associated rinse tanks and waste storage tanks used exclusively to store the solutions drained from this equipment. Also, equipment used to electrolytically recover metals from spent or pretreated plating solutions that qualify for this exemption.

Ceramics and Glass

(23) Kilns used for firing ceramic-ware or artwork, if any combustion equipment is also exempt.

(24) Porcelain enameling furnaces, porcelain enameling drying ovens, vitreous enameling furnaces, or vitreous enameling drying ovens, if any combustion equipment is also exempt.

(25) Hand glass melting furnaces, electric furnaces, and pot furnaces with a capacity ≤1,000 pounds of glass.

(26) Heat-treatment equipment used exclusively for glass, if any combustion equipment is also exempt.

(27) Sintering equipment used exclusively for glass PROVIDED THAT no coke or limestone is used, if any combustion equipment is also exempt.

Plastics and Rubber and Composites

(28) Equipment used exclusively for conveying and storing plastic pellets.

(29) Extrusion equipment used exclusively for extruding rubber or plastics where no organic plasticizer is present, or for pelletizing polystyrene foam scrap.

(30) Equipment used for extrusion, compression molding, and injection molding of plastics, PROVIDED THAT the VOC content of all mold release products or lubricants is ≤1% by weight.

(31) Injection or blow-molding equipment for rubber or plastics, PROVIDED THAT no blowing agent other than compressed air, water, or carbon dioxide is used.

(32) Presses or molds used for curing, post-curing, or forming composite products and plastic products, PROVIDED THAT the blowing agent contains no VOC or chlorinated compounds.

(33) Presses or molds used for curing or forming rubber products and composite rubber products with a ram diameter ≤26 inches, PROVIDED THAT it is operated at ≤400°F.

(34) Ovens used exclusively for the curing or forming of plastics or composite products, where no foam-forming or expanding process is involved, if any combustion equipment is also exempt.

(35) Ovens used exclusively for the curing of vinyl plastisols by the closed-mold curing process, if any combustion equipment is also exempt.

(36) Equipment used exclusively for softening or annealing plastics, if any combustion equipment is also exempt.

(37) Hot wire cutting of expanded polystyrene foam and woven polyester film.

(38) Mixers, roll mills, and calenders for rubber or plastics where no material in powder form is added and no organic solvents, diluents, or thinners are used.

Material Working and Handling

(39) Equipment used for mechanical buffing (except tire buffers), polishing, carving, cutting, drilling, grinding, machining, planing, pressing, routing, sawing, stamping, or turning of wood, ceramic artwork, ceramic precision parts, leather, metals, plastics, rubber, fiberboard, masonry, glass, silicon, semiconductor wafers, carbon, graphite, or composites.

(40) Hand-held sanding equipment.

(41) Sanding equipment controlled by a fabric filter with an airflow of <2,000 cfm.

(42) Equipment used exclusively for shredding of wood (e.g., tub grinders, hammermills, hoggers), or for extruding, pressing, handling, or storage of wood chips, sawdust, or wood shavings.

(43) Paper shredding and associated conveying systems and baling equipment.

(44) Hammermills used exclusively to process aluminum and/or tin cans.

(45) Tumblers used for the cleaning or deburring of metal products without abrasive blasting.

Abrasive Blasting

(46) Portable abrasive blasting equipment used at a temporary location to clean bridges, water towers, buildings, or similar structures, PROVIDED THAT any blasting with sand (or silica) is performed with ≥66% by volume water.

(47) Portable vacuum blasting equipment using steel shot and vented to a fabric filter.

(48) Hydroblasting equipment using exclusively water as the abrasive.

(49) Abrasive blasting cabinets vented to a fabric filter, PROVIDED THAT the total internal volume of the cabinet is ≤100 cubic feet.

(50) Shot peening operations, PROVIDED THAT no surface material is removed.

Cleaning

(51) Solvent cleaning:

(A) Non-refillable, hand-held aerosol spray cans of solvent; or

(B) Closed-loop solvent recovery systems with refrigerated or water-cooled condensers used for recovery of waste solvent generated on-site.

(52) Steam-cleaning equipment.

(53) Unheated liquid solvent tanks used for cleaning or drying parts:

(A) With a solvent capacity ≤10 gallons and containing ≤5% by weight perchloroethylene, methylene chloride, carbon tetra-chloride, chloroform, 1,1,1-trichloroethane, trichloroethylene, or any combination thereof;

(B) Using a solvent with a true vapor pressure ≤0.6 psi containing ≤5% by weight perchloroethylene, methylene chloride, carbon tetrachloride, chloroform, 1,1,1-trichloroethane, trichloro-ethylene, or any combination thereof;

(C) With a remote reservoir and using a solvent containing ≤5% by weight perchloroethylene, methylene chloride, carbon tetra-chloride, chloroform, 1,1,1-trichloroethane, trichloroethylene, or any combination thereof; or

(D) With a solvent capacity ≤2 gallons; or

(E) Using solutions with a Volatile Organic Compound (VOC) content of ≤1% by weight and no identified Hazardous Air Pollutant (HAP), and are heated below the boiling point of the solution.

(54) Hand-wipe cleaning.

Coating, Resin, and Adhesive Application

(55) Powder-coating equipment.

(56) Portable coating equipment and pavement stripers used exclusively for the field application of architectural coatings and industrial maintenance coatings to stationary structures and their appurtenances or to pavements and curbs.

(57) High-volume low-pressure (HVLP) spray-coating equipment having a cup capacity ≤8 fluid ounces, PROVIDED THAT it is not used to coat >9 square feet per day and is not used to coat motor vehicles or aerospace components.

(58) Airbrushes having a cup capacity ≤2 fluid ounces and an airflow of 0.5-2.0 cfm.

(59) Hand-held aerosol spray cans having a capacity of ≤1 quart of coating and hand-held brush and rollers for coating application.

(60) Spray-coating equipment used exclusively for application of automotive undercoating or bed liner materials with a flash point >100°F.

(61) Ovens associated with an exempt coating operation, if any combustion equipment is also exempt.

(62) Ovens associated with a coating operation that are used exclusively to accelerate evaporation, if any combustion equipment is also exempt. (Note: The coating operation is not necessarily exempt.)

(63) Radiation-curing equipment using ultraviolet or electron beam energy to initiate a chemical reaction forming a polymer network in a coating.

(64) Hand lay, brush, and roll-up resins equipment and operations.

(65) Equipment used exclusively for melting or applying of waxes or natural and synthetic resins.

(66) Hot-melt adhesive equipment.

(67) Any adhesive application equipment that exclusively uses materials containing <1% VOC by weight and <0.1% HAP.

(68) Equipment used exclusively for bonding of linings to brake shoes, where no organic solvents are used.

Printing

(69) Retail, sheet-fed, non-heatset offset presses (lithographic or letter-press).

(70) Presses using exclusively UV-curable inks.

(71) Presses using exclusively plastisols.

(72) Presses using exclusively water-based inks (<1.5 lbs VOC per gallon, excluding water, or <10% VOC by volume) and cleaning solvents without VOC.

(73) Presses used exclusively for making proofs.

(74) Electrostatic, ink jet, laser jet, and thermal printing equipment.

(75) Ovens used exclusively for exempt printing presses, if any combustion equipment is also exempt.

Photography

(76) Photographic process equipment by which an image is reproduced upon material sensitized by radiant energy, excluding equipment using perchloroethylene.

Liquid Storage and Transfer

(77) Storage tanks permanently attached to a motor vehicle.

(78) Storage tanks used exclusively for:

(A) Liquefied gases, including any tanks designed to operate in excess of 29.7 psia without emissions;

(B) Asphalt at a facility other than an asphalt roofing plant, asphalt processing plant, hot mix asphalt plants, or petroleum refinery;

(C) *Any* liquids (other than asphalt) that also have a rated capacity ≤1,000 gallons;

(D) Organic liquids (other than gasoline or asphalt) that also have a rated capacity <20,000 gallons;

(E) Organic liquids (other than asphalt) with a true vapor pressure <2.2 psia (e.g., ASTM spec. fuel oils and lubricating oils) that also have a rated capacity <40,000 gallons;

(F) Organic liquids (other than asphalt) with a true vapor pressure <0.5 psia that also have a rated capacity ≥40,000 gallons;

(G) Sulfuric acid or phosphoric acid with an acid strength ≤99% by weight;

(H) Nitric acid with an acid strength ≤70% by weight;

(I) Hydrochloric acid or hydrofluoric acid tanks with an acid strength ≤30% by weight;

(J) Aqueous solutions of sodium hydroxide, sodium hypochlorite, or salts, PROVIDED THAT the surface of the solution contains ≤1% VOC by weight;

(K) Liquid soaps, liquid detergents, vegetable oils, fatty acids, fatty esters, fatty alcohols, waxes, and wax emulsions;

(L) Tallow or edible animal fats intended for human consumption and of sufficient quality to be certifiable for United States markets;

(M) Water emulsion intermediates and products, including latex, with a VOC content ≤5% by volume or a VOC composite partial pressure of ≤0.1 psi at 68°F; or

(N) Wine, beer, or other alcoholic beverages.

(79) Loading and unloading equipment used exclusively for the storage tanks exempted above.

(80) Loading and unloading equipment used exclusively for transferring liquids or compressed gases into containers having a rated capacity <60 gallons, except equipment trans-

ferring >1,000 gallons per day of liquid with a true vapor pressure >0.5 psia.

(81) Equipment used exclusively for the packaging of sodium hypochlorite-based household cleaning or pool products.

Mixing

(82) Mixing equipment, PROVIDED THAT no material in powder form is added and the mixture contains <1% VOC by weight.

(83) Equipment used exclusively for the mixing and blending of materials at ambient temperature to make water-based adhesives.

(84) Equipment used exclusively for the manufacture of water emulsions of waxes, greases, or oils.

(85) Equipment used exclusively for the mixing and packaging of lubricants or greases.

(86) Equipment used exclusively for manufacturing soap or detergent bars, including mixing tanks, roll mills, plodders, cutters, wrappers, where no heating, drying, or chemical reactions occur.

(87) Equipment used exclusively to mill or grind coatings and molding compounds in a paste form, PROVIDED THAT the solution contains <1% VOC by weight.

(88) Batch mixers with a rated working capacity ≤55 gallons.

(89) Batch mixers used exclusively for paints, varnishes, lacquers, enamels, shellacs, printing inks, or sealers, PROVIDED THAT the mixer is equipped with a lid that contacts ≥90% of the rim.

Water Treatment

(90) Oil/water separators, except those at petroleum refineries.

(91) Water cooling towers and water cooling ponds not used for evaporative cooling of process water, or not used for evaporative cooling of water from barometric jets or from barometric condensers, and in which no chromium compounds are contained.

(92) Equipment used exclusively to generate ozone and associated ozone destruction equipment for the treatment of cooling tower water or for water treatment processes.

(93) Municipal sewer systems, including wastewater treatment plants and lagoons, PROVIDED THAT they do not use anaerobic digesters or chlorine sterilization. This exemption does not include sewage sludge incinerators.

(94) Soil and groundwater remediation projects involving <15 pounds per year of benzene or vinyl chloride, <500 pounds per year of perchloroethylene, and <1,000 pounds per year of toxic air contaminants.

Landfills and Composting

(95) Passive aeration of soil, PROVIDED THAT the soil is not being used as a cover material at a landfill.

(96) Closed landfills that do not have an operating, active landfill gas collection system.

