

## WSR 23-02-025

## PERMANENT RULES

## DEPARTMENT OF REVENUE

[Filed December 28, 2022, 9:10 a.m., effective January 28, 2023]

Effective Date of Rule: Thirty-one days after filing.

Purpose: This new rule clarifies administrative aspects of the excise tax on capital gains, chapter 82.87 RCW, such as proper filing and payment procedures and potential penalties for not following filing and payment requirements.

Note: Effective January 1, 2022, chapter 82.87 RCW imposes an excise tax on sales or exchanges of long-term capital assets. In March of 2022, the Douglas County superior court ruled that the tax is unconstitutional and invalid. The validity of the tax is currently under review by the Washington supreme court, which has stayed the superior court decision. As a result, chapter 82.87 RCW is in effect and this rule is effective January 28, 2023, unless determined otherwise by the Washington supreme court.

Citation of Rules Affected by this Order: New WAC 458-20-300 Capital gains excise tax—Overview and administration.

Statutory Authority for Adoption: RCW 82.01.060, 82.32.300.

Adopted under notice filed as WSR 22-22-101 on November 2, 2022.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 1, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 1, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 1, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: December 28, 2022.

Atif Aziz  
Rules Coordinator

**OTS-4078.4**NEW SECTION

**WAC 458-20-300 Capital gains excise tax—Overview and administration.** (1) **Introduction and overview.** Beginning January 1, 2022, Washington law imposes an excise tax on individuals with sales or exchanges of long-term capital assets (capital gains excise tax). See RCW 82.87.040. This rule provides information regarding the administration of the capital gains excise tax and is divided into six subsections as follows: Introduction and overview; returns; extensions; payment of tax; penalties and interest; and general administration.

(a) **Imposition.** The capital gains excise tax is imposed on the sale or exchange of long-term capital assets. The capital gains excise tax is not imposed on any sale or exchange occurring prior to January 1, 2022. A "long-term capital asset" is a capital asset that is held for more than one year. A "capital asset" has the same meaning as provided by section 1221 of the federal Internal Revenue Code and includes any other property if the sale or exchange of the property results in a gain that is treated as a long-term capital gain under section 1231 or any other provision of the federal Internal Revenue Code.

(b) **Who is taxable?** Only individual natural persons (referred to in this rule as "taxpayer," "you," or "your") are subject to the capital gains excise tax.

(c) **What is the tax rate?** The tax rate is seven percent. The tax is calculated by multiplying a taxpayer's Washington capital gains by the seven percent tax rate.

(d) **Washington capital gains.** Washington capital gains is your federal net long-term capital gain with certain adjustments made under RCW 82.87.020 (1)(a) through (e) and further modified by the deductions in RCW 82.87.060. The adjustments are primarily aimed at removing capital gains and losses allocated to places outside of Washington from your Washington capital gains figure.

(i) "Federal net long-term capital gain" means the net long-term capital gain reportable for federal income tax purposes, determined as if Title 26 U.S.C. Secs. 55 through 59 and 1400Z-1 and 1400Z-2 of the federal Internal Revenue Code did not exist. Title 26 U.S.C. Secs. 55 through 59 relate to the alternative minimum tax and Title 26 U.S.C. Secs. 1400Z-1 and 1400Z-2 relate to opportunity zones.

(ii) The deductions in RCW 82.87.060 are as follows:

(A) A standard deduction. If you are married or a state-registered domestic partner, the total combined standard deduction for both you and your spouse or domestic partner is \$250,000, regardless of whether you and your spouse or domestic partner file a joint or separate return. In all other cases, the standard deduction is \$250,000 per individual natural person. The \$250,000 deduction amount may be adjusted for inflation every December, beginning in December 2023. See RCW 82.87.150 for additional information.

(B) Amounts that the state is prohibited from taxing under the Constitution of this state or the Constitution or laws of the United States.

(C) Adjusted capital gain derived from the sale or transfer of your interest in a qualified family-owned small business pursuant to RCW 82.87.070.

(D) Charitable donations deductible under RCW 82.87.080. The charitable donation deduction cannot exceed \$100,000. The \$100,000 deduction cap may be adjusted for inflation every December, beginning in December 2023. See RCW 82.87.150 for additional information.

(e) **Exemptions.** Certain sales or exchanges, such as sales of real estate, are exempt from the capital gains excise tax. See RCW 82.87.050 for additional information.

(f) **Examples.** This rule contains examples. These examples identify a number of facts and then state a conclusion. They are provided only as a general guide. The tax results of other situations must be determined after a review of all the facts and circumstances.

(2) **Returns.**

(a) **Filing obligation and due date.** Only taxpayers owing Washington's capital gains excise tax in a taxable year are required to file a capital gains excise tax return with the department.

(i) If you are required to file a capital gains excise tax return, you must file the return with the department on or before the date your federal income tax return is required to be filed for the same taxable year.

(ii) If you owe capital gains excise tax, you are required to file a capital gains excise tax return whether or not you filed a federal income tax return.

(iii) If you did not file a federal income tax return, the due date for your capital gains excise tax return is the date your federal income tax return would have been due.

**Example 1 - Return due date**

**Facts:** The due date for Michael's federal income tax return is April 18, 2023. Michael has a Washington capital gains excise tax liability.

**Result:** The capital gains excise tax return due date is April 18, 2023, which is the date Michael's federal income tax return is due. Michael must file his capital gains excise tax return on or before April 18, 2023, or the return will be late and penalties will apply.

(b) **Separate and joint filers, single filers.** If you are required to file a capital gains excise tax return, your federal income tax filing status may affect how you must file your capital gains excise tax return as follows:

(i) Spouses filing jointly. Spouses who file a joint federal income tax return for the taxable year must file a joint capital gains excise tax return for the same taxable year. Accordingly, if you are married and file a joint federal income tax return with your spouse, you must file a joint capital gains excise tax return with your spouse.

(ii) Spouses filing separately. If a spouse files a separate federal income tax return for the taxable year, each spouse that owes capital gains excise tax must file a separate capital gains excise tax return for the same taxable year. Accordingly, if you are married and file a separate federal income tax return from your spouse, you must file a separate capital gains excise tax return.

(iii) State-registered domestic partners. State-registered domestic partners may file a joint capital gains excise tax return even if they filed separate federal income tax returns for the taxable year. Accordingly, if you are a state-registered domestic partner and file a separate federal income tax return from your partner, you and your partner may file either a joint capital gains excise tax return or separate capital gains excise tax returns.

(iv) Single filers. Any individual that is not married and is not a state-registered domestic partner must file their capital gains excise tax return as a single individual.

(c) **Required documentation with the capital gains excise tax return.** All taxpayers required to file a capital gains excise tax return for a taxable year must submit, along with the capital gains excise tax return form, all of the following:

(i) A copy of the complete, filed federal individual income tax return, including all supporting schedules and documentation filed with the Internal Revenue Service (IRS), for the taxable year.

(ii) For any claim for exemption under RCW 82.87.050(2), which may exempt the sale or exchange of an interest in a privately held entity directly owning real estate, documentation that substantiates the following:

(A) The fair market value and basis of the real estate held directly by the privately held entity;

(B) The percentage of the ownership interest sold or exchanged in the privately held entity that owns the real estate; and

(C) The methodology established by the privately held entity for allocating gains or losses from the sale of real estate among the owners, partners, or shareholders of the entity.

(d) **Incomplete returns.** A capital gains excise tax return is considered complete only if the return is filed in accordance with the filing requirements described in RCW 82.87.110 and subsection (2) of this rule. If a complete capital gains excise tax return is not filed on or before the due date for the capital gains excise tax return, the return will be late and the late filing penalty may apply. See subsection (5) of this rule for more information.

**Example 2 - Incomplete return**

**Facts:** Jane filed her federal income tax return on April 18, 2023. Jane owes capital gains excise tax and is required to file a capital gains excise tax return. She filed the return on April 18, 2023, but did not provide the department with a copy of her federal income tax return until April 30, 2023.

**Result:** Jane was required to file a complete return by April 18, 2023. Jane did not file a complete return on April 18, 2023, because she failed to include a copy of her federal individual income tax return along with the capital gains excise tax return. Jane's return is late. See subsection (5) of this rule for additional information on the late filing penalty.

(e) **Electronic filing.** All taxpayers must electronically file their capital gains excise tax returns and all required documentation identified in subsection (2)(c) of this rule. Electronic filings must be submitted to the department via the "My DOR" portal at [www.secure.dor.wa.gov](http://www.secure.dor.wa.gov). The department may waive the electronic filing requirement for good cause as provided in RCW 82.32.080. See RCW 82.32.080 and WAC 458-20-22802 for additional information regarding electronic filing and the good cause waiver.