(97) Non-commercial composting.

Agriculture, Food, and Drugs

(98) Equipment used in agricultural operations, in the growing of crops, or the raising of fowl or animals.

(99) Insecticide, pesticide, or fertilizer spray equipment.

(100) Equipment used in retail establishments to dry, cook, fry, bake, or grill food for human consumption, including charbroilers, smokehouses, barbecue units, deep fat fryers, cocoa and nut roasters, but not including coffee roasters.

(101) Cooking kettles (other than deep frying equipment) and confection cookers where all the product in the kettle is edible and intended for human consumption.

(102) Bakery ovens with a total production of yeast leavened bread products <10,000 pounds per operating day, if any combustion equipment is also exempt.

(103) Equipment used to dry, mill, grind, blend, or package <1,000 tons per year of dry food products such as seeds, grains, corn, meal, flour, sugar, and starch.

(104) Equipment used to convey, transfer, clean, or separate <1,000 tons per year of dry food products or waste from food production operations.

(105) Storage equipment or facilities containing dry food products that are not vented to the outside atmosphere, or that handle <1,000 tons per year.

(106) Equipment used exclusively to grind, blend, package, or store tea, cocoa, spices, coffee, flavor, fragrance extraction, dried flowers, or spices, PROVIDED THAT no organic solvents are used in the process.

(107) Equipment used to convey or process materials in bakeries or used to produce noodles, macaroni, pasta, food mixes, and drink mixes where products are edible and intended for human consumption, PROVIDED THAT no organic solvents are used in the process. This exemption does not include storage bins located outside buildings.

(108) Brewing operations at facilities producing <3 million gallons per year of beer.

(109) Fermentation tanks for wine (excluding tanks used for the commercial production of yeast for sale).

(110) Equipment used exclusively for tableting, or coating vitamins, herbs, or dietary supplements, PROVIDED THAT no organic solvents are used in the process.

(111) Equipment used exclusively for tableting or packaging pharmaceuticals and cosmetics, or coating pharmaceutical tablets, PROVIDED THAT no organic solvents are used.

Quarries, Nonmetallic Mineral Processing Plants, and Concrete and Asphalt Batch Plants

(112) Portable nonmetallic mineral processing plants.

(113) Fixed nonmetallic mineral processing plants.

(114) (Reserved).

(115) Mixers and other ancillary equipment at concrete batch plants (or aggregate product production facilities) with a rated capacity <15 cubic yards per hour.

(116) Concrete mixers with a rated working capacity of ≤1 cubic yard.

(117) Drilling or blasting (explosives detonation).

(118) Asphaltic concrete crushing/recycling equipment with a throughput <5,000 tons per year.

Construction

(119) Asphalt paving application.

(120) Asphalt (hot-tar) roofing application.

(121) Building construction or demolition, except that notification of demolitions is required under Section 4.03 of Regulation III.

Ventilation and Control Equipment

(122) Comfort air-conditioning systems, or ventilating systems (forced or natural draft), PROVIDED THAT they are not

designed or used to control air contaminants generated by, or released from, sources subject to Notice of Construction.

(123) Refrigeration units, except those used as, or in conjunction with, air pollution control equipment.

(124) Refrigerant recovery and/or recycling units, excluding refrigerant reclaiming facilities.

(125) Emergency ventilation systems used exclusively to contain and control emissions resulting from the failure of a compressed gas storage system.

(126) Emergency ventilation systems used exclusively to scrub ammonia from refrigeration systems during process upsets or equipment breakdowns.

(127) Negative air machines equipped with HEPA filters used to control asbestos emissions from demolition/renovation activities.

(128) Portable control equipment used exclusively for storage tank degassing.

(129) Vacuum-cleaning systems used exclusively for industrial, commercial, or residential housekeeping purposes controlled by a fabric filter with an airflow <2,000 cfm.

(130) Control equipment used exclusively for sources that are exempt from Notice of Construction under Section 6.03(c) of this regulation.

(131) Routine maintenance, repair, or similar parts replacement of control equipment.

Testing and Research

(132) Laboratory testing and quality assurance/control testing equipment used exclusively for chemical and physical analysis, teaching, or experimentation, used specifically in achieving the purpose of the analysis, test, or teaching activity. Non-production bench scale research equipment is also included.

Miscellaneous

(133) Single-family and duplex dwellings.

(134) Oxygen, nitrogen, or rare gas extraction and liquefaction equipment, if any combustion equipment used to power such equipment is also exempt.

(135) Equipment, including dryers, used exclusively for dyeing, stripping, or bleaching of textiles where no organic solvents, diluents, or thinners are used, if any combustion equipment used to power such equipment is also exempt.

(136) Chemical vapor sterilization equipment where no ethylene oxide is used, and with a chamber volume of ≤2 cubic feet used by healthcare facilities.

(137) Ozone generators that produce <1 pound per day of ozone.

(138) Fire extinguishing equipment.

(d) Each Notice of Construction application and Section 6.03(b) notification shall be submitted on forms provided by the Agency and shall be accompanied by the appropriate fee as required by Section 6.04 of this regulation. Notice of Construction applications shall also include any additional information required to demonstrate that the requirements of this Article are met. Notice of Construction applications shall also include an environmental checklist or other documents demonstrating compliance with the State Environmental Policy Act.

WSR 15-17-122
PROPOSED RULES
PUGET SOUND CLEAN AIR AGENCY

[Filed August 19, 2015, 9:44 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: Amend Regulation I, Section 12.03 (Continuous Emission Monitoring Systems).

Hearing Location(s): Puget Sound Clean Air Agency (PSCAA), 1904 3rd Avenue, Suite 105, Seattle, WA 98101, on September 24, 2015, at 8:45 a.m.

Date of Intended Adoption: September 24, 2015.

Submit Written Comments to: Rob Switalski, PSCAA, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, e-mail robs@pscleanair.org, fax (206) 343-7522, by September 23, 2015.

Assistance for Persons with Disabilities: Contact agency receptionist, (206) 689-4010, by September 17, 2015, TTY (800) 833-6388 or (800) 833-6385 (Braille).

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: This is a nonproject action for a technical amendment to update a quality assurance (QA) requirement for new continuous opacity monitoring systems (COMS) from reference to an EPA publication to the EPA Code of Federal Regulations (C.F.R.). EPA has updated the QA requirements for COMS into their C.F.R. and it is simpler to rely on that new EPA C.F.R. reference in Regulation I, Section 12.03 instead of an EPA publication.

Reasons Supporting Proposal: The benefit of this proposal is the clarity and accessibility of the QA requirements for new COMS installations. Using the new EPA C.F.R. reference to specify these QA requirements ensures new installations are following the latest EPA information on this topic. It also provides a more accessible document for sources and agency staff to review when technical questions regarding QA requirements arise. The currently referenced EPA publication is available, but is harder to obtain than a regularly posted EPA C.F.R.

Statutory Authority for Adoption: Chapter 70.94 RCW.

Statute Being Implemented: RCW 70.94.141.

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

Name of Proponent: PSCAA, governmental.

Name of Agency Personnel Responsible for Drafting: Steve Van Slyke, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4052; Implementation and Enforcement: Laurie Halvorson, 1904 3rd Avenue, Suite 105, Seattle, WA 98101, (206) 689-4030.

No small business economic impact statement has been prepared under chapter 19.85 RCW. This agency is not subject to the small business economic impact provision of the Administrative Procedure Act, and the agency is not a school district.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 does not apply to local air agencies, per RCW 70.94.141.

August 19, 2015
Craig Kenworthy
Executive Director

AMENDATORY SECTION

REGULATION I, SECTION 12.03 CONTINUOUS EMISSION MONITORING SYSTEMS

(a) **Continuous Monitoring.** It shall be unlawful for any person to cause or allow the operation of any equipment required to have a continuous emission monitoring system unless the emissions are continuously monitored in accordance with the requirements of this section.

(b) **Data Recovery.** The owner or operator shall recover valid hourly monitoring data for at least 95% of the hours that the equipment (required to be monitored) is operated during each calendar month except for periods of monitoring system downtime, provided that the owner or operator demonstrates that the downtime was not a result of inadequate design, operation, or maintenance, or any other reasonably preventable condition, and any necessary repairs to the monitoring system are conducted in a timely manner.

(c) **Quality Assurance.** The owner or operator shall install a continuous emission monitoring system that meets the performance specification in 40 CFR Part 60, Appendix B in effect at the time of its installation, and shall operate this monitoring system in accordance with the quality assurance procedures in Appendix F of 40 CFR Part 60 in effect as of the federal regulation reference date listed in Section 3.25 of this regulation herein incorporated by reference((~~, and the U.S. Environmental Protection Agency's "Recommended Quality Assurance Procedures for Opacity Continuous Monitoring Systems" (EPA 340/1-86-010)~~)).

(d) **Data Recording.** Monitoring data commencing on the clock hour and containing at least 45 minutes of monitoring data shall be reduced to 1-hour averages. Monitoring data for opacity shall also be reduced to 6-minute averages. All monitoring data shall be included in these averages except for data collected during calibration drift tests and cylinder gas audits, and for data collected subsequent to a failed quality assurance test or audit.

(e) **Data Retention.** The owner or operator shall retain all monitoring data averages for at least 2 years, including copies of all reports submitted to the Agency and records of all repairs, adjustments, and maintenance performed on the monitoring system. All such data collected after October 1, 1998 shall be retained for at least 5 years.

(f) **Data Reporting.** The owner or operator shall submit a monthly report to the Agency within 30 days after the end of the month in which the data were recorded. This report shall include:

(1) The date, time period, magnitude (in the units of the standard) and cause of each emission that exceeded an applicable emission standard;

(2) The date and time of all actions taken to correct the problem, including any actions taken to minimize the emissions during the exceedance and any actions taken to prevent its recurrence;

(3) The number of hours that the equipment (required to be monitored) operated each month and the number of valid hours of monitoring data that the monitoring system recovered each month;

(4) The date, time period, and cause of each failure to meet the data recovery requirements of Section 12.03(b) and any actions taken to ensure adequate collection of such data;

(5) The date, time period, and cause of each failure to recover valid hourly monitoring data for at least 90% of the hours that the equipment (required to be monitored) was operated each day;

(6) The results of all cylinder gas audits conducted during the month; and

(7) A certification of truth, accuracy, and completeness signed by an authorized representative of the owner or operator.

(g) **Relative Accuracy Tests.** All relative accuracy tests shall be subject to the provisions of Section 3.07 of this regulation.

(h) **Exemptions.** The data recording and reporting requirements of Sections 12.03(d) and 12.03(f) shall not apply to continuous VOC monitoring systems required under Section 2.05 of Regulation II. Further, relative accuracy tests shall not be required of these monitoring systems and may be waived for any other monitoring system not otherwise subject to 40 CFR Part 60, Appendix F, provided that the owner or operator demonstrates to the Control Officer that the emissions are consistently below 10% of the applicable emission standard.

WSR 15-17-123
PROPOSED RULES
HEALTH CARE AUTHORITY
(Washington Apple Health)
[Filed August 19, 2015, 10:13 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 13-17-107.

Title of Rule and Other Identifying Information: WAC 182-531-1730 Telemedicine.

Hearing Location(s): Health Care Authority (HCA), Cherry Street Plaza Building, Sue Crystal Conference Room 106A, 626 8th Avenue, Olympia, WA 98504 (metered public parking is available street side around building. A map is available at http://www.hca.wa.gov/documents/directions_to_csp.pdf or directions can be obtained by calling (360) 725-1000), on September 22, 2015, at 10:00 a.m.

Date of Intended Adoption: Not sooner than September 23, 2015.

Submit Written Comments to: HCA Rules Coordinator, P.O. Box 45504, Olympia, WA 98504-5504, delivery 626 8th Avenue, Olympia, WA 98504, e-mail arc@hca.wa.gov, fax (360) 586-9727, by 5:00 p.m. on September 22, 2015.

Assistance for Persons with Disabilities: Contact Amber Lougheed by September 18, 2015, e-mail amber.lougheed@hca.wa.gov or (360) 725-1349, TTY (800) 848-5429 or 711.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: These proposed

rules expand the use of telemedicine for Washington apple health clients.

Reasons Supporting Proposal: See Purpose above.

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.

Name of Proponent: HCA, governmental.

Name of Agency Personnel Responsible for Drafting: Wendy Barcus, P.O. Box 42716, Olympia, WA 98504-2716, (360) 725-1306; Implementation and Enforcement: Lisa Humphrey, P.O. Box 5506, Olympia, WA 98504-5506, (360) 726-1617 [(360) 725-1617].

No small business economic impact statement has been prepared under chapter 19.85 RCW. The agency has determined that the proposed filing does not impose a disproportionate cost impact on small businesses or nonprofits.

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.

August 19, 2015
Wendy Barcus
Rules Coordinator

NEW SECTION

WAC 182-531-1730 Telemedicine. (1) Telemedicine is when a health care practitioner uses HIPAA-compliant, interactive, real-time audio and video telecommunications (including web-based applications) or store and forward technology to deliver covered services that are within his or her scope of practice to a client at a site other than the site where the provider is located. If the service is provided through store and forward technology, there must be an associated office visit between the client and the referring health care provider.

(2) The medicaid agency does not cover the following services as telemedicine:

(a) E-mail, audio only telephone, and facsimile transmissions;

(b) Installation or maintenance of any telecommunication devices or systems; and

(c) Purchase, rental, or repair of telemedicine equipment.

(3) **Originating site.** An originating site is the physical location of the client at the time the health care service is provided. Approved originating sites are:

(a) Clinics;

(b) Community mental health/chemical dependency settings;

(c) Dental offices;

(d) Federally qualified health centers;

(e) Home or any location determined appropriate by the individual receiving the service;

(f) Hospitals - Inpatient and outpatient;

(g) Physician or other health professional's office;

(h) Rural health clinics;

(i) Schools; and

(j) Skilled nursing facilities.

(4) **Distant site.** A distant site is the physical location of the health care professional providing the health care service.

(5) The agency pays an additional facility fee per completed transmission to either the originating site or the distant site, as specified in the agency's program-specific billing instructions.

(6) If a health care professional performs a separately identifiable service for the client on the same day as the telemedicine service, documentation for both services must be clearly and separately identified in the client's medical record.

(7) Billing procedures for telemedicine can be found in the agency's program-specific billing instructions.

WSR 15-17-124
PROPOSED RULES
HEALTH CARE AUTHORITY
(Washington Apple Health)
[Filed August 19, 2015, 10:15 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-07-081.

Title of Rule and Other Identifying Information: WAC 182-531-0950 Office and other outpatient physician-related services, 182-531-1500 Sleep studies, and 182-552-0400 Respiratory care—Continuous positive airway pressure (CPAP) device and supplies.

Hearing Location(s): Health Care Authority (HCA), Cherry Street Plaza Building, Sue Crystal Conference Room 106A, 626 8th Avenue, Olympia, WA 98504 (metered public parking is available street side around building. A map is available at http://www.hca.wa.gov/documents/directions_to_csp.pdf, or directions can be obtained by calling (360) 725-1000), on September 22, 2015, at 10:00 a.m.

Date of Intended Adoption: Not sooner than September 23, 2015.

Submit Written Comments to: HCA Rules Coordinator, P.O. Box 45504, Olympia, WA 98504-5504, delivery 626 8th Avenue, Olympia, WA 98504, e-mail arc@hca.wa.gov, fax (360) 586-9727, by 5:00 p.m., on September 22, 2015.

Assistance for Persons with Disabilities: Contact Amber Lougheed by September 18, 2015, e-mail amber.lougheed@hca.wa.gov or (360) 725-1349, TTY (800) 848-5429 or 711.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Revisions to these sections are necessary to:

(1) Strike the last sentence in WAC 182-531-0950(7) regarding immunizations given in a health department. This change aligns with national correct coding initiative (NCCI) edits.

(2) Add coverage for unattended sleep studies in WAC 182-531-1500.

Reasons Supporting Proposal: See Purpose above.

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.

Name of Proponent: HCA, governmental.

Name of Agency Personnel Responsible for Drafting: Wendy Barcus, P.O. Box 42716, Olympia, WA 98504-2716, (360) 725-1306; Implementation and Enforcement: Tonja Nichols, Lisa Humphrey, Erin Mayo, P.O. Box 45502, Olympia, WA 98504-5502, (360) 725-1658.

No small business economic impact statement has been prepared under chapter 19.85 RCW. The agency has determined that the proposed filing does not impose a disproportionate cost impact on small businesses or nonprofits.

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.

August 19, 2015
Wendy Barcus
Rules Coordinator

AMENDATORY SECTION (Amending WSR 15-03-041, filed 1/12/15, effective 2/12/15)

WAC 182-531-0950 Office and other outpatient physician-related services. (l) The medicaid agency pays eligible providers for the following:

(a) Two calls per month for routine medical conditions for a client residing in a nursing facility; and

(b) One call per noninstitutionalized client, per day, for an individual physician, except for valid call-backs to the emergency room per WAC 182-531-0500.

(2) The provider must provide justification based on medical necessity at the time of billing for visits in excess of subsection (l) of this section and follow the requirements in WAC 182-501-0169.

(3) See the agency's physician-related services billing instructions for procedures that are included in the office call and that cannot be billed separately.

(4) Using selected diagnosis codes, the agency reimburses the provider at the appropriate level of physician office call for history and physical procedures in conjunction with dental surgery services performed in an outpatient setting.

(5) The agency may reimburse providers for injection procedures and/or injectable drug products only when:

(a) The injectable drug is administered during an office visit; and

(b) The injectable drug used is from office stock and which was purchased by the provider from a pharmacy, drug manufacturer, or drug wholesaler.

(6) The agency does not reimburse a prescribing provider for a drug when a pharmacist dispenses the drug.

(7) The agency does not reimburse the prescribing provider for an immunization when the immunization material is received from the department of health; the agency does reimburse an administrative fee. ((~~If the immunization is given in a health department and is the only service provided, the agency reimburses a minimum E&M service.~~))

(8) The agency reimburses immunizations at **estimated acquisition costs (EAC)** when the immunizations are not part of the vaccine for children program. The agency reimburses a separate administration fee for these immunizations. Covered immunizations are listed in the fee schedule. Refer to WAC 182-531-0150 (1)(r) for vaccines recommended or required for the sole purpose of international travel.

(9) The agency reimburses therapeutic and diagnostic injections subject to certain limitations as follows:

(a) The agency does not pay separately for the administration of intra-arterial and intravenous therapeutic or diagnostic injections provided in conjunction with intravenous infusion therapy services. The agency does pay separately for the administration of these injections when they are provided on the same day as an E&M service. The agency does not pay separately an administrative fee for injectables when both E&M and infusion therapy services are provided on the same day. The agency reimburses separately for the drug(s).

(b) The agency does not pay separately for subcutaneous or intramuscular administration of antibiotic injections provided on the same day as an E&M service. If the injection is the only service provided, the agency pays an administrative fee. The agency reimburses separately for the drug.

(c) The agency reimburses injectable drugs at **acquisition cost.** The provider must document the name, strength, and dosage of the drug and retain that information in the client's file. The provider must provide an invoice when requested by the agency. This subsection does not apply to drugs used for chemotherapy; see subsection (11) in this section for chemotherapy drugs.

(d) The provider must submit a manufacturer's invoice to document the name, strength, and dosage on the claim form when billing the agency for the following drugs:

(i) Classified drugs where the billed charge to the agency is over one thousand, one hundred dollars; and

(ii) Unclassified drugs where the billed charge to the agency is over one hundred dollars. This does not apply to unclassified antineoplastic drugs.

(10) The agency reimburses allergen immunotherapy only as follows:

(a) Antigen/antigen preparation codes are reimbursed per dose.

(b) When a single client is expected to use all the doses in a multiple dose vial, the provider may bill the total number of doses in the vial at the time the first dose from the vial is used. When remaining doses of a multiple dose vial are injected at subsequent times, the agency reimburses the injection service (administration fee) only.

(c) When a multiple dose vial is used for more than one client, the provider must bill the total number of doses provided to each client out of the multiple dose vial.

(d) The agency covers the antigen, the antigen preparation, and an administration fee.

(e) The agency reimburses a provider separately for an E&M service if there is a diagnosis for conditions unrelated to allergen immunotherapy.

(f) The agency reimburses for **RAST** testing when the physician has written documentation in the client's record indicating that previous skin testing failed and was negative.

(11) The agency reimburses for chemotherapy drugs:

(a) Administered in the physician's office only when:

(i) The physician personally supervises the E&M services furnished by office medical staff; and

(ii) The medical record reflects the physician's active participation in or management of course of treatment.

(b) At established maximum allowable fees that are based on the medicare pricing method for calculating the estimated acquisition cost (EAC), or maximum allowable cost (MAC) when generics are available;

(c) For unclassified antineoplastic drugs, the provider must submit the following information on the claim form:

(i) The name of the drug used;

(ii) The dosage and strength used; and

(iii) The national drug code (NDC).

(12) Notwithstanding the provisions of this section, the agency reserves the option of determining drug pricing for any particular drug based on the best evidence available to the agency, or other good and sufficient reasons (e.g., fairness/equity, budget), regarding the actual cost, after discounts and promotions, paid by typical providers nationally or in Washington state.

(13) The agency may request an invoice as necessary.

AMENDATORY SECTION (Amending WSR 13-07-029, filed 3/13/13, effective 4/13/13)

WAC 182-531-1500 Sleep studies. (1) Purpose. For the purposes of this section, sleep studies include polysomnography (PSG), unattended home sleep test (HST), and multiple sleep latency testing (MSLT). The medicaid agency covers attended, full-channel, PSG ((~~and~~)), MSLT, and HSTs when:

(a) Ordered by the client's physician;

(b) Performed ((~~in~~)) by an agency-designated center of excellence (COE) that is an independent diagnostic testing facility, sleep laboratory, or outpatient hospital; and

(c) Results are used to:

(i) Establish a diagnosis of narcolepsy or sleep apnea; or

(ii) Evaluate a client's response to therapy, such as continuous positive airway pressure (CPAP).

(2) Definitions. The following definitions, those found in chapter 182-500 WAC, and definitions found in other sections of this chapter, apply to this section:

(a) "American Academy of Sleep Medicine" or "AASM" - The only professional society dedicated exclusively to the medical subspecialty of sleep medicine. AASM sets standards and promotes excellence in health care, education, and research. Members specialize in studying, diagnosing, and treating disorders of sleep and daytime alertness such as insomnia, narcolepsy, and obstructive sleep apnea.

(b) "Continuous positive airway pressure" or "CPAP" - See WAC 182-552-0005.