(f) **Amended returns.**

(i) **Amended return required.** If you or the IRS make any changes to your federal income tax return for any reason, and the changes affect the reported capital gains or the capital gains excise tax liability, you must file an amended capital gains excise tax return reflecting all changes made to the federal income tax return. You must also file an amended capital gains excise tax return if the original capital gains excise tax return needs to be corrected for errors identified after the due date for the original capital gains excise tax return, including, for example, situations where the statute of limitations for assessment of federal tax for a particular tax year is closed but the Washington nonclaim period remains open.

(ii) **Assessments and penalties.** The amendment of a capital gains excise tax return is not subject to a specific deadline. However, if the department finds that your failure to file an amended capital gains excise tax return shows evasion or misrepresentation of a material fact, the department can make assessments or corrections of assessments outside of the usual nonclaim period and impose penalties and interest at any time. See subsection (6) of this rule for more information.

(iii) **Filing and payment requirements for amended returns.** The documentation requirements described in subsection (2) of this rule apply to amended returns. This means, for instance, a copy of the complete, filed amended federal individual income tax return and all supporting amended schedules and documentation must be filed along with

the amended return. If an amended capital gains excise tax return is filed and there is no amendment made to the federal tax return, other documentation supporting the changes must be submitted with the amended capital gains excise tax return. You must file your amended capital gains excise tax return electronically and electronically pay any additional tax due unless granted a waiver from the electronic filing/payment requirements by the department.

(3) **Extensions.**

(a) **Extension period; timely payment still required.** If a taxpayer obtains an extension of time for filing the federal income tax return for the taxable year and provides the department proof of the extension, the capital gains excise tax return is considered due on or before the extended due date for the federal income tax return. However, an extension for filing the capital gains excise tax return does not extend the due date for paying the capital gains excise tax.

(b) **Extension filing; certification.** You must submit an extension request electronically with the department on or before the original due date via the My DOR portal at [secure.dor.wa.gov](https://secure.dor.wa.gov). During the submission process, you will certify that federal Form 4868, *Application for Automatic Extension of Time to File U.S. Individual Income Tax Return* or Form 2350, *Application for Extension of Time to File U.S. Income Tax Return*, was properly filed for the tax year. You must attach a copy of the properly filed federal Form 4868 or Form 2350 when filing the capital gains excise tax return.

(4) **Payment of tax.**

(a) **Due date.** If you owe the capital gains excise tax, you must remit the tax to the department on or before the date your federal income tax return is required to be filed without regard to any extension granted to you for the filing of your federal income tax return. The extension of time for filing the federal income tax return or capital gains excise tax return does not extend the due date for paying your capital gains excise tax. If you pay your capital gains excise tax late, the late payment penalty and interest may apply. See subsection (5) of this rule for more information.

**Example 3 - Late payment - No federal extension**

**Facts:** Jeannette filed her federal income tax return on April 18, 2023. Jeannette files a capital gains excise tax return on April 18, 2023. She later remits her capital gains excise tax to the department on April 20, 2023.

**Result:** Jeannette was required to pay the capital gains excise tax on April 18, 2023, when her federal income tax return was due. Jeannette paid the capital gains excise tax late and is subject to penalties and interest.

**Example 4 - Late payment - Federal income tax return extension**

**Facts:** Gil requested a federal income tax return extension on April 12, 2023, and received an automatic extension of time to file his federal tax return to October 16, 2023. Gil properly submits an extension request certification to the department before April 18, 2023, the original due date for the federal tax return and capital gains excise tax return. Gil files a capital gains excise tax return and pays his capital gains excise tax on October 13, 2023.

**Result:** Gil paid his capital gains excise tax late and is subject to penalties and interest with respect to the late payment. While Gil extended the date for filing the capital gains excise tax return, the due date for the payment of the capital gains excise tax remained April 18, 2023.

(b) **Electronic payment.** Capital gains excise tax must be paid by electronic funds transfer or other form of department authorized electronic payment, such as by credit card. The department may waive the electronic payment requirement for good cause. See RCW 82.32.080 and WAC 458-20-22802 for additional information regarding electronic payment requirements and the good cause waiver.

(c) **Joint and several liability.** The capital gains excise tax liability of each spouse or state-registered domestic partner filing a capital gains excise tax return is joint and several unless one of the spouses is relieved of liability for federal tax purposes as provided under section 6015 of the federal Internal Revenue Code or the department determines that the domestic partner would qualify for relief under the same parameters provided in section 6015.

(5) **Penalties and interest**

(a) **Late filing penalty.** If you do not file a complete capital gains excise tax return by the due date, the department will assess a late filing penalty in the amount of five percent of the tax due for the taxable year covered by the return for each month or portion of a month that the return remains unfiled. See RCW 82.87.110. The total late filing penalty may not exceed 25 percent of the tax due for the taxable year covered by the late return.

(b) **Late payment penalty.** If you do not remit your capital gains excise tax on or before the due date for payment of the capital gains excise tax, you are subject to the late payment penalty. If payment is not received by the department by the due date, the department will assess a penalty of nine percent of the amount of the tax due; if the tax is not received on or before the last day of the month following the due date, the department will assess a total penalty of 19 percent of the amount of the tax due; and if the tax is not received on or before the last day of the second month following the due date, the department will assess a total penalty of 29 percent of the amount of the tax due. See RCW 82.32.090(1) and WAC 458-20-228 for more information regarding late payment penalties.

(c) **Other penalties.**

(i) Other penalties imposed under chapter 82.32 RCW may apply. These penalties include the penalties for substantial underpayment of tax, disregard of specific written instructions, and intent to evade tax. See RCW 82.32.090 and WAC 458-20-228 for additional information.

(ii) Any taxpayer who knowingly attempts to evade payment of the capital gains excise tax is guilty of a class C felony as provided in chapter 9A.20 RCW. Any taxpayer who knowingly fails to pay tax, make returns, keep records, or supply information required under the capital gains excise tax, is guilty of a gross misdemeanor as provided in chapter 9A.20 RCW. RCW 82.87.140.

(d) **Amended returns.** The penalties described in this subsection may apply to amended capital gains excise tax returns, except the department will not assess late return or late payment penalties on increased amounts of tax due as a result of the amendment if the original capital gains excise tax return and tax due were timely filed and paid.

(e) **Penalty waivers.**

(i) The department will waive the late filing penalty only if the department determines either of the following:

(A) The taxpayer's failure to timely file the return was due to circumstances beyond their control; or

(B) The taxpayer has not been delinquent in filing any capital gains excise tax returns due during the preceding five calendar years.

(ii) The department will waive the late payment (RCW 82.32.090(1)) and substantial underpayment penalties (RCW 82.32.090(2)) if the department determines that the taxpayer's failure to timely pay was due to circumstances beyond their control. See RCW 82.32.105 and WAC 458-20-228 for additional information regarding waivers due to circumstances beyond the taxpayer's control.

(f) **Interest.**

(i) If you do not pay your capital gains excise tax by the due date described in subsection (4) of this rule, you will be assessed interest on the unpaid amounts. See RCW 82.32.050 and WAC 458-20-228 for additional information on interest assessed on underpayments and interest waivers.

(ii) If you have paid more tax than is properly due, you will receive interest for your overpayment. See RCW 82.32.060 and WAC 458-20-229 for information on interest on tax overpayments.

(6) **General administration**

(a) **Application of chapter 82.32 RCW.** The department administers the capital gains excise tax in accordance with chapter 82.32 RCW except as otherwise provided by law and to the extent not inconsistent with chapter 82.87 RCW.

(b) **Preserving accurate and complete records.** You have the burden of proving any claimed deductions, exemptions, and credits. Washington law requires you to keep accurate and complete records and timely respond to communications from the department. You must preserve records that substantiate the amounts of all deductions, exemptions, or credits claimed, as well as any documentation that substantiates your allocation of capital gains and losses. Claims for exemptions, deductions, and credits from the capital gains excise tax may require additional documents to be submitted to the department at the department's request. See RCW 82.32.070 and WAC 458-20-254 for additional information on recordkeeping requirements.

(c) **Refunds.** If you discover that you have overpaid taxes, penalties, or interest, you may file an amended capital gains excise tax return or apply for a refund or credit. The provisions under WAC 458-20-229 apply to refunds of overpaid capital gains excise tax.

(d) **Informal administrative reviews.** If you disagree with the department's assessment of tax, penalties, or interest; a department letter ruling; or the department's denial of a refund, you may seek an informal review of that action by submitting a petition for review with the department's administrative review and hearings division. The petition must be filed within 30 days of the department action. See WAC 458-20-100 for additional information.

(e) **Nonclaim period.** The nonclaim period provided under RCW 82.32.050 and 82.32.060 for deficient tax or penalty payments and excess payment of tax, penalty, or interest, respectively, apply to the capital gains excise tax. However, there is no limitation for the period in which an assessment or correction of an assessment can be made upon a showing of evasion or of misrepresentation of a material fact. See RCW 82.32.050 and WAC 458-20-230.