(c) "Core provider agreement" or "CPA" - The basic contract the agency holds with providers serving medical assistance clients.

(d) "Multiple sleep latency test" or "MSLT" - A sleep disorder diagnostic tool used to measure the time elapsed from the start of a daytime nap period to the first signs of sleep, called sleep latency. The MSLT is used extensively to test for narcolepsy, to distinguish between physical tiredness and true excessive daytime sleepiness, or to assess whether treatments for breathing disorders are working.

(e) "Obstructive sleep apnea" or "OSA" - See WAC 182-552-0005.

(f) "Polysomnogram" - The test results from a polysomnography.

(g) "Polysomnography" - A multiparametric test that electronically transmits and records specific physical activities while a person sleeps. The recordings become data that are analyzed by a qualified sleep specialist to determine whether or not a person has a sleep disorder.

(h) "PSG" - The abbreviation for both "polysomnography" and "polysomnogram."

(i) "Registered polysomnographic technologist" or "RPSGT" - A sleep technologist credentialed by the board of registered polysomnographic technologists to assist sleep specialists in the clinical assessment, physiological monitoring and testing, diagnosis, management, and prevention of sleep-related disorders with the use of various diagnostic and therapeutic tools. These tools include, but are not limited to, polysomnograph, positive airway pressure devices, oximeter, capnograph, actigraph, nocturnal oxygen, screening devices, and questionnaires. To become certified as a registered polysomnographic technologist, a sleep technologist must have the necessary clinical experience, hold CPR certification or its equivalent, adhere to the board of registered polysomnographic technologists standards of conduct, and pass the registered polysomnographic technologist examination for polysomnographic technologists.

(3) Client eligibility. Clients in the following agency programs are eligible to receive sleep studies as described in this section:

(a) Categorically needy (CN);

(b) Apple health for kids and other children's medical assistance programs as defined in WAC 182-505-0210;

(c) Medical care services as described in WAC 182-508-0005 (within Washington state or border areas only);

(d) Alcoholism and Drug Addiction Treatment and Support Act (ADATSA) (within Washington state or border areas only); and

(e) Medically needy (MN) only when the client is either:

(i) Twenty years of age or younger and referred by a screening provider under the early and periodic screening, diagnosis, and treatment program as described in chapter 182-534 WAC; or

(ii) Receiving home health care services as described in chapter 182-551 WAC, subchapter II.

(4) Provider requirements. To be paid for providing sleep studies as described in this section to eligible clients, the facility must:

(a) Be a sleep study COE. Refer to subsection (5) of this section for information on becoming an agency-approved sleep study COE;

(b) Be currently accredited by AASM and continuously meet the accreditation standards of AASM;

(c) Have at least one physician on staff who is board certified in sleep medicine; and

(d) Have at least one registered polysomnographic technologist (RPSGT) in the sleep lab when studies are being performed.

(5) Documentation.

(a) To become an agency-approved COE, a sleep center must send the following documentation to the Health Care Authority, c/o Provider Enrollment, P.O. Box 45510, Olympia, WA 98504-5510:

(i) A completed CPA; and

(ii) Copies of the following:

(A) The sleep center's current accreditation certificate by AASM;

(B) Either of the following certifications for at least one physician on staff:

(I) Current certification in sleep medicine by the American Board of Sleep Medicine (ABSM); or

(II) Current subspecialty certification in sleep medicine by a member of the American Board of Medical Specialties (ABMS); and

(C) The certification of an RPSGT who is employed by the sleep center.

(b) Sleep centers must request reaccreditation from AASM in time to avoid expiration of COE status with the agency.

(c) At least one physician on staff at the sleep center must be board certified in sleep medicine. If the only physician on staff who is board certified in sleep medicine resigns, the sleep center must ensure another physician on staff at the sleep center obtains board certification or another board-certified physician is hired. The sleep center must then send provider enrollment a copy of the physician's board certification.

(d) If a certified medical director leaves a COE, the COE status does not transfer with the medical director to another sleep center.

(e) The COE must maintain a record of the physician's order for the sleep study.

(6) Coverage.

(a) The agency covers only medically necessary sleep studies. The need for the sleep study must be confirmed by medical evidence (e.g., physician examination and laboratory tests).

(b) For clients age twenty-one ((~~years of age~~)) and older, the agency covers:

(i) An unattended home sleep test (HST) as follows:

(A) Using one of the following HST devices:

(I) Type II home sleep monitoring device;

(II) Type III home sleep monitoring device; or

(III) Type IV home sleep monitoring device that measures at least three channels.

(B) To confirm obstructive sleep apnea (OSA) in an individual with signs or symptoms consistent with OSA (e.g., loud snoring, awakening with gasping or choking, excessive daytime sleepiness, observed cessation of breathing during sleep, etc.).

(ii) Full-night, in-laboratory PSG for either of the following:

(A) Confirmation of obstructive sleep apnea (OSA) in an individual with signs or symptoms consistent with OSA (e.g., loud snoring, awakening with gasping or choking, excessive daytime sleepiness, observed cessation of breathing during sleep, etc.); or

(B) Titration of positive airway pressure therapy when initial PSG confirms the diagnosis of OSA, and positive airway pressure is ordered; or

((~~(ii)~~)) (iii) Split-night, in-laboratory PSG in which the initial diagnostic portion of the PSG is followed by positive airway pressure titration when the PSG meets either of the following criteria:

(A) The apnea-hypopnea index (AHI) or respiratory disturbance index (RDI) is greater than or equal to fifteen events per hour ((~~with a minimum of thirty events~~)); or

(B) The AHI or RDI is greater than or equal to five and less than or equal to fourteen events per hour ((~~with a minimum of ten events~~)) with documentation of either of the following:

(I) Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia; or

(II) Hypertension, ischemic heart disease, or history of stroke.

(c) For clients ((~~younger than twenty-one years of~~)) age twenty and younger, the agency considers any of the following indications as medically necessary criteria for a sleep study:

(i) OSA suspected based on clinical assessment;

(ii) Obesity, Trisomy 21, craniofacial abnormalities, neuromuscular disorders, sickle cell disease, or mucopolysaccharidosis (MPS), prior to adenotonsillectomy in a child;

(iii) Residual symptoms of OSA following mild preoperative OSA;

(iv) Residual symptoms of OSA in a child with preoperative evidence of moderate to severe OSA, obesity, craniofacial anomalies that obstruct the upper airway, or neurologic disorder following adenotonsillectomy;

(v) Titration of positive airway pressure in a child with OSA;

(vi) Suspected congenital central alveolar hypoventilation syndrome or sleep related hypoventilation due to neuromuscular disorder or chest wall deformities;

(vii) Primary apnea of infancy;

(viii) Evidence of a sleep-related breathing disorder in an infant who has experienced an apparent life threatening event;

(ix) Child being considered for adenotonsillectomy to treat OSA; or

(x) Clinical suspicion of an accompanying sleep-related breathing disorder in a child with chronic asthma, cystic fibrosis, pulmonary hypertension, bronchopulmonary dysplasia, or chest wall abnormality.

(7) Noncoverage. The agency does not cover sleep studies:

(a) ((~~When the sleep study is an unattended home study;~~

~~(b)~~)) When documentation for a repeat study does not indicate medical necessity (e.g., no new clinical documentation indicating the need for a repeat study); or

((~~(c)~~)) (b) For the following indications, except when an underlying physiology exists (e.g., loud snoring, awakening with gasping or choking, excessive daytime sleepiness, observed cessation of breathing during sleep, etc.):

(i) Chronic insomnia; and

(ii) Snoring.

AMENDATORY SECTION (Amending WSR 12-14-022, filed 6/25/12, effective 8/1/12)

WAC 182-552-0400 Respiratory care—Continuous positive airway pressure (CPAP) device and supplies. (1) The medicaid agency covers, without prior authorization, one continuous positive airway pressure (CPAP) device including related supplies, per client, every five years. The CPAP device must have a data card and the client must meet the following clinical criteria:

(a) The client is diagnosed with obstructive sleep apnea (OSA) using a clinical evaluation and a positive attended polysomnogram (PSG) performed in a sleep laboratory((~~. Unattended home sleep studies do not meet the medicaid agency's clinical criteria for reimbursement~~)) or an unattended home sleep test; and

(b) For clients ((~~thirteen years of~~)) age twenty-one and older:

(i) The client's polysomnogram or home sleep test demonstrates an apnea-hypopnea index (AHI) or respiratory disturbance index (RDI) greater than or equal to fifteen events per hour ((~~with a minimum of thirty events~~)); or

(ii) The client's polysomnogram or home sleep test demonstrates the AHI or RDI is greater than or equal to five and less than or equal to fourteen events per hour ((~~with a minimum of ten events~~)) with clinical documentation of:

(A) Excessive daytime sleepiness, impaired cognition, mood disorders, or insomnia; or

(B) Hypertension, ischemic heart disease, or history of stroke.

(c) For clients ((~~twelve years of~~)) age twenty and younger, the clinical criteria is considered met when there is a documented diagnosis of OSA and polysomnography demonstrates an apnea index (AI) or AHI equal to or greater than one and:

(i) Adenotonsillectomy has been unsuccessful in relieving OSA; or

(ii) Adenotonsillar tissue is minimal; or

(iii) Adenotonsillectomy is inappropriate based on OSA being attributable to another underlying cause (e.g., craniofacial anomaly, obesity) or adenotonsillectomy is contraindicated; or

(iv) Family does not wish to pursue surgical intervention.

(2) If a client meets the criteria in subsection (1) of this section but a CPAP device has been tried and proven ineffective, the medicaid agency will cover a bi-level respiratory assist device (RAD) without the back-up rate. Ineffective, in this case, is defined as documented failure to meet therapeutic goals using a CPAP during the titration portion of a facility-based study or during home use despite optimal therapy (i.e., proper mask selection and fitting and appropriate pressure setting).

(3) The AHI is calculated on the average number of events per hour. If the AHI is calculated based on less than two hours of sleep, the total number of recorded events used to calculate the AHI must be at least the number of events that would have been required in a two-hour period (i.e., must reach greater than or equal to thirty events without symptoms or greater than or equal to ten events with symptoms). The medicaid agency pays for an initial three-month rental period for CPAP devices.

(4) The medicaid agency purchases a CPAP device after the three-month rental period when the following documentation of clinical benefit is recorded in the client's file:

(a) A face-to-face clinical reevaluation of the client by the authorized prescriber which documents that symptoms of obstructive sleep apnea are improved; and

(b) A review of objective evidence by the authorized prescriber of the client's adherence to use of the CPAP device. Adherence is defined as use of the CPAP device greater than or equal to four hours per night on seventy percent of nights during a consecutive thirty-day period anytime during the first three months of initial usage.

(5) The medicaid agency does not pay for a CPAP device when the client is diagnosed with upper airway resistance syndrome (UARS).

(6) The medicaid agency pays for the purchase of a heated humidifier for a CPAP device, once every five years from the date the item was deemed purchased, per client.

(7) Replacement of CPAP device.

(a) The medicaid agency requires prior authorization for the replacement of a CPAP device if the client has had the device for less than five years.

(b) After five years, the client must have a face-to-face evaluation with the treating authorized prescriber that documents that the client continues to use and benefit from the device. The medicaid agency does not require a new PSG (sleep test), trial period, or prior authorization.