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WSR 23-02-031

PERMANENT RULES

HEALTH CARE AUTHORITY

[Filed December 28, 2022, 12:36 p.m., effective January 28, 2023]

Effective Date of Rule: Thirty-one days after filing.

Purpose: This rule-making order repeals WAC 182-538D-0262, which requires behavioral health administrative agencies to maintain a behavioral health ombuds office for medicaid managed care enrollees. This service was replaced with a new state office of behavioral health consumer advocacy, effective October 1, 2022.

Citation of Rules Affected by this Order: Repealing WAC 182-538D-0262.

Statutory Authority for Adoption: RCW 41.05.021, 41.05.160.

Other Authority: Chapter 71.40 RCW.

Adopted under notice filed as WSR 22-23-143 on November 21, 2022.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 1.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 1.

Date Adopted: December 28, 2022.

Wendy Barcus  
Rules Coordinator

**OTS-4111.1**

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 182-538D-0262 Behavioral health administrative service organizations and managed care organizations—Behavioral health ombuds office.



**WSR 23-02-032**  
**PERMANENT RULES**  
**DEPARTMENT OF**

**SOCIAL AND HEALTH SERVICES**

(Economic Services Administration)

[Filed December 28, 2022, 1:05 p.m., effective January 28, 2023]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The department is adopting amendments to WAC 388-400-0030 Who is eligible for refugee cash assistance?, 388-466-0120 Refugee cash assistance (RCA), and 388-466-0150 Refugee employment and training services. These amendments are necessary to align department policies with authorization from the Office of Refugee Resettlement (ORR) to expand the eligibility period for refugee cash assistance (RCA) from eight months to 12 months pursuant to 45 C.F.R. § 400.211 and ORR P.L. 22-12. Amendments to implement this change (effective June 2, 2022) are currently in place via emergency adoption (see WSR 22-13-013 and 20-20-071).

Citation of Rules Affected by this Order: Amending WAC 388-400-0030, 388-466-0120, and 388-466-0150.

Statutory Authority for Adoption: RCW 74.04.050, 74.04.055, 74.04.057, 74.04.510, 74.08.090, and 74.08A.120.

Other Authority: 45 C.F.R. § 400.211 and ORR P.L. 22-12.

Adopted under notice filed as WSR 22-22-077 on October 31, 2022.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 3, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 3, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 3, Repealed 0.

Date Adopted: December 28, 2022.

Katherine I. Vasquez  
Rules Coordinator

**SHS-4930.5**

AMENDATORY SECTION (Amending WSR 04-19-135, filed 9/21/04, effective 10/22/04)

**WAC 388-400-0030 Who is eligible for refugee cash assistance?**

- (1) To be eligible for refugee cash assistance (RCA), you must:
- (a) Provide the name of the voluntary agency (VOLAG) which resettled you;
  - (b) Meet the immigration status requirements of WAC 388-466-0005;
  - (c) Meet employment and training requirements of WAC 388-466-0150;

- (d) Meet income and resource requirements of WAC 388-466-0140;  
and
- (e) Report changes of circumstances as required under WAC 388-418-0005.
- (2) You are not eligible to receive RCA if you:
- (a) Are eligible for temporary assistance for needy families (TANF) or supplemental security income;
- (b) Have been denied TANF or have been terminated from TANF due to intentional noncompliance with TANF eligibility requirements; or
- (c) Are a full-time student in an institution of higher education.
- (3) We determine your eligibility and benefit level for RCA using the TANF payment standards under WAC 388-478-0020.
- (4) If you are eligible for RCA you may also be eligible for additional requirements for emergent needs under WAC 388-436-0002.
- (5) If you meet the requirements of this section you are eligible for refugee cash assistance only during the (~~eight~~) 12-month period beginning in the first month you entered the United States (WAC 388-466-0120).

[Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057. WSR 04-19-135, § 388-400-0030, filed 9/21/04, effective 10/22/04. Statutory Authority: RCW 74.08.090, 74.04.050, 74.08A.320, and 7 C.F.R. § 400.65, § 400.66, § 400.67, § 400.68, and § 400.69. WSR 02-09-051, § 388-400-0030, filed 4/12/02, effective 5/13/02. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, and 74.08.090. WSR 01-06-031, § 388-400-0030, filed 3/2/01, effective 4/1/01; WSR 98-16-044, § 388-400-0030, filed 7/31/98, effective 9/1/98.]

AMENDATORY SECTION (Amending WSR 20-24-073, filed 11/24/20, effective 12/25/20)

**WAC 388-466-0120 Refugee cash assistance (RCA). (1) Who can apply for refugee cash assistance (RCA)?**

Anyone can apply to the department of social and health services (DSHS) for refugee cash assistance and have their eligibility determined within (~~thirty~~) 30 days.

**(2) How do I know if I qualify for RCA?**

You may be eligible for RCA if you meet all of the following conditions:

- (a) You have resided in the United States for less than (~~eight~~) 12 months;
- (b) You meet the immigration status requirements of WAC 388-466-0005;
- (c) You meet the income and resource requirements under chapters 388-450 and 388-470 WAC;
- (d) You meet the work and training requirements of WAC 388-466-0150; and

(e) You provide the name of the voluntary agency (VOLAG) which helped bring you to this country.

**(3) What are the other reasons for not being eligible for RCA?**

You may not be able to get RCA if you:

- (a) Are eligible for temporary assistance for needy families (TANF) or supplemental security income (SSI); or

(b) Have been denied TANF due to your refusal to meet TANF eligibility requirements; or

(c) Are employable and have voluntarily quit or refused to accept a bona fide offer of employment within (~~(thirty)~~) 30 consecutive days immediately prior to your application for RCA; or

(d) Are a full-time student in a college or university.

**(4) If I am an asylee, what date will be used as an entry date?**

If you are an asylee, your entry date will be the date that your asylum status is granted. For example: You entered the United States on December 1, 1999, as a tourist, then applied for asylum on April 1, 2000, interviewed with the asylum office on July 1, 2000, and were granted asylum on September 1, 2000. Your entry date is September 1, 2000. On September 1, 2000, you may be eligible for refugee cash assistance.

**(5) If I am a victim of human trafficking, what kind of documentation do I need to provide to be eligible for RCA?**

You are eligible for RCA to the same extent as a refugee if you are:

(a) An adult victim, (~~(eighteen)~~) 18 years of age or older, you provide the original certification letter from the U.S. Department of Health and Human Services (DHHS), and you meet eligibility requirements in subsections (2)(c) and (d) of this section. You do not have to provide any other documentation of your immigration status. Your entry date will be the date on your certification letter;

(b) A child victim under the age of (~~(eighteen)~~) 18, in which case you do not need to be certified. DHHS issues a special letter for children. Children also have to meet income eligibility requirement;

(c) A family member of a certified victim of human trafficking, you have a T-2, T-3, T-4, or T-5 Visa (Derivative T-Visas), and you meet the eligibility requirements in subsections (2)(c) and (d) of this section.

**(6) Does getting a onetime cash grant from a voluntary agency (VOLAG) affect my eligibility for RCA?**

No. In determining your eligibility for RCA DSHS does not count a onetime resettlement cash grant provided to you by your VOLAG.

**(7) What is the effective date of my eligibility for RCA?**

The date DSHS has sufficient information to make an eligibility decision is the date your RCA begins.

**(8) When does my RCA end?**

(a) Your RCA ends on the last day of the (~~(eighth)~~) 12th month starting with the month of your arrival to the United States. Count the (~~(eight)~~) 12 months from the first day of the month of your entry into the United States. For example, if you entered the United States on May 28, (~~(2000)~~) 2022, May is your first month and (~~(December 2000)~~) April 2023 is your last month of RCA.

(b) If you get a job, your income will affect your RCA based on the TANF rules (chapter 388-450 WAC). If you earn more than is allowed by WAC 388-478-0035, you are no longer eligible for RCA.

(c) You may receive RCA benefits for more months if the federal office of refugee resettlement extends the eligibility period.

**(9) Are there other reasons why RCA may end?**

Your RCA also ends if:

(a) You move out of Washington state;

(b) Your unearned income (~~(and/)~~) or resources go over the maximum limit (WAC 388-466-0140); or

(c) You, without good cause, refuse to meet refugee employment and training requirements (WAC 388-466-0150).

**(10) Will my spouse be eligible for RCA, if ((he/she)) they arrive((s)) in the U.S. after me?**

When your spouse arrives in the United States, DSHS determines ((his/her)) their eligibility for RCA and(~~/or~~) other income assistance programs.

(a) Your spouse may be eligible for up to ((eight)) 12 months of RCA based on ((his/her)) their date of arrival into the United States.

(b) If you live together, you and your spouse are part of the same assistance unit and your spouse's eligibility for RCA is determined based on you and your spouse's combined income and resources (WAC 388-466-0140).

**(11) Can I get additional money in an emergency?**

If you have an emergency and need a cash payment to get or keep your housing or utilities, you may apply for the DSHS program called additional requirements for emergent needs (AREN). To receive AREN, you must meet the requirements in WAC 388-436-0002.

**(12) What can I do if I disagree with a decision or action that has been taken by DSHS on my case?**

If you disagree with a decision or action taken on your case by the department, you have the right to request a review of your case or an administrative hearing (WAC 388-02-0090). Your request must be made within ((ninety)) 90 days of the date of the decision or action.

[Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, 74.08A.250 and 45 C.F.R. § 400.300, 8 U.S.C. § 1522 (e)(1). WSR 20-24-073, § 388-466-0120, filed 11/24/20, effective 12/25/20. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, 74.08A.250 and 2011 1st sp.s. c 15. WSR 13-03-137, § 388-466-0120, filed 1/23/13, effective 2/23/13; WSR 12-19-037, § 388-466-0120, filed 9/12/12, effective 10/13/12. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, 74.08A.320, Pub. L. No. 110-181, National Defense Authorization Act for Fiscal Year 2008, Pub. L. No. 111-08, the Omnibus Appropriations Act of 2009, Division F, Title VI, Section 602; Office of Refugee Resettlement State Letter 09-17 from April 9, 2009; and federal guidance issued on May 15, 2009, by the Food and Nutrition Service, United States Department of Agriculture. WSR 09-21-046, § 388-466-0120, filed 10/14/09, effective 11/4/09. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08A.320, 74.08.090, and Public Law 110-161 Section 525; Public Law 110-181 Section 1244; FNS Admin Notice 08-17; State Letter 04-12 from the Office of Refugee Resettlement. WSR 08-14-116, § 388-466-0120, filed 6/30/08, effective 8/1/08. Statutory Authority: RCW 74.08.090, 74.08A.320. WSR 02-04-057, § 388-466-0120, filed 1/30/02, effective 2/1/02.]

AMENDATORY SECTION (Amending WSR 16-05-034, filed 2/9/16, effective 3/15/16)

**WAC 388-466-0150 Refugee employment and training services. (1) What are refugee employment and training services?**

Refugee employment and training services provided to eligible refugees may include information and referral, employment oriented case management, job development, job placement, job retention, wage progression, skills training, on-the-job training, counseling and orientation, English as a second language, and vocational English training.

**(2) Am I required to participate in refugee employment and training services?**

If you are receiving refugee cash assistance (RCA) you are required to participate in refugee employment and training services, unless you are exempt.

**(3) How do I know if I am exempt from mandatory employment and training requirements?**

You may be exempt from participation in employment and training requirements if you are:

(a) An adult with a severe and chronic disability as defined below:

(i) You have been assessed by a DSHS SSI facilitator as likely to be approved for SSI and are required to apply for SSI. Your SSI application status may be verified through the SSI facilitator (~~(and/)~~) or state data exchange; or

(ii) Your disability is a severe and chronic mental, physical, emotional, or cognitive impairment that prevents you from working and is expected to last at least (~~(twelve))~~ 12 months. Your disability must be verified by documentation from a behavioral health organization (BHO), (~~(and/or)~~) regional service area (RSA), or evidence from another medical or mental health professional; or

(b) Required to be in the home to care for another adult with disabilities when:

(i) The adult with disabilities cannot be left alone for significant periods of time;

(ii) No adult other than yourself is available and able to provide the care;

(iii) The adult with the disability is related to you;

(iv) You are unable to participate in work activities because you are required to be in the home to provide care; and

(v) The disability and your need to care for your disabled adult relative is verified by documentation from the developmental disabilities administration (DDA), division of vocational rehabilitation (DVR), home and community services (HCS), division of behavioral health and recovery (DBHR), (~~(and/or)~~) a behavioral health organization (BHO), (~~(and/or)~~) regional service area (RSA), or evidence from another medical or mental health professional.

(c) (~~(Sixty))~~ 60 years of age or older.

(d) Unable to participate in work activities because you are the victim of family violence.

**(4) If I am required to participate, what do I have to do?**

You are required to:

(a) Register with your employment service provider;

(b) Accept and participate in all employment opportunities, training, or referrals, determined appropriate by the department.

**(5) What happens if I do not follow these requirements?**

If you refuse without good reason to cooperate with the requirements, you are subject to the following penalties:

(a) If you are applying for refugee cash assistance, you will be ineligible for (~~(thirty))~~ 30 days from the date of your refusal to accept work or training opportunity; or

(b) If you are already receiving refugee cash assistance, your cash benefits will be subject to financial penalties.

(c) The department will notify your voluntary agency (VOLAG) if financial penalties take place.

**(6) What are the penalties to my grant?**

The penalties to your grant are:

(a) If the assistance unit includes other individuals as well as yourself, the cash grant is reduced by the sanctioned refugee's amount for three months after the first occurrence. For the second occurrence, the financial penalty continues for the remainder of the sanctioned refugee's (~~eight~~) 12-month eligibility period.

(b) If you are the only person in the assistance unit your cash grant is terminated for three months after the first occurrence. For the second occurrence, your grant is terminated for the remainder of your (~~eight~~) 12-month eligibility period.

**(7) How can I avoid the penalties?**

You can avoid the penalties, if you accept employment or training before the last day of the month in which your cash grant is closed.

**(8) What is considered a good reason for not being able to follow the requirements?**

You have a good reason for not following the requirements if it was not possible for you to stay on the job or to follow through on a required activity due to an event outside of your control. See WAC 388-310-1600(3) for examples.

[Statutory Authority: RCW 74.04.050, 74.04.055, 74.08.090. WSR 16-05-034, § 388-466-0150, filed 2/9/16, effective 3/15/16. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.500, 74.04.510, 74.08.090, 74.08A.120, and 2011 1st sp.s. c 15. WSR 13-18-004, § 388-466-0150, filed 8/22/13, effective 10/1/13. Statutory Authority: RCW 74.08.090. WSR 00-22-085, § 388-466-0150, filed 10/31/00, effective 12/1/00.]

**WSR 23-02-034  
PERMANENT RULES  
DEPARTMENT OF  
FISH AND WILDLIFE**

[Order 22-12—Filed December 28, 2022, 1:56 p.m., effective January 28, 2023]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The agency's purpose for this rule amendment is to implement SSB 5273, passed by the legislature in 2021. Rule changes will:

- Specify that replacement of residential marine shoreline stabilization must utilize the least impacting, technically feasible alternative for the protection of fish life;
- Identify alternatives from most to least preferred;
- Specify that a site assessment and alternatives analysis report prepared by a qualified professional is required as part of an application for a hydraulic project approval permit for this type of project;
- Identify mandatory report elements; and
- Establish procedures for emergency and expedited shoreline stabilization permits.

Citation of Rules Affected by this Order: Amending WAC 220-660-370 Bank protection in saltwater areas.

Statutory Authority for Adoption: RCW 77.04.012, 77.12.047, 77.55.021, 77.55.231, 34.05.328; and SSB 5273 (chapter 279, Laws of 2021).

Adopted under notice filed as WSR 22-19-081 on September 20, 2022.

Changes Other than Editing from Proposed to Adopted Version: Table 1, differences between CR-102 rule proposal and the final rule as adopted by the Washington fish and wildlife commission on December 9, 2022.

WAC Section	Change from CR-102	Reason for change
220-660-370(1)	Soft shore techniques ... can provide erosion protection using strategically placed natural materials while <del>allowing</del> <u>reducing impacts to</u> beach processes and fish habitat <del>to remain intact</del> .	Clarification. The previous wording could be read to imply that soft shore techniques have no impact on beach processes and fish habitat. The change is in response to public comments.
220-660-370(2)	Added language: <u>Sea level rise will magnify the loss of beach habitat if beaches are unable to retreat due to the presence of shoreline stabilization.</u> This alteration can cause a loss of the beach spawning habitat for Pacific sand lance and surf smelt. These forage fish species are a primary food source for some adult salmon species. This alteration can also reduce beach complexity, the presence of marine riparian vegetation including overhanging vegetation alongshore that produces terrestrial insects that are eaten by juvenile salmon, <u>and this may be exacerbated by the effects of climate change.</u>	Elaboration on fish life concerns. Adding language about sea level rise and climate change is consistent with the legislative intent of SSB 5273. The changes are in response to public comments.
220-660-370 (3)(g)	Revised new language: Emergency or expedited applications submitted under RCW 77.55.021 (12), (14), or (16) that do not include a site assessment and alternatives analysis report should identify <u>only</u> the work necessary to <del>address the immediate situation</del> <u>stabilize the emergency or expedited conditions</u> authorized under RCW 77.55.021.	Clarification. The previous wording was perceived by some as being a loophole for allowing more than minimum work under an emergency or expedited permit. It has been modified for clarity to third-party readers. The change is in response to public comments.