(c) Replacement supplies - The medicaid agency pays for replacement supplies for a CPAP device as follows:

(i) Full face mask, limit one every six months;

(ii) Face mask interface for full face mask, limit one every three months;

(iii) Nasal interface (mask or cannula type), with or without head strap, limit one every six months;

(iv) Cushion for use on nasal mask interface, limit one every three months;

(v) Pillow for use on nasal cannula type interface, limit one pair every three months;

(vi) Headgear, chin strap, and tubing with or without integrated heating element, limit one every six months;

(vii) Filters - Disposable, limit two every thirty days;

(viii) Filters - Nondisposable, limit one every six months; and

(ix) Water chamber for humidifier, limit one every six months.

(d) Prior authorization is required if the client does not meet the clinical criteria in this section or if the medicaid agency has purchased a bi-level respiratory assist device for the client within the last five years.

WSR 15-17-133
PROPOSED RULES
PUBLIC DISCLOSURE COMMISSION

[Filed August 19, 2015, 11:38 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 15-09-101.

Title of Rule and Other Identifying Information: **Proposed new rules:** WAC 390-37-055 Alternatives to adjudicative proceedings in response to noncompliance, 390-37-056 Alternative responses to noncompliance—Goals and objectives—Factors to be considered, 390-37-057 Notices of correction—process, and 390-37-058 Deferred enforcement—Process.

Proposed amended rules: WAC 390-37-010 Enforcement procedures—General, 390-37-050 Enforcement procedures—Respondent's notice of complaint, 390-37-060 Enforcement procedures—Alternative responses to noncompliance—Investigation of complaints—Initiation of hearing (adjudicative proceeding), 390-37-070 Enforcement procedures—Complaints dismissed by executive director, 390-37-090 Informal settlement—Cases resolvable by stipulation prior to an enforcement hearing (adjudicative proceeding), or by other alternative dispute mechanisms, 390-37-103 Commission options following receipt of a staff report on alleged violations, 390-37-140 Brief enforcement hearings (adjudicative proceedings)—Authority, 390-37-142 Brief enforcement hearings (adjudicative proceeding)—Procedure, 390-37-155 Electronic filing brief enforcement hearing penalty schedule, 390-37-160 Statement of financial affairs (F-1) penalty schedule, 390-37-165 Candidate registration statement (C-1) candidate statement of financial affairs (F-1) penalty schedule, 390-37-170 Lobbyist monthly expense report (L-2) penalty schedule, 390-37-175 Lobbyist employer report (L-3) penalty schedule, 390-37-182 Penalty factors, and 390-32-030 Complaint publication—Fair Campaign Practices Code—Alternative to investigation or adjudicative proceeding.

Hearing Location(s): 711 Capitol Way, Room 206, Olympia, WA, on September 24, 2015, at 9:30 a.m.

Date of Intended Adoption: September 24, 2015.

Submit Written Comments to: Lori Anderson, P.O. Box 40908, Olympia, WA 98504-0908 (mail), 711 Capitol Way, Room 206, Olympia, WA (physical), e-mail lori.anderson@pdc.wa.gov, fax (360) 753-1112, by September 16, 2015.

Assistance for Persons with Disabilities: Contact Jana Greer by phone (360) 586-0544.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Proposed new and amended rules will establish alternatives to adjudicative proceedings for enforcing chapter 42.17A RCW and Title 390 WAC. The proposed alternatives are intended to provide customer friendly, effective, and efficient options for resolving minor violations of laws and rules. Proposals adjust the penalty authority for brief adjudicative hearings from $500 to $1,000 and increase the penalty schedules for brief adjudicative hearings.

Reasons Supporting Proposal: The commission believes these alternatives (1) allow for speedier resolution for a majority of the complaints received than current rules provide; (2) afford the commission enforcement options to resolve minor noncompliance that does not warrant a formal investigation or for which conducting an enforcement hearing is an unnecessary or inefficient use of public resources; and (3) establish consequences for persons who commit minor violations of law or rule which do not merit significant penalties. Increasing the penalty authority for brief adjudicative hearings expands the commission's capacity to use brief adjudicative procedures.

Statutory Authority for Adoption: RCW 42.17A.110(1).

Statute Being Implemented: RCW 42.17A.105(8).

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: No increased costs to the agency are expected.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Tony Perkins, 711 Capitol Way, Room 206, Olympia, WA 98504, (306) 586-1042.

No small business economic impact statement has been prepared under chapter 19.85 RCW. The implementation of these rule amendments has minimal impact on small businesses. The public disclosure commission (PDC) is not subject to the requirement to prepare a school district fiscal impact statement, per RCW 28A.305.135 and 34.05.320.

A cost-benefit analysis is not required under RCW 34.05.328. The PDC is not an agency listed in subsection (5)(a)(i) of RCW 34.05.328. Further, the PDC does not voluntarily make that section applicable to the adoption of these rules pursuant to subsection (5)(a)(ii) and to date, the joint administrative rules review committee has not made the section applicable to the adoption of these rules.

August 17, 2015
Lori Anderson
Communications and
Training Officer

AMENDATORY SECTION (Amending WSR 85-22-029, filed 10/31/85)

WAC 390-32-030 Complaint((~~s~~)) publication—Fair Campaign Practices Code—Alternative to investigation or adjudicative proceeding. (1) Written and signed complaints alleging a violation of one or more specific provisions of ((~~the Fair Campaign Practices Code for candidates and political committees (WAC 390-32-010)~~)) WAC 390-32-010. The Fair Campaign Practices Code may be submitted to the ((~~public disclosure~~)) commission by any person.

((~~(2) Upon~~)) (a) Subject to the limitations in subsection (4) of this section, upon receipt of a complaint under subsection (1) of this section, the executive director shall forward a copy of the complaint to the ((~~complainee~~)) respondent within twenty-four hours, accompanied by a request for a response to the complaint returned within five days from the date of mailing.

((~~(3)~~)) (b) Upon receipt of ((~~the complainee's~~)) any response, the executive director shall forward a copy of the response to the complainant. A copy of the complaint and the response shall be sent to news media at the expiration of the five days for response. The complaint and the response shall be available at the commission office for public inspection and copying. If ((~~the complainee does not respond~~)) no response is received within five days, the complaint shall be made public without a response.

(c) The commission will not issue comments or opinions about complaints or responses received under this subsection.

(2) As provided by WAC 390-37-055, and considering the factors set forth in WAC 390-37-056, the executive director may authorize the processing of a complaint alleging violations of chapter 42.17A RCW or Title 390 WAC according to the complaint publication process provided in this section.

(a) Subject to the limitations in subsection (4) of this section, upon receipt of a complaint authorized by the executive director for processing under this subsection, the executive director shall forward a copy of the complaint to the respondent, accompanied by a request for a response to the complaint to be returned within five days from the date of mailing.

(b) Complaints authorized by the executive director for processing under this subsection shall be forwarded to the respondent within ten business days of receipt, or eight days prior to the date that ballots must be available under RCW 29A.40.070(1), whichever is earlier.

(c) Upon receipt of any response, the executive director shall forward a copy of the response to the complainant. A copy of the complaint and the response shall be sent to news media at the expiration of the five days for response. The complaint and the response shall be available at the commission office for public inspection and copying. If no response is received within five days, the complaint shall be made public without a response.

(d) Except as provided under (a) or (b) of this subsection, the publication of complaints or responses under this subsection shall constitute the final disposition of complaints authorized by the executive director for processing under this section.

(3) Following the processing of a complaint under subsection (2) of this section, the executive director shall review the complaint and any response received. Whenever a complaint and response indicate that a material violation of chapter 42.17A RCW may have occurred and/or the respondent may not be in substantial compliance with the relevant statutes and rules, considering the factors set forth in WAC 390-37-056, the executive director may:

(a) Dispose of the complaint through an additional alternative response as provided in WAC 390-37-055; or

(b) Direct a formal investigation be conducted.

(4) The commission will make no attempt to secure a reply to and will make no public release of complaints received within eight days of ((~~an election~~)) the date that ballots must be mailed to voters under RCW 29A.40.070(1).

(5) ((~~The commission will not issue comments or opinions about complaints or responses.~~

~~(6) In the absence of any contrary intention as expressed by the complainant,~~)) The filing of a complaint with the commission under this section or any provision of chapter 390-37 WAC constitutes implied consent to have the complainant's identity disclosed.

AMENDATORY SECTION (Amending WSR 12-03-002, filed 1/4/12, effective 2/4/12)

WAC 390-37-010 Enforcement procedures—General. This chapter provides the procedures for adjudicative proceedings (enforcement hearings) in compliance cases under the commission's jurisdiction. The procedures are also governed by RCW 42.17A.755, and the adjudicative proceedings provisions of chapter 34.05 RCW. Unless they differ or are otherwise specifically addressed in this chapter, the procedure, are supplemented by the model rules of procedure in chapter 10-08 WAC. In lieu of holding an adjudicative proceeding or issuing an order as a result of such a proceeding, the commission may refer the matter to the attorney general or other law enforcement agency pursuant to RCW 42.17A.105(5) and 42.17A.755.

In addition, the procedures for requesting a hearing on a petition to modify or suspend reporting requirements are provided in RCW 42.17A.120 and chapters 390-24 and 390-28 WAC.

The policy of the commission ((~~shall be~~)) is to facilitate the resolution of compliance matters in a fair and expeditious manner. The commission encourages the parties to consider alternative resolution or partial resolution procedures ((~~such as stipulations under WAC~~)) as set forth in WAC 390-37-057, 390-37-058, or 390-37-090, when appropriate. Informal settlements are encouraged by RCW 34.05.060.

AMENDATORY SECTION (Amending WSR 03-22-065, filed 11/4/03, effective 12/5/03)

WAC 390-37-050 Enforcement procedures—Respondent's notice of complaint. Within ten business days of receipt by the commission of a complaint which on its face appears to have merit, the commission shall notify the respondent that a complaint has been filed. The notice shall set forth the nature of the complaint and its origin (citizen complaint, commission or other) and the statutory provision alleged to have been violated. If commission staff has issued an alternative response to the alleged violation as provided by this chapter, the notice shall also describe that response, including any conditions the respondent is required to meet.

AMENDATORY SECTION (Amending WSR 12-18-015, filed 8/24/12, effective 9/24/12)

WAC 390-37-060 Enforcement procedures—Alternative responses to noncompliance—Investigation of complaints—Initiation of ((~~hearing (~~))adjudicative proceeding((~~)~~)). (1) Upon receipt of a complaint the following will occur:

(a) The executive director will conduct an initial review of the complaint to determine if it is obviously unfounded or frivolous or appears on its face to have merit. An initial review is a preliminary investigation to determine if there is sufficient ground indicating that a material violation of chapter 42.17A RCW may have occurred ((~~and/~~))or the respondent may not be in substantial compliance with the relevant statutes and rules.

(b) Whenever an initial review of a complaint indicates that a material violation of chapter 42.17A RCW may have occurred ((~~and/~~))or the respondent may not be in substantial compliance with the relevant statutes and rules, the executive director may ((~~direct a formal investigation be conducted.~~

~~(c)~~)):

(i) Resolve the complaint through an alternative response as provided in WAC 390-37-055; or

(ii) Direct a formal investigation be conducted.

(2) If the executive director determines a formal investigation will require the expenditure of substantial resources, the executive director may request review and concurrence by the commission before proceeding.

(((2))) (3) The executive director shall initiate an adjudicative proceeding or provide a report to the commission whenever ((an)) a formal investigation reveals facts that the executive director has reason to believe are a material violation of chapter 42.17A RCW and do not constitute substantial compliance.