A final cost-benefit analysis is available by contacting Theresa Nation, 1111 Washington Street S.E., Olympia, WA 98501, phone 360-902-2562, fax 360-902-2946, Attn: Theresa Nation, TTY 360-902-2207, email HPArules@dfw.wa.gov, website <https://wdfw.wa.gov/about/regulations/development/shoreline-stabilization-hpa-rule>.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 1, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 1, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: December 9, 2022.

B. Baker, Chair  
Fish and Wildlife Commission

#### OTS-4064.5

AMENDATORY SECTION (Amending WSR 20-11-019, filed 5/12/20, effective 6/12/20)

**WAC 220-660-370 ((Bank protection)) Shoreline stabilization in saltwater areas.** Appropriate methods to assess the need for marine ((bank protection)) shoreline stabilization and, if needed, to design marine ((bank protection)) shoreline stabilization are available in the department's *Marine Shoreline Design Guidelines*, as well as other published manuals and guidelines.

(1) **Description:** A broad spectrum of ((bank protection)) shoreline stabilization techniques can be applied to protect property. These range from ((natural)) passive techniques that require minimal or no engineering ((to)), engineered soft shore protection ((to)), and hard ((shore)) shoreline armor. ((Natural)) Passive techniques include planting native vegetation, improving drainage, and relocating ((structures. Natural)) buildings, roads, and improvements (e.g., wells, utilities, septic fields, and the like). Passive techniques typically preserve the natural condition of the shore and have few to no negative impacts on fish life. Soft shore techniques ((include)) such as log placement, beach nourishment, resloping the bank, and revegetation can provide erosion protection using strategically placed natural materials while ((allowing)) reducing impacts to beach processes and fish habitat ((to remain intact)). Conventional hard techniques include bulkheads, seawalls, revetments and ((retaining walls)) related structures, which are designed to preclude shoreline migration and bank erosion. Each type of approach has varying degrees of impact. In general, ((natural)) passive techniques result in the fewest im-



pacts to fish life and hard (~~armor~~) techniques have the most impacts.

(2) **Fish life concerns:** Conventional hard techniques as well as some soft shore techniques can physically alter the beach and disrupt beach processes. Sea level rise will magnify the loss of beach habitat if beaches are unable to retreat due to the presence of shoreline stabilization. This alteration can cause a loss of the beach spawning habitat for Pacific sand lance and surf smelt. These forage fish species are a primary food source for some adult salmon species. This alteration can also reduce beach complexity, the presence of marine riparian vegetation including overhanging vegetation alongshore that produces terrestrial insects that are eaten by juvenile salmon, and this may be exacerbated by the effects of climate change. To protect fish life, the department protects both beaches where saltwater habitats of special concern occur and the beach processes that form and maintain this habitat.

(3) (~~Bank protection~~) **Alternative selection:**

(a) To ensure the protection of fish life, a person must use the least impacting technically feasible shoreline stabilization alternative. For the purpose of this section, "feasible" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. A person should propose a hard armor technique only after considering site characteristics such as the threat to major improvements, wave energy, and other factors in an alternatives analysis.

(b) Common alternatives for both new shoreline stabilization and the replacement or rehabilitation of shoreline stabilization that extends waterward of an existing shoreline stabilization structure are, from most preferred to least preferred:

(i) Remove any existing shoreline stabilization structure and restore the beach;

(ii) Control upland drainage;

(iii) Protect, enhance, and replace native vegetation;

(iv) Relocate buildings and improvements;

(v) Construct a soft structure;

(vi) Construct upland retaining walls;

(vii) Construct a hard structure landward of the ordinary high water line; and

(viii) Construct a hard structure at the ordinary high water line.

(c) Common alternatives for replacement or rehabilitation of residential shoreline stabilization are, from most preferred to least preferred:

(i) Remove the existing shoreline stabilization structure and restore the beach;

(ii) Remove the existing shoreline stabilization structure and install native vegetation;

(iii) Remove the existing shoreline stabilization structure and control upland drainage;

(iv) Remove the existing shoreline stabilization structure and replace it with a soft structure constructed of natural materials, including bioengineering;

(v) Remove the existing hard structure and construct upland retaining walls;

(vi) Remove the existing hard structure and replace it landward with another hard structure, preferably at or above the ordinary high water line; or

(vii) Remove the existing hard structure and replace it in the same footprint with another hard structure.

(d) Except as provided in (f) of this subsection, HPA applications for the following types of projects must include a site assessment, alternatives analysis and design rationale for the proposed method(s) prepared by a qualified professional (Qualified Professional's Report):

(i) New shoreline stabilization;

(ii) Replacement or rehabilitation of shoreline stabilization that extends waterward of an existing shoreline stabilization structure; and

(iii) Replacement or rehabilitation of residential shoreline stabilization.

(e) The applicant must submit the Qualified Professional's Report to the department as part of a complete application for an HPA that includes:

(i) An assessment of the level of risk to existing buildings, roads, or services being threatened by the erosion;

(ii) Evidence of erosion and/or slope instability to warrant the stabilization work;

(iii) Alternatives considered and the technical rationale specific to the shoreline stabilization technique proposed;

(iv) An analysis of the benefits and impacts associated with the chosen protection method; and

(v) An explanation of the method chosen, design parameters, types of materials, quantities, staging, and site rehabilitation.

(f) The department may grant an exemption to the Qualified Professional's Report required under (d) and (e) of this subsection based on the scale and nature of the project for the following:

(i) Projects for the removal of an existing shoreline stabilization structure and restoration of the beach.

(ii) Projects employing passive techniques such as controlling upland drainage or planting native vegetation.

(iii) Other projects as assessed by the department.

(g) Emergency or expedited applications submitted under RCW 77.55.021 (12), (14), or (16) that do not include a site assessment and alternatives analysis report should identify only the work necessary to stabilize the emergency or expedited conditions authorized under RCW 77.55.021. A site assessment and alternatives analysis report must be submitted within 90 days from the permit issuance unless the department issues an exemption. After consideration of the assessment and analysis report, if the department determines that shoreline stabilization work conducted under the emergency or expedited permit is not the least impactful technically feasible alternative, the applicant may be required to replace the structure with one that is the least impactful technically feasible alternative.

**(4) Shoreline stabilization design:**

(a) If the ordinary high water line (OHWL) has changed since an existing hard (~~bank protection~~) shoreline stabilization structure was built, and OHWL reestablishes landward of the structure, the department will consider this reestablished OHWL to be the existing OHWL for permitting purposes. If an HPA application is submitted for repairs within three years of the breach, the (~~bank protection structure may be repaired or replaced in the original footprint~~) prior OHWL may be considered for permitting purposes.

(b) (~~A person must use the least impacting technically feasible bank protection alternative. A person should propose a hard armor~~)

technique only after considering site characteristics such as the threat to major improvements, wave energy, and other factors in an alternatives analysis. The common alternatives below are in order from most preferred to least preferred:

- ~~(i) Remove the bank protection structure;~~
- ~~(ii) Control upland drainage;~~
- ~~(iii) Protect, enhance, and replace native vegetation;~~
- ~~(iv) Relocate improvements or structures;~~
- ~~(v) Construct a soft structure;~~
- ~~(vi) Construct upland retaining walls;~~
- ~~(vii) Construct hard structure landward of the OHWL; and~~
- ~~(viii) Construct hard structure at the OHWL.~~

~~(e-))~~ The construction of all ~~((bank protection))~~ shoreline stabilization must not result in a permanent loss of surf smelt or Pacific sand lance spawning beds.

~~((d))~~ An HPA application for new bank protection, or the replacement or rehabilitation of bank protection that extends waterward of an existing bank protection structure must include a site assessment, alternatives analysis and design rationale for the proposed method prepared by a qualified professional. The department may grant an exemption depending on the scale and nature of the project. The applicant must submit the qualified professional's report to the department as part of a complete application for an HPA that includes:

- ~~(i) An assessment of the level of risk to existing buildings, roads, or services being threatened by the erosion;~~
- ~~(ii) Evidence of erosion and/or slope instability to warrant the stabilization work;~~
- ~~(iii) Alternatives considered and the technical rationale specific to the bank protection technique proposed;~~
- ~~(iv) An analysis of the benefits and impacts associated with the chosen protection method; and~~
- ~~(v) An explanation of the method chosen, design parameters, types of materials, quantities, staging, and site rehabilitation.~~

~~(e-))~~ (c) The department may require the design of hard ~~((bank protection))~~ shoreline stabilization structures to incorporate beach nourishment, large woody material or native vegetation as mitigation.