(((3))) (4) The respondent and complainant shall be notified of the date of the adjudicative proceeding or a report on an enforcement matter no later than ten calendar days before that date. The notice shall contain the information required by RCW 34.05.434((. The complainant shall also be provided a copy of this notice)), the staff investigative report, and any charges to be adjudicated. The notice, whenever possible, will be delivered electronically.

(((4))) (5) It is the policy of the commission during the course of any investigation that all records generated or collected as a result of that investigation are exempt from public inspection and copying under RCW 42.56.240(1).

(a) The records are exempt until:

(i) ((The enforcement matter is scheduled for an adjudicative proceeding;

(ii) After receiving a report on an enforcement matter, the commission accepts the investigation as complete and moves the matter forward to an adjudicative proceeding, or dismisses the complaint, or refers the matter to law enforcement authorities under RCW 42.17A.105 or 42.17A.755(3);

(iii) The commission or chair concur in a dismissal by the executive director; or

(iv) The commission or executive director otherwise finally disposes of the complaint.)) A final staff investigative report is submitted; or

(ii) The executive director issues a final disposition of the complaint through an alternative response as provided in this section.

(b) Without waiving any exemptions from public disclosure that are otherwise available for pending investigations, the commission may make public:

(i) A copy of a complaint filed with or submitted to the commission, including any attachments; and

(ii) Materials concerning an enforcement matter that are placed on the commission's web site with a commission meeting agenda.

(c) If a request is made for any such record that implicates the privacy of an individual as defined in RCW 42.56.050, written notice of the records request may be provided to the individual in order that such individual may request a protective order from a court under RCW 42.56.540.

(d) Certain documents provided to the commission shall be returned to candidates, campaigns, or political committees as required by RCW 42.17A.105 within seven calendar days of the commission's final action upon completion of an audit or field investigation.

AMENDATORY SECTION (Amending WSR 12-03-002, filed 1/4/12, effective 2/4/12)

WAC 390-37-070 Enforcement procedures—Complaints dismissed by executive director. The executive director, ((with the concurrence of the chair or the chair's designee,)) at any time prior to consideration by the commission, may dismiss a complaint which on its face, or as shown by investigation, does not show reason to believe that a material violation of the sections of chapter 42.17A RCW that are enforced by the commission has occurred ((and/or)), shows that the respondent is in substantial compliance with the relevant statutes or rules, or shows that formal enforcement action is not warranted.

The dismissal may occur:

(1) Following an initial review, through an alternative response authorized by the executive director as provided by WAC 390-37-060; or

(2) Following a formal investigation, with the concurrence of the chair or the chair's designee.

AMENDATORY SECTION (Amending WSR 06-14-057, filed 6/29/06, effective 7/30/06)

WAC 390-37-090 Informal settlement—Cases resolvable by stipulation prior to an enforcement hearing (adjudicative proceeding), or by other alternative dispute mechanisms. (1) RCW 34.05.060 authorizes agencies to establish by rule specific procedures for attempting and executing informal settlement of matters. The following procedures are available for informal dispute resolution prior to an adjudicative proceeding that may make more elaborate proceedings under the Administrative Procedure Act unnecessary.

(a) Any enforcement matter before the commission which has not yet been heard in an adjudicative proceeding may be resolved by settlement. The respondent shall communicate his or her request to the executive director or designee (commission staff), setting forth all pertinent facts and the desired remedy. Settlement negotiations shall be informal and without prejudice to rights of a participant in the negotiations.

(b) When the executive director and respondent agree to terms of any stipulation of facts, violations, and/or penalty, commission staff shall prepare the stipulation for presentation to the commission.

(c) Any proposed stipulation shall be in writing and signed by each party to the stipulation or his or her representative. The executive director shall sign for commission staff. Any stipulation to facts ((and)), violations, or penalty shall be provided ((prior to or at the hearing. Stipulations to penalty shall be provided)) by 4:00 p.m. ((the)) three business days preceding the hearing. The commission has the option of accepting, rejecting, or modifying the proposed stipulation or asking for additional facts to be presented. If the commission accepts the stipulation or modifies the stipulation with the agreement of the opposing party, the commission shall enter an order in conformity with the terms of the stipulation. If the commission rejects the stipulation or the opposing party does not agree to the commission's proposed modifications to the stipulation, and if no revised stipulation or staff report is pre-

sented to the commission, then an adjudicative proceeding shall be scheduled and held.

(2) Parties are encouraged to be creative in resolving cases without further litigation where appropriate.

(3) Following a stipulation of facts or law, if the commission determines certain sanctions or other steps are required by the respondent as a result of the alternative dispute resolution including stipulations and that it intends to enter an order, and the respondent does not timely raise an objection at the hearing, it shall be presumed that the respondent has waived objections and appeals, and agrees to the entry of the order.

AMENDATORY SECTION (Amending WSR 12-01-047, filed 12/14/11, effective 1/14/12)

WAC 390-37-103 Commission options following receipt of a staff report on alleged violations. Upon receipt of a staff report concerning alleged violations of those sections of chapter 42.17A RCW that the commission enforces, the commission may:

(1) Schedule the matter for a hearing (adjudicative proceeding); or

(2) Issue an order; or

(3) Direct the executive director to issue an alternative response as provided in WAC 390-37-060; or

(4) Refer the matter or apparent violations to the attorney general or other enforcement agency pursuant to RCW 42.17A.105(5) and 42.17A.750.

AMENDATORY SECTION (Amending WSR 12-03-002, filed 1/4/12, effective 2/4/12)

WAC 390-37-140 Brief enforcement hearings (adjudicative proceedings)—Authority. (1) The commission may provide a brief adjudicative proceeding for violations of the sections of chapter 42.17A RCW that it enforces in which the facts are undisputed, the violations appear to be relatively minor in nature, and a penalty no greater than $((~~500~~)) 1,000 will be assessed for the violations. Typical matters to be heard in a brief adjudicative proceeding include, but are not limited to, the following:

(a) Failure to file or late filing of required reports((~~,~~));

(b) Failure to report or accurately report campaign contributions or expenditures or funds spent in lobbying((~~,~~));

(c) Use of public office facilities in election campaigns when the value of public funds expended was minimal((~~,~~));

(d) Infractions of political advertising law regarding sponsor identification or political party identification.

(2) The commission may utilize a penalty schedule for brief adjudicative proceedings.

(3) Brief adjudicative proceedings are set forth in RCW 34.05.482 through 34.05.494.

AMENDATORY SECTION (Amending WSR 03-22-065, filed 11/4/03, effective 12/5/03)

WAC 390-37-142 Brief enforcement hearing (adjudicative proceeding)—Procedure. (1) A brief adjudicative proceeding may be presided over by the chair, or a member of the commission designated by the chair.

(2) When a violation, as described in WAC 390-37-140, is alleged, before taking action, the executive director shall send the alleged violator notice, which shall include:

(a) Alleged violation;

(b) The maximum amount of the penalty that can be imposed at the hearing, relevant penalty schedules, and the amount of any proposed fine; and

(c) Person's right to respond either in writing or in person to explain his/her view of the matter.

(3) As provided in RCW 34.05.050, a respondent who has been notified of a brief adjudicative proceeding may waive the hearing by providing the following prior to the hearing:

(a) A signed statement of understanding;

(b) Any missing required reports; and

(c) A penalty payment specified by the executive director in accordance with the penalty authority of WAC 390-37-140 and the brief enforcement hearing penalty schedules of this chapter.

(4) As used in this section, the term "statement of understanding" means a written statement signed by the respondent that:

(a) Acknowledges a violation of chapter 42.17A RCW and any relevant rules; and

(b) Expresses the respondent's understanding that the commission will not hold any adjudicative proceeding concerning the violation.

(5) At the time of the hearing if the presiding officer believes alleged violations are of such magnitude as to merit penalties greater than $((~~500~~)) 1,000, the presiding officer shall immediately adjourn the hearing and direct the matter be scheduled for an adjudicative proceeding by the full commission.

(((~~4~~))) (6) At the time any unfavorable action is taken, within ten business days the presiding officer shall serve upon each party a written statement describing the violation, the reasons for the decision, the penalty imposed, and their right to request review by the commission. The executive director is authorized to sign the decision on behalf of the presiding officer.

(((~~5~~))) (7) The written decision of the presiding officer is an initial order. If no review is taken of the initial order, the initial order shall be the final order.

AMENDATORY SECTION (Amending WSR 03-22-065, filed 11/4/03, effective 12/5/03)

WAC 390-37-155 Electronic filing brief enforcement hearing penalty schedule.

Status	1st Occasion	2nd Occasion	3rd Occasion	4th Occasion
Failed to electronically file by date required.	$((~~250~~)) 350	$((~~350~~)) 650	$((~~500~~)) 1,000	Full commission consideration

Provisos:

(1) The presiding officer has authority to suspend all or a portion of relevant penalty under the conditions to be determined by that officer including, but not limited to, payment of the nonsuspended portion of the penalty within five business days of the date of entry of the order in that case.

(2) If on the 3rd occasion, a filer has outstanding penalties or judgments, the matter will be taken to the full commission for consideration.

(3) The presiding officer may direct a matter to the full commission if the officer believes ((~~five hundred~~)) one thousand dollars would be an insufficient penalty or the matter warrants consideration by the full commission.

(4) If previously imposed penalties remain unpaid and exceed the amount this penalty schedule would otherwise prescribe for the current violation, the presiding officer may impose a penalty not to exceed the amount of the outstanding penalty, up to ((~~five hundred~~)) one thousand dollars.

(5) "Occasion" means established violation. At the 4th occasion, among other factors, the commission may consider if any prior violations and penalties were stipulated to by the respondent, in determining the amount of the penalty.

AMENDATORY SECTION (Amending WSR 05-04-038, filed 1/27/05, effective 2/27/05)

WAC 390-37-160 Statement of financial affairs (F-1) penalty schedule.

Status	1st Occasion	2nd Occasion	3rd Occasion	4th Occasion
Failed to file report by date of enforcement hearing.	$((~~150~~)) 250	$((~~300~~)) 500	$((~~500~~)) 1,000	Full commission consideration
Filed report after hearing notice but before enforcement hearing. Did not pay settlement amount.	$((~~100~~)) 150	$((~~200~~)) 300	$((~~400~~)) 600	Full commission consideration
Filed report after hearing notice but before enforcement hearing. Provided written explanation or appeared at the hearing to explain mitigating circumstances. Did not pay settlement amount.	$((~~0 - $100~~)) 0 - $150	$((~~100 - $200~~)) 150 - $300	$((~~200 - $400~~)) 300 - $600	Full commission consideration

Provisos:

(1) The presiding officer has authority to suspend all or a portion of relevant penalty under the conditions to be determined by that officer including, but not limited to, payment of the nonsuspended portion of the penalty within five business days of the date of entry of the order in that case.

(2) If on the 3rd occasion, a filer has outstanding penalties or judgments, the matter will be taken to the full commission for consideration.

(3) The presiding officer may direct a matter to the full commission if the officer believes ((~~five hundred~~)) one thousand dollars would be an insufficient penalty or the matter warrants consideration by the full commission.

(4) If previously imposed penalties remain unpaid and exceed the amount this penalty schedule would otherwise prescribe for the current violation, the presiding officer may impose a penalty not to exceed the amount of the outstanding penalty, up to ((~~five hundred~~)) one thousand dollars.