~~((4))~~ **Bank protection**) **(5) Shoreline stabilization location:**

(a) Locate the waterward face of a new hard ~~((bank protection))~~ shoreline stabilization structure at or above the OHWL. Where this is not feasible because of geological, engineering, or safety concerns, the hard ~~((bank protection))~~ structure may extend waterward of the OHWL the least distance needed to excavate for footings or place base rock, but no greater than six feet. Soft shoreline methods that allow beach processes and habitat to remain intact may extend waterward of the OHWL.

(b) Do not locate the waterward face of a replacement or repaired hard ~~((bank protection))~~ shoreline stabilization further waterward than the structure it is replacing. Where removing the existing hard ~~((bank protection))~~ structure will result in environmental degradation such as releasing deleterious material or problems due to geological, engineering, or safety concerns, the department will authorize the replacement ~~((bank protection))~~ shoreline stabilization to extend waterward of, but directly abutting, the existing structure. In these instances, a person must use the least-impacting type of structure and construction method.

~~((5))~~ **Bank protection**) **(6) Shoreline stabilization construction:**

(a) The department requires that plans submitted as part of a complete application show the horizontal distances of the structure(s) from permanent local benchmark(s) (fixed objects). Each horizontal distance shown must include the length and compass bearing from the benchmark to the waterward face of the structure(s). The benchmark(s) must be located, marked, and protected to serve as a post-project reference for at least (~~ten~~) 10 years from the date the HPA application is submitted to the department.

(b) A person must not conduct project activities when tidal waters cover the work area including the work corridor, except the area occupied by a grounded barge.

(c) No stockpiling of excavated materials containing silt, clay, or fine-grained soil is approved waterward of the OHWL.

(d) The department may allow stockpiling of sand, gravel, and other coarse material waterward of the OHWL. Place this material within the designated work corridor. Remove all excavated or stockpiled material from the beach within (~~seventy-two~~) 72 hours of construction.

(e) Backfill all trenches, depressions, or holes created during construction that are waterward of the OHWL before they are filled by tidal waters.

[Statutory Authority: RCW 77.04.012, 77.12.047, 77.55.021, 34.05.328, and 2019 c 290. WSR 20-11-019 (Order 20-75), § 220-660-370, filed 5/12/20, effective 6/12/20. Statutory Authority: RCW 77.04.012, 77.04.020, and 77.12.047. WSR 15-02-029 (Order 14-353), § 220-660-370, filed 12/30/14, effective 7/1/15.]

**WSR 23-02-035**  
**PERMANENT RULES**  
**DEPARTMENT OF**

**SOCIAL AND HEALTH SERVICES**

(Economic Services Administration)

[Filed December 29, 2022, 8:09 a.m., effective January 29, 2023]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The department is adopting amendments to WAC

388-424-0001 Citizenship and immigration status—Definitions, 388-424-0020 How does my alien status impact my eligibility for federally funded basic food benefits?, and 388-466-0005 Immigration status requirements for refugee cash assistance. These amendments are necessary to align department policies with federal legislation and authorization from the Office of Refugee Resettlement which expands eligibility for federally funded benefits to humanitarian parolee arrivals displaced from Ukraine. Emergency amendments to implement this change took effect June 24, 2022, under WSR 22-14-020, and were extended under WSR 22-21-092 filed on October 17, 2022. This CR-103P filing supersedes the emergency filed as WSR 22-21-092.

Citation of Rules Affected by this Order: Amending WAC

388-424-0001, 388-424-0020, and 388-466-0005.

Statutory Authority for Adoption: RCW 74.04.050, 74.04.055, 74.04.057, 74.04.510, 74.08.090, and 74.08A.120.

Other Authority: Additional Ukraine Supplemental Appropriations Act, 2022 (P.L. 117-128) and Policy Letter 22-13 dated May 26, 2022.

Adopted under notice filed as WSR 22-23-138 on November 21, 2022.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 3, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 3, Repealed 0.

Date Adopted: December 29, 2022.

Katherine I. Vasquez  
Rules Coordinator

**SHS-4943.5**

AMENDATORY SECTION (Amending WSR 22-12-038, filed 5/25/22, effective 6/25/22)

**WAC 388-424-0001 Citizenship and immigration status—Definitions.** For the purposes of determining an individual's citizenship and immigration status for public assistance, the following definitions apply:

(1) **"Lawfully present"** are immigrants or noncitizens who have been inspected and admitted into the United States and have not overstayed the period for which they were admitted, or have current permission from the U.S. Citizenship and Immigration Services (CIS) to stay or live in the U.S.

(2) **"Qualified aliens"** are lawfully present immigrants defined in federal law as one of the following:

(a) Individuals lawfully admitted for permanent residence (LPRs).

(b) Individuals who are admitted to the U.S. as refugees under INA §207. The following individuals are treated the same as refugees in their eligibility for public assistance:

(i) Hmong or Highland Lao are members of a Hmong or Highland Lao-tribe which rendered military assistance to the U.S. during the Vietnam era (August 5, 1964, to May 7, 1975), and are "lawfully present" in the U.S. This category also includes the spouse (including unremarried widow or widower) or unmarried dependent child of such tribal members.

(ii) Victims of trafficking according to federal law are:

(A) Individuals who have been certified as victims of trafficking by the federal U.S. Department of Health and Human Services (HHS), Office on Trafficking in Person (OTIP), or have been granted a T visa.

(B) Immediate family members of trafficking victims. Immediate family members are the spouse or child of a victim of any age and the parent or unmarried minor sibling if the victim is under 21 years old.

(iii) Afghan nationals and their spouses and children, paroled into the U.S. between July 31, 2021, and September 30, 2022, after evacuation from Afghanistan to the U.S., or to a location overseas (-): or

(A) an individual who was paroled into the U.S. after September 30, 2022, and is the spouse or child of an Afghan national as defined in subsection (iii) of this section;

(B) an individual who is the parent or legal guardian of an individual defined in subsection (iii) of this section who is determined to be an unaccompanied child;

(iv) Special immigrants from Iraq and Afghanistan are individuals granted:

(A) Special immigrant status under INA §101 (a) (27);

(B) Special immigrant conditional permanent resident; or

(C) Paroled under section 602 (B) (1) AAPA/Sec 1059(a) NDAA 2006.

(v) Individuals from Ukraine and their family members admitted as humanitarian parolees between February 24, 2022, and September 30, 2023, and whose parole has not been terminated by the Secretary of the Department of Homeland Security (DHS), who are:

(A) Citizens or nationals of Ukraine;

(B) Non-Ukrainian individuals who were habitually residing in Ukraine, and have documentation confirming last habitual residence in Ukraine;

(C) Individuals who were first granted humanitarian parole, and then obtained temporary protected status (TPS). They are eligible for federally funded assistance until the end of their parole term due to underlying receipt of humanitarian parole;

(D) A spouse or child of an individual described in subsections (A)-(C) of this section who is paroled into the United States after September 30, 2023;

(E) A parent, legal guardian, or primary caregiver of an unaccompanied refugee minor or an unaccompanied child described in subsec-

tions (A)-(C) of this section who is paroled into the United States after September 30, 2023.

(c) Individuals who have been granted asylum under INA §208.

(d) Cuban/Haitian entrants. These are nationals of Cuba or Haiti who were paroled into the U.S. or given other special status.

(e) Abused spouses or children, parents of abused children, or children of abused spouses:

(i) When the alien no longer resides with the person who committed the abuse, and has one of the following:

(A) A pending or approved I-130 petition or application to immigrate as an immediate relative of a U.S. citizen or as the spouse or unmarried child under age 21 of a lawful permanent resident (LPR);

(B) A notice of "prima facie" approval of a pending self-petition under the violence against women act (VAWA); or

(C) Proof of a pending application for suspension of deportation or cancellation of removal under VAWA.

(ii) Children of an abused spouse do not need their own separate pending or approved petition, but are included in their parent's petition if it was filed before they turned 21 years old. Children of abused persons who meet the conditions (~~above~~) in this section retain their "qualified alien" status even after they turn 21 years old.

(f) Individuals who have been granted parole into the U.S. for at least a period of one year (or indefinitely) under INA §212 (d) (5), including "public interest" parolees.

(g) Individuals granted withholding of deportation or removal under INA §243(h) or §241 (b) (3).

(h) Individuals who were admitted to the U.S. as conditional entrants under INA §203 (a) (7) prior to April 1, 1980.

(i) Amerasians who were born to U.S. citizen armed services members in Southeast Asia during the Vietnam War.

(3) **"Nonqualified aliens"** are noncitizens who are lawfully present in the U.S. and who are not included in the definition of qualified aliens in subsection (1) of this section. Nonqualified aliens include but are not limited to:

(a) Citizens of Marshall Islands, Micronesia, or Palau;

(b) Immigrants paroled into the U.S. for less than one year;

(c) Immigrants granted temporary protected status; or

(d) Nonimmigrants who are allowed entry into the U.S. for a specific purpose usually for a limited time are also nonqualified. Examples include:

(i) Business visitors;

(ii) Students; and

(iii) Tourists.

(4) **"Survivors of certain crimes"** are noncitizens, and any of their qualifying family members, as defined in subsection (5) of this section, who have:

(a) Filed or are preparing to file an application for a T visa (trafficking victim);

(b) Filed or are preparing to file an application for a U visa (crime victim); or

(c) Been harmed by one of the specific crimes described below; and

(i) Was granted continued presence by U.S. Homeland Security; or

(ii) Has filed or is preparing to file an application for asylum status.

Specific crimes include:

(A) Those related to human trafficking, kidnapping, unlawful imprisonment, custodial interference, luring, trafficking, coercion of involuntary servitude, and others under chapter 9A.40 RCW;

(B) Sexual exploitation of children and others under chapter 9.68A RCW; or

(C) Substantially similar crimes under federal law or the laws of another state.

(5) "**Qualifying family members**" are the spouse and child(ren) of survivors of certain crimes, and the parents or unmarried minor siblings if the survivor is under 21 years old. Qualifying family members do not include a person charged with or convicted of attempt, conspiracy, solicitation, or commission of a crime, listed under subsection (4)(c) of this section, against the survivor of certain crimes.

(6) "**Undocumented aliens**" are noncitizens without a lawful immigration status as defined in subsections (2) or (3) of this section, and who:

(a) Entered the U.S. illegally; or

(b) Were lawfully admitted but whose status expired or was revoked per United States Citizenship and Immigration Services (USCIS).

(7) "**U.S. citizens**" are one of the following:

(a) Individuals born in the United States or its territories (Guam, Puerto Rico, and the U.S. Virgin Islands; also residents of the Northern Mariana Islands who elected to become U.S. citizens).

(b) American Indians born outside the U.S. without regard to immigration status or date of entry if:

(i) They were born in Canada and are 50 percent American Indian blood (but need not belong to a federally recognized tribe); or

(ii) They are members of a federally recognized Indian tribe or Alaskan Native village or corporation.

(c) Individuals who have become naturalized U.S. citizens.

(d) Individuals born abroad to at least one U.S. citizen parent depending on conditions at the time of their birth, per title 8, subchapter III, section 1401 of the United States Code.

(e) Individuals who turn 18 years of age on or after February 27, 2001, automatically become U.S. citizens if the following conditions are met while the individual is under age 18 per INA 320.

(i) The individual is granted lawful permanent resident (LPR) status;

(ii) At least one of the individual's parents is a U.S. citizen by birth or naturalization; and

(iii) The individual:

(A) Resides in the U.S. in the legal and physical custody of the citizen parent; or

(B) Was adopted according to the requirements of INA 101 and resides in the U.S. in the legal and physical custody of the citizen parent.

(f) Individuals, who turned 18 before February 27, 2001, would have automatically become a citizen if, while still under 18, they became a lawful permanent resident and both of their parents were naturalized. Such individuals also may have derived citizenship when only one parent naturalized, if the other parent was dead or a U.S. citizen by birth, or the individual's parents were separated and the naturalized parent had custody.

(8) "**U.S. nationals**" are persons who owe permanent allegiance to the U.S. and may enter and work in the U.S. without restriction. The following are the only persons classified as U.S. nationals:



(a) Persons born in American Samoa or Swain's Island after December 24, 1952; and

(b) Residents of the Northern Mariana Islands who did not elect to become U.S. citizens.

[Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, and 74.08.090. WSR 22-12-038, § 388-424-0001, filed 5/25/22, effective 6/25/22. Statutory Authority: RCW 74.04.005, 74.04.050, 74.04.055, 74.04.057, 74.04.820, 74.08.090, 74.08A.120, 74.09.035. WSR 22-02-014, § 388-424-0001, filed 12/27/21, effective 2/1/22. Statutory Authority: RCW 74.04.005, 74.04.050, 74.04.057, 74.04.500, 74.04.510, 74.04.515, 74.08.090, and 74.08A.120. WSR 20-09-044, § 388-424-0001, filed 4/8/20, effective 5/9/20. Statutory Authority: RCW 74.04.050, 74.04.057, and 74.08.090. WSR 11-16-056, § 388-424-0001, filed 7/29/11, effective 8/29/11. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, 74.08A.020, and Sec. 8120 of Pub. L 111-118 (DOD appropriations law); USDA Food and Nutrition Service federal guidance from January 29, 2010; U.S. DHHS Administration for Children and Families, Office of Family Assistance federal guidance letter No. TANF-ACF-PI-2010-05 issued on June 16, 2010. WSR 10-15-045, § 388-424-0001, filed 7/13/10, effective 7/27/10. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08A.320, 74.08.090, and Public Law 110-161 Section 525; Public Law 110-181 Section 1244; FNS Admin Notice 08-17; State Letter 04-12 from the Office of Refugee Resettlement. WSR 08-14-116, § 388-424-0001, filed 6/30/08, effective 8/1/08. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090. WSR 04-15-004, § 388-424-0001, filed 7/7/04, effective 8/7/04.]

AMENDATORY SECTION (Amending WSR 22-12-038, filed 5/25/22, effective 6/25/22)

**WAC 388-424-0020 How does my alien status impact my eligibility for federally funded Basic Food benefits?** (1) If you are a U.S. citizen or U.S. national as defined in WAC 388-424-0001 and meet all other eligibility requirements, you may receive federal Basic Food benefits.

(2) If you are not a U.S. citizen or U.S. national, you must fall within (a) or (b) of this subsection, and meet all other eligibility requirements, in order to receive federal Basic Food benefits:

(a) You are a member of one of the following groups of lawful immigrants as defined in WAC 388-424-0001:

(i) Amerasian;

(ii) Asylee;

(iii) Cuban or Haitian entrant;

(iv) Deportation or removal withheld;

(v) Refugee;

(vi) Afghan nationals paroled into the U.S. between July 31, 2021, and September 30, 2022, or their spouse or child paroled into the U.S. after September 30, 2022;

(vii) Special immigrant from Iraq or Afghanistan;

(viii) Victim of trafficking;

(ix) Noncitizen American Indian; or

(x) Hmong or Highland Lao tribal member.

(b) ~~((+))~~ You are a member of one of the following groups of qualified aliens as defined in WAC 388-424-0001:

~~((A))~~ (i) Conditional entrant;

~~((B))~~ (ii) Lawful permanent resident (LPR);

~~((C))~~ (iii) Paroled for one year or more; ~~((E))~~

(iv) Individuals from Ukraine granted humanitarian parole between February 24, 2022, and September 30, 2023; or

(A) their spouses and children paroled into the U.S. after September 30, 2023; or

(B) a parent, legal guardian, or primary caregiver of an unaccompanied refugee minor or an unaccompanied child described who is paroled into the U.S. after September 30, 2023; or

~~((D))~~ (v) Abused spouse or child or parent or child of an abused spouse or child.

~~((ii))~~ (vi) And, one of the following also applies to you:

(A) You have worked or can get credit for ~~((forty))~~ 40 Social Security Administration (SSA) work quarters - as described in WAC 388-424-0008;

(B) You are an active duty personnel or honorably discharged veteran of the U.S. military or you are the spouse, unmarried surviving spouse, or unmarried dependent child of someone who meets this requirement, as described in WAC 388-424-0007;

(C) You receive cash or medical benefits based on supplemental security income (SSI) criteria for blindness or disability;

(D) You have lived in the U.S. as a "qualified alien" as described in WAC 388-424-0001 for at least five years;

(E) You are under age ~~((eighteen))~~ 18; or

(F) You were lawfully residing in the U.S. on August 22, 1996, and were born on or before August 22, 1931.

(3) If you are a legal immigrant not eligible for federal benefits under Basic Food only because of your alien status, you may be eligible for state-funded food assistance program (FAP) benefits under WAC 388-400-0050.

[Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, and 74.08.090. WSR 22-12-038, § 388-424-0020, filed 5/25/22, effective 6/25/22. Statutory Authority: RCW 74.04.005, 74.04.500, 74.04.510, 74.04.515, 74.08.090, and 74.08A.120. WSR 12-18-024, § 388-424-0020, filed 8/27/12, effective 9/27/12. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.500, 74.04.510, 74.08.090, and 74.08A.120. WSR 11-02-035, § 388-424-0020, filed 12/29/10, effective 2/1/11. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, 74.08A.020, and Sec. 8120 of Pub. L 111-118 (DOD appropriations law); USDA Food and Nutrition Service federal guidance from January 29, 2010; U.S. DHHS Administration for Children and Families, Office of Family Assistance federal guidance letter No. TANF-ACF-PI-2010-05 issued on June 16, 2010. WSR 10-15-045, § 388-424-0020, filed 7/13/10, effective 7/27/10. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, 74.08A.320, Pub. L. No. 110-181, National Defense Authorization Act for Fiscal Year 2008, Pub. L. No. 111-08, the Omnibus Appropriations Act of 2009, Division F, Title VI, Section 602; Office of Refugee Resettlement State Letter 09-17 from April 9, 2009; and federal guidance issued on May 15, 2009, by the Food and Nutrition Service, United States Department of Agriculture. WSR 09-21-046, § 388-424-0020, filed 10/14/09, effective 11/4/09. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08A.320, 74.08.090, and Public Law 110-161 Section 525; Public Law 110-181 Section 1244; FNS Admin Notice 08-17; State Letter 04-12 from the Office of Refugee Resettlement. WSR 08-14-116, § 388-424-0020, filed 6/30/08, effective 8/1/08. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090.