(5) "Occasion" means established violation. At the 4th occasion, among other factors, the commission may consider if any prior violations and penalties were stipulated to by the respondent, in determining the amount of the penalty.

(6) Cases will automatically be scheduled before the full Commission for an enforcement action when the person:

(a) Was found in violation during a previous reporting period((~~,~~));

(b) The violation remains in effect following any appeals((~~,~~)); and

(c) The person has not filed the disclosure forms that were the subject of the prior violation at the time the current hearing notice is being sent.

AMENDATORY SECTION (Amending WSR 05-04-038, filed 1/27/05, effective 2/27/05)

WAC 390-37-165 Candidate registration statement (C-1)/candidate statement of financial affairs (F-1) penalty schedule.

Status	1st Occasion	2nd Occasion	3rd Occasion	4th Occasion
Failed to file F-1 and/or C-1 by date of enforcement hearing.	$((~~150~~)) 250 per report	$((~~300~~)) 500 per report, up to $((~~500~~)) 1,000	Full commission consideration	Full commission consideration
Filed reports after hearing notice but before enforcement hearing. Did not pay settlement amount.	$((~~100~~)) 150 per report	$((~~200~~)) 300 per report	$((~~400~~)) 600 per report, up to $1,000	Full commission consideration
Filed report after hearing notice but before enforcement hearing. Provided written explanation or appeared at the hearing to explain mitigating circumstances. Did not pay settlement amount.	$((~~0 - $100~~)) 0 - $150 per report	$((~~100 - $200~~)) 150 - $300 per report	$((~~200 - $400~~)) 300 - $600 per report, up to $1,000	Full commission consideration

Provisos:

(1) The presiding officer has authority to suspend all or a portion of relevant penalty under the conditions to be determined by that officer.

(2) If on the 3rd occasion, a filer has outstanding penalties or judgments, the matter will be taken to the full commission for consideration including, but not limited to, payment of the nonsuspended portion of the penalty within five business days of the date of entry of the order in that case.

(3) The presiding officer may direct a matter to the full commission if the officer believes ((~~five hundred~~)) one thousand dollars would be an insufficient penalty or the matter warrants consideration by the full commission.

(4) If previously imposed penalties remain unpaid and exceed the amount this penalty schedule would otherwise prescribe for the current violation, the presiding officer may impose a penalty not to exceed the amount of the outstanding penalty, up to ((~~five hundred~~)) one thousand dollars.

(5) "Occasion" means established violation. At the 4th occasion, among other factors, the commission may consider if any prior violations and penalties were stipulated to by the respondent, in determining the amount of the penalty.

(6) Cases will automatically be scheduled before the full Commission for an enforcement action when the person:

(a) Was found in violation during a previous reporting period((~~,~~));

(b) The violation remains in effect following any appeals((~~,~~)); and

(c) The person has not filed the disclosure forms that were the subject of the prior violation at the time the current hearing notice is being sent.

AMENDATORY SECTION (Amending WSR 05-04-038, filed 1/27/05, effective 2/27/05)

WAC 390-37-170 Lobbyist monthly expense report (L-2) penalty schedule.

Status	1st Occasion	2nd Occasion	3rd Occasion	4th Occasion
Failed to file report by date of enforcement hearing.	$((~~150~~)) 250	$((~~300~~)) 500	$((~~500~~)) 1,000	Full commission consideration
Filed report after hearing notice but before enforcement hearing. Did not pay settlement amount.	$((~~100~~)) 150	$((~~200~~)) 300	$((~~400~~)) 600	Full commission consideration
Filed report after hearing notice but before enforcement hearing. Provided written explanation or appeared at the hearing to explain mitigating circumstances. Did not pay settlement amount.	$((~~0 - $100~~)) 0 - $150	$((~~100 - $200~~)) 0 - $300	$((~~200 - $400~~)) 300 - $600	Full commission consideration

Provisos:

(1) The presiding officer has authority to suspend all or a portion of relevant penalty under the conditions to be determined by that officer including, but not limited to, payment of the nonsuspended portion of the penalty within five business days of the date of entry of the order in that case. Except in rare circumstances, the nonsuspended portion of the penalty will not be less than the original settlement offer.

(2) If on the 3rd occasion, a filer has outstanding penalties or judgments, the matter will be taken to the full commission for consideration.

(3) The presiding officer may direct a matter to the full commission if the officer believes ((~~five hundred~~)) one thousand dollars would be an insufficient penalty or the matter warrants consideration by the full commission.

(4) If previously imposed penalties remain unpaid and exceed the amount this penalty schedule would otherwise prescribe for the current violation, the presiding officer may impose a penalty not to exceed the amount of the outstanding penalty, up to ((~~five hundred~~)) one thousand dollars.

(5) "Occasion" means established violation. At the 4th occasion, among other factors, the commission may consider if any prior violations and penalties were stipulated to by the respondent, in determining the amount of the penalty.

(6) Cases will automatically be scheduled before the full Commission for an enforcement action when the person:

(a) Was found in violation during a previous reporting period((~~,~~));

(b) The violation remains in effect following any appeals((~~,~~)); and

(c) The person has not filed the disclosure forms that were the subject of the prior violation at the time the current hearing notice is being sent.

AMENDATORY SECTION (Amending WSR 05-04-038, filed 1/27/05, effective 2/27/05)

WAC 390-37-175 Lobbyist employer report (L-3) penalty schedule.

Status	1st Occasion	2nd Occasion	3rd Occasion	4th Occasion
Failed to file report by date of enforcement hearing.	$((~~150~~)) 250	$((~~300~~)) 500	$((~~500~~)) 1,000	Full commission consideration
Filed report after hearing notice but before enforcement hearing. Did not pay settlement amount.	$((~~100~~)) 150	$((~~200~~)) 300	$((~~400~~)) 600	Full commission consideration
Filed report after hearing notice but before enforcement hearing. Provided written explanation or appeared at the hearing to explain mitigating circumstances. Did not pay settlement amount.	$((~~0 - $100~~)) 0 - $150	$((~~100 - $200~~)) 150 - $300	$((~~200 - $400~~)) 300 - $600	Full commission consideration

Provisos:

(1) The presiding officer has authority to suspend all or a portion of relevant penalty under the conditions to be determined by that officer including, but not limited to, payment of the nonsuspended portion of the penalty within five business days of the date of entry of the order in that case.

(2) If on the 3rd occasion, a filer has outstanding penalties or judgments, the matter will be taken to the full commission for consideration.

(3) The presiding officer may direct a matter to the full commission if the officer believes ((~~five hundred~~)) one thousand dollars would be an insufficient penalty or the matter warrants consideration by the full commission.

(4) If previously imposed penalties remain unpaid and exceed the amount this penalty schedule would otherwise prescribe for the current violation, the presiding officer may impose a penalty not to exceed the amount of the outstanding penalty, up to ((~~five hundred~~)) one thousand dollars.

(5) "Occasion" means established violation. At the 4th occasion, among other factors, the commission may consider if any prior violations and penalties were stipulated to by the respondent, in determining the amount of the penalty.

(6) Cases will automatically be scheduled before the full Commission for an enforcement action when the person:

(a) Was found in violation during a previous reporting period((~~,~~));

(b) The violation remains in effect following any appeals((~~,~~)); and

(c) The person has not filed the disclosure forms that were the subject of the prior violation at the time the current hearing notice is being sent.

AMENDATORY SECTION (Amending WSR 13-05-014, filed 2/7/13, effective 3/10/13)

WAC 390-37-182 Penalty factors. (1) In assessing a penalty, the commission considers the purposes of chapter 42.17A RCW, including the public's right to know of the financing of political campaigns, lobbying and the financial affairs of elected officials and candidates as declared in the policy of RCW 42.17A.001; and, promoting compliance with the law. The commission also considers and applies RCW 42.17A.755 and may consider any of the additional factors described in subsection (3) of this section.

(2) Under RCW 42.17A.755, the commission:

(a) May waive a penalty for a first-time violation;

(b) Shall assess a penalty for a second violation of the same rule by the same person or individual, regardless if the person or individual committed the violation for a different political committee;

(c) Shall assess successively increased penalties for succeeding violations of the same rule.

(3) In addition to the requirements of RCW 42.17A.755, the commission may consider the nature of the violation and any relevant circumstances, including the following factors:

(a) The respondent's compliance history, including whether the noncompliance was isolated or limited in nature, indicative of systematic or ((~~on-going~~)) ongoing problems, or part of a pattern of violations by the respondent, or in the case of a political committee or other entity, part of a pattern of violations by the respondent's officers, staff, principal decision makers, consultants, or sponsoring organization;

(b) The impact on the public, including whether the noncompliance deprived the public of timely or accurate infor-

mation during a time-sensitive period, or otherwise had a significant or material impact on the public;

(c) Sophistication of respondent((~~, or respondent's organization, or size of campaign~~)) or the financing, staffing, or size of the respondent's campaign or organization;

(d) Amount of financial activity by the respondent during the statement period or election cycle;

(e) Whether the noncompliance resulted from a knowing or intentional effort to conceal, deceive or mislead, or violate the law or rule, or from collusive behavior;

(f) Whether the late or unreported activity was significant in amount or duration under the circumstances, including in proportion to the total amount of expenditures by the respondent in the campaign or statement period;

(g) Whether the respondent or ((~~anyone else benefitted~~)) any person, including an entity or organization, benefited politically or economically from the noncompliance;

(h) Personal emergency or illness of the respondent or member of his or her immediate family;

(i) Other emergencies such as fire, flood, or utility failure preventing filing;

(j) Commission staff or equipment error, including technical problems at the agency preventing or delaying electronic filing;

(k) The respondent's demonstrated good-faith uncertainty concerning staff guidance or instructions;

(l) Corrective action or other remedial measures initiated by respondent prior to enforcement action, or promptly taken when noncompliance brought to respondent's attention (e.g., filing missing reports, amending incomplete or inaccurate reports, returning prohibited or overlimit contributions);

((~~(l)~~)) (m) Whether the respondent is a first-time filer;

((~~(m)~~)) (n) Good faith efforts to comply, including consultation with commission staff prior to initiation of enforcement action and cooperation with commission staff during enforcement action, and a demonstrated wish to acknowledge and take responsibility for the violation;

((~~(n)~~)) (o) Penalties imposed in factually similar cases; and((~~,~~

~~(o)~~)) (p) Other factors relevant to a particular case.

(4) The commission, and the presiding officer in brief adjudicative proceedings, may consider the factors in ((~~(1) - (3)~~)) subsections (1) through (3) of this section in determining whether to suspend a portion or all of a penalty upon identified conditions, and whether to accept, reject, or modify a stipulated penalty amount recommended by the parties.

(5) The presiding officer in brief adjudicative proceedings may consider whether any of the factors in ((~~(1) - (3)~~)) subsections (1) through (3) of this section are factors that warrant directing a case to the full commission.

AMENDATORY SECTION (Amending WSR 12-03-002, filed 1/4/12, effective 2/4/12)

WAC 390-37-030 Enforcement procedures—Citizen complaints filed with the commission. (1) When a citizen complaint has been filed with the agency pursuant to WAC 390-37-040, neither the complainant nor any other person shall have special standing to participate or intervene in the investigation or consideration of the complaint by the commission. However, the staff shall give notice to the complainant of any open commission hearings on the matter and the complainant may be called as a witness in any enforcement hearing or investigative proceeding. The presiding officer has the discretion to allow comment by a person other than the respondent during the consideration of a complaint by the commission. Any person who wishes to comment should notify staff at least three business days before the proceeding.

(2) The complainant or any other person may submit documentary evidence and/or written factual or legal statements to the staff at any time up to and including the fifth calendar day before the date of any enforcement hearing or proceeding.

(3) A person not satisfied with the dismissal of a complaint by the commission or its executive director may pursue an appropriate remedy under RCW 42.17A.765(4).

NEW SECTION

WAC 390-37-055 Alternatives to adjudicative proceedings in response to noncompliance. (1) Considering the factors set forth in WAC 390-37-056(3), the executive director may authorize an alternative response to noncompliance in lieu of a formal investigation, adjudicative proceeding, or both.

(2) Alternative responses to noncompliance authorized under this section include:

(a) Technical assistance, including assistance in filing or correcting required reports;

(b) Formal written warnings;

(c) Notices of correction as provided in WAC 390-37-057;

(d) Deferred enforcement as outlined in WAC 390-37-058; and

(e) The complaint publication and review process provided in WAC 390-32-030.

NEW SECTION

WAC 390-37-056 Alternative responses to noncompliance—Goals and objectives—Factors to be considered. (1) In considering appropriate responses to noncompliance with chapter 42.17A RCW or Title 390 WAC, the commission considers whether a formal investigation or adjudicative proceeding constitutes an efficient and effective use of public funds; or whether an alternative response better meets the commission's mission and public expectations by allowing the expedited resolution of minor complaints, and the focusing of staff and commission resources on major alleged violations of chapter 42.17A RCW and Title 390 WAC.

(2) In authorizing an alternative response to noncompliance for minor violations as provided by WAC 390-37-055, the executive director may consider the nature of the alleged violation and any relevant circumstances including, but not limited to, the factors described in subsection (3) of this section: Provided, That, if after weighing the relevant circumstances and factors, the executive director determines that there is evidence of complex or significant violations, the allegations shall be addressed through a formal investigation as provided by WAC 390-37-060.

(3) The factors the executive director may consider in authorizing an alternative response to noncompliance, a formal investigation, or an adjudicative proceeding include, but are not limited to:

An alternative response to noncompliance may be appropriate if…	**A formal investigation and possible adjudicative hearing may be appropriate if…**
It appears that noncompliance resulted from a good-faith error, omission, or misunderstanding.	It appears that the noncompliance may have resulted from a knowing or intentional effort to conceal, deceive or mislead, or violate the law or rule, or from collusive behavior.
The respondent is a first-time filer.	The respondent has experience in complying with the applicable requirements.
The respondent's compliance history indicates the noncompliance was isolated or limited in nature, and not indicative of systematic or ongoing problems.	The noncompliance is part of a pattern of violations by the respondent, or in the case of a political committee or other entity, part of a pattern of violations by the respondent's officers, staff, principal decision makers, consultants, or sponsoring organization.
The impact of the noncompliance on the public was minimal.	The noncompliance deprived the public of timely or accurate information during a time-sensitive period in a campaign, legislative session, etc., or otherwise had a significant or material impact on the public.
The respondent's organization or campaign was relatively unsophisticated or small.	The respondent or the respondent's organization or campaign demonstrated a relatively high level of sophistication, or was well financed and staffed.
The total expenditures by the respondent in the campaign or statement period were relatively modest.	The campaign or statement period involved significant expenditures by the respondent.
The amount of late-reported activity, or the duration of the untimely disclosure, was small in proportion to the amount of activity that was timely reported by the respondent.	The late or unreported activity was significant in amount or duration under the circumstances, including in proportion to the total amount of expenditures by the respondent in the campaign or statement period.
There is no evidence that any person, including an entity or organization, benefited politically or economically from the noncompliance.	It appears the respondent or anyone else benefitted politically or economically from the noncompliance.
Personal emergency or illness of the respondent or member of his or her immediate family contributed to the noncompliance.	There are no circumstances that appear to mitigate or appropriately explain the late reporting or other noncompliance.
Other emergencies such as fire, flood, or utility failure prevented compliance.	There are no circumstances that appear to mitigate or appropriately explain the late reporting or other noncompliance.
Commission staff or equipment error, including technical problems at the agency prevented or delayed electronic filing.	Commission staff or equipment error did not appear to contribute to the noncompliance.
The noncompliance resulted from the respondent's demonstrated good-faith uncertainty concerning staff guidance or instructions, a lack of clarity in the rule or statute, or uncertainty concerning the valid application of the commission's rules.	It appears the respondent understood the application of staff's guidance or instructions, and did not dispute the valid application of the commission's rules.
The respondent quickly took corrective action or initiated other remedial measures prior to any complaint, or when noncompliance was brought to respondent's attention (e.g., filing missing reports, amending incomplete or inaccurate reports, returning prohibited or over limit contributions).	The respondent appeared negligent or unwilling to address the noncompliance.

An alternative response to noncompliance may be appropriate if…	A formal investigation and possible adjudicative hearing may be appropriate if…
The respondent made a good-faith effort to comply, including by consulting with commission staff following a complaint and cooperating during any preliminary investigation, or demonstrated a wish to acknowledge and take responsibility for the alleged violation.	The respondent failed to provide a timely or adequate response to the complaint, or was otherwise uncooperative.
The alleged violation was or is being addressed under an analogous local ordinance, regulation, or policy.	The commission has primary jurisdiction over the alleged violation.
The alleged violation presents a new question or issue for the commission's interpretation.	The alleged violation does not present a case of first impression.
Other factors relevant to a particular case	

NEW SECTION

WAC 390-37-057 Notices of correction—Process. (1) As provided by WAC 390-37-055, and considering the factors set forth in WAC 390-37-056(3), following an initial review of a complaint under WAC 390-37-060, the executive director may authorize a notice of correction as an alternative response to noncompliance in lieu of a formal investigation.

(2) A notice of correction recites available facts and information from staff's review of a complaint, confirms staff's determination that the respondent is not in substantial compliance with the relevant statutes and rules, and states the necessary corrective action(s) the respondent has taken or agrees to take. If the corrective action is completed, no further response to the complaint is necessary and staff may close the complaint.

(3) If the corrective action is not completed, the executive director may direct a formal investigation be conducted as provided in WAC 390-37-060.

NEW SECTION

WAC 390-37-058 Deferred enforcement—Process. (1) As provided by WAC 390-37-055, and considering the factors set forth in WAC 390-37-056(3), the executive director may authorize deferred enforcement as an alternative response to noncompliance in lieu of a formal investigation, adjudicative proceeding, or both.

(2) The executive director may authorize deferred enforcement:

(a) Following an initial review of a complaint, when minor or technical violations by the respondent are readily apparent; or

(b) Following a formal investigation, in lieu of a notice of administrative charges for an adjudicative proceeding; or

(c) After a notice of administrative charges, prior to an adjudicative proceeding.

(3) The conditions of deferred enforcement shall be clearly defined and agreed to by the respondent, along with the consequences for failure to meet the conditions of the deferral. Negotiations regarding deferred enforcement shall be informal and without prejudice to rights of a participant in the negotiations.

(4) With an agreement between the respondent and commission staff, the executive director or designee (commission staff) shall memorialize the pertinent facts and the conditions of the deferral in writing to the respondent, together with the consequences for failure to meet the conditions of the deferral. The agreement shall be signed by staff and the respondent. Staff shall notify the respondent that any administrative charges issued in the matter are stayed pending satisfaction of the deferral conditions.

(5) Once the deferral conditions are met, the complaint shall be dismissed with no further investigation or action as provided by WAC 390-37-070.

(6) If the deferral conditions are not met, the complaint shall proceed in accordance with WAC 390-37-060.

WSR 15-17-134
PROPOSED RULES
PUBLIC DISCLOSURE COMMISSION

[Filed August 19, 2015, 11:54 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 13-03-082.

Title of Rule and Other Identifying Information: WAC 390-12-200 Public disclosure commission—Executive director.

Hearing Location(s): 711 Capitol Way, Room 206, Olympia, WA, on September 24, 2015, at 9:30 a.m.

Date of Intended Adoption: September 24, 2015.

Submit Written Comments to: Lori Anderson, P.O. Box 40908, Olympia, WA 98504-0908 (mail), 711 Capitol Way, Room 206, Olympia, WA (physical), e-mail lori.anderson@pdc.wa.gov, fax (360) 753-1112, by September 16, 2015.

Assistance for Persons with Disabilities: Contact Jana Greer by phone (360) 586-0544.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Better clarify the duties delegated to the executive director by the commission. Also authorizes the director to determine when a complaint may be disposed of through an alternative resolution rather than the adjudicative process (see WSR 15-17-133).

Reasons Supporting Proposal: The existing rule does not clearly state the duties of the executive director. The proposed amendment better informs the public what the executive director's duties are. Furthermore, authorizing the executive director to determine when a complaint may be resolved through an alternative response instead of enforcement procedures contained in the Administrative Procedure Act is a

more efficient use of commission resources and is intended to expedite resolution of the complaints filed with the commission.

Statutory Authority for Adoption: RCW 42.17A.110(1).

Statute Being Implemented: RCW 42.17A.110(2).

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: No increased costs to the agency are expected.

Name of Agency Personnel Responsible for Drafting: Lori Anderson, 711 Capitol Way, Room 206, Olympia, WA 98504, (360) 664-2737; Implementation and Enforcement: Chair, Public Disclosure Commission (PDC), 711 Capitol Way, Room 206, Olympia, WA 98504, (306) 586-1042.

No small business economic impact statement has been prepared under chapter 19.85 RCW. The implementation of these rule amendments has minimal impact on small businesses. The PDC is not subject to the requirement to prepare a school district fiscal impact statement, per RCW 28A.305.-135 and 34.05.320.

A cost-benefit analysis is not required under RCW 34.05.328. The PDC is not an agency listed in subsection (5)(a)(i) of RCW 34.05.328. Further, the PDC does not voluntarily make that section applicable to the adoption of these rules pursuant to subsection (5)(a)(ii) and to date, the joint administrative rules review committee has not made the section applicable to the adoption of these rules.

August 17, 2015
Lori Anderson
Communications and
Training Officer

AMENDATORY SECTION (Amending WSR 85-15-020, filed 7/9/85)

WAC 390-12-200 Public disclosure commission—Role of the executive director. ((~~The commission shall employ and fix the compensation of an executive director who shall perform the following duties under the general authority and supervision of the commission:~~

~~(1) Act as records officer and administrative arm of the commission.~~

~~(2) Coordinate the policies of the commission and the activities of all commission employees and other persons who perform ministerial functions for the commission.~~

~~(3)~~)) The executive director acts as the commission's chief administrative officer and is accountable to the commission for agency administration. In addition, the executive director will:

(1) Act as the appointing authority for agency staff, including the authority to hire, set salaries, promote, assign work, evaluate, take corrective action and, where appropriate, terminate staff.

(2) Exercise such other management oversight, decision-making and administrative action to achieve the commission's mission and goals.

(3) Determine when appropriate and authorize enforcement alternatives set out in chapter 390-37 WAC to resolve complaints filed with the commission.

(4) Act as liaison between the commission and other public agencies.

(5) Research, develop, and draft policy positions, administrative rules, interpretations and advisory options for presentation to the commission.

(6) Enter into contracts and agreements on behalf of the commission.

(7) The executive director may delegate authority to subordinates to act for him or her as needed and appropriate.