WSR 04-15-004, § 388-424-0020, filed 7/7/04, effective 8/7/04. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, and 74.04.510. WSR 03-05-029, § 388-424-0020, filed 2/10/03, effective 4/1/03. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, and H.R. 2646 Farm Security and Rural Investment Act of 2002. WSR 02-22-046, § 388-424-0020, filed 10/30/02, effective 12/1/02. Statutory Authority: RCW 74.04.510, S. 1150, the Agricultural Research, Extension, and Education Reform Act of 1998. WSR 99-01-058, § 388-424-0020, filed 12/11/98, effective 1/11/99. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057 and 74.08.090. WSR 98-16-044, § 388-424-0020, filed 7/31/98, effective 9/1/98. Formerly WAC 388-518-1805.]

AMENDATORY SECTION (Amending WSR 22-12-038, filed 5/25/22, effective 6/25/22)

**WAC 388-466-0005 Immigration status requirements for refugee cash assistance.** (1) You may be eligible for refugee cash assistance (RCA) if you can provide documentation issued by the U.S. Citizenship and Immigration Services (USCIS), that you are:

- (a) Admitted as a refugee under section 207 of the Immigration and Nationalities Act (INA);
- (b) Paroled into the U.S. as a refugee or asylee under section 212 (d) (5) of the INA;
- (c) Granted conditional entry under section 203 (a) (7) of the INA;
- (d) Granted asylum under section 208 of the INA;
- (e) Admitted as an Amerasian Immigrant from Vietnam through the orderly departure program, under section 584 of the Foreign Operations Appropriations Act, incorporated in the FY88 Continuing Resolution P.L. 100-212;
- (f) A Cuban-Haitian entrant who was admitted as a public interest parolee under section 212 (d) (5) of the INA;
- (g) Certified as a victim of human trafficking by the federal office of refugee resettlement (ORR);
- (h) An eligible family member of a victim of human trafficking certified by ORR who has a T-2, T-3, T-4, or T-5 Visa;
- (i) Afghan nationals paroled into the U.S. between July 31, 2021, and September 30, 2022; or
- (i) an individual who was paroled into the U.S. after September 30, 2022, and is the spouse or child of an Afghan national as defined in subsection (i) of this section;
- (ii) an individual who is the parent or legal guardian of an individual defined in subsection (i) of this section who is determined to be an unaccompanied child;
- (j) Admitted as Special Immigrant from Iraq or Afghanistan under section 101 (a) (27) of the INA, or special immigrant conditional permanent resident, or paroled under section 602 (B) (1) AAPA/Sec 1059 (a) NDAA 2006 (-);
- (k) Individuals from Ukraine admitted as humanitarian parolees between February 24, 2022, and September 30, 2023, and whose parole has not been terminated by the Secretary of the Department of Homeland Security (DHS), who:
- (i) are citizens or nationals of Ukraine;

(ii) are non-Ukrainian individuals, who were habitually residing in Ukraine, and have documentation confirming last habitual residence in Ukraine;

(iii) are individuals who were first granted humanitarian parole, and then obtained temporary protected status (TPS). They are eligible for refugee cash assistance until the end of their parole term due to underlying receipt of humanitarian parole;

(iv) are children or spouses of someone paroled into the U.S. under subsection (k) of this section and who are paroled into the U.S. after September 30, 2023; or

(v) is the parent, legal guardian, or primary caregiver of an individual described in subsection (k) of this section who is determined to be an unaccompanied child.

(2) A permanent resident alien meets the immigration status requirements for RCA if the individual was previously in one of the statuses described in subsections (1)(a) through ~~((g))~~ (k) of this section.

[Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, and 74.08.090. WSR 22-12-038, § 388-466-0005, filed 5/25/22, effective 6/25/22. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08.090, 74.08A.250, and 2011 1st sp.s. c 15. WSR 12-19-037, § 388-466-0005, filed 9/12/12, effective 10/13/12. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057, 74.08A.320, 74.08.090, and Public Law 110-161 Section 525; Public Law 110-181 Section 1244; FNS Admin Notice 08-17; State Letter 04-12 from the Office of Refugee Resettlement. WSR 08-14-116, § 388-466-0005, filed 6/30/08, effective 8/1/08. Statutory Authority: RCW 74.04.050, 74.04.055, 74.04.057 and 74.08.090. WSR 98-16-044, § 388-466-0005, filed 7/31/98, effective 9/1/98.]

## WSR 23-02-049

## PERMANENT RULES

## DEPARTMENT OF REVENUE

[Filed January 2, 2023, 9:19 a.m., effective January 2, 2023, 9:19 a.m.]

Effective Date of Rule: Immediately upon filing.

Other Findings Required by Other Provisions of Law as Precondition to Adoption or Effectiveness of Rule: The updated forest land values in WAC 458-40-660 are required by RCW 84.33.140 to be updated on or before December 31 for use the following year. RCW 84.33.091 requires the stumpage values in WAC 458-40-660 to be updated on or before December 31 for use the following January 1 through June 30.

Purpose: WAC 458-40-540 contains the forest land values used by county assessors for property tax purposes; this rule is being revised to provide the forest land values to be used during 2023. WAC 458-40-660 contains the stumpage values used by timber harvesters to calculate the timber excise tax; this rule is being revised to provide updated stumpage values for the period from January 1 through June 30, 2023.

Citation of Rules Affected by this Order: Amending WAC 458-40-540 Forest land values—2022 and 458-40-660 Timber excise tax—Stumpage value tables—Stumpage value adjustments.

Statutory Authority for Adoption: RCW 82.01.060(2) and 84.33.096.

Other Authority: RCW 84.33.091 and 84.33.140.

Adopted under notice filed as WSR 22-23-132 on November 21, 2022.

A final cost-benefit analysis is available by contacting Nikki Bizzarri, P.O. Box 47453, Olympia, WA 98504-7453, phone 360-534-1582, fax 360-534-1606, TTY 1-800-451-7985, email NikkiB@dor.wa.gov, website dor.wa.gov.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 2, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 2, 2023.

Atif Aziz  
Rules Coordinator

**OTS-4170.3**

AMENDATORY SECTION (Amending WSR 22-01-185, filed 12/20/21, effective 1/1/22)

**WAC 458-40-540 Forest land values—((2022)) 2023.** The forest land values, per acre, for each grade of forest land for the ((2022)) 2023 assessment year are determined to be as follows:

LAND GRADE	OPERABILITY CLASS	((2022)) 2023 VALUES PER ACRE
1	1	((218)) <u>224</u>
	2	((216)) <u>222</u>
	3	((202)) <u>208</u>
	4	((148)) <u>152</u>
2	1	((186)) <u>191</u>
	2	((179)) <u>184</u>
	3	((172)) <u>177</u>
	4	((122)) <u>125</u>
3	1	((144)) <u>148</u>
	2	((140)) <u>144</u>
	3	((138)) <u>142</u>
	4	((106)) <u>109</u>
4	1	((112)) <u>115</u>
	2	((107)) <u>110</u>
	3	((106)) <u>109</u>
	4	((81)) <u>83</u>
5	1	((81)) <u>83</u>
	2	((71)) <u>73</u>
	3	((70)) <u>72</u>
	4	((50)) <u>51</u>
6	1	((41)) <u>42</u>
	2	((39)) <u>40</u>
	3	((39)) <u>40</u>
	4	((37)) <u>38</u>
7	1	((18)) <u>19</u>
	2	((18)) <u>19</u>
	3	17
	4	17
8	1	1

[Statutory Authority: RCW 82.01.060(2), 84.33.096, 84.33.091, and 84.33.140. WSR 22-01-185, § 458-40-540, filed 12/20/21, effective 1/1/22; WSR 21-02-020, § 458-40-540, filed 12/28/20, effective 1/1/21. Statutory Authority: RCW 82.01.060(2) and 84.33.096. WSR 20-02-053, § 458-40-540, filed 12/23/19, effective 1/1/20; WSR 19-02-069, § 458-40-540, filed 12/28/18, effective 1/1/19. Statutory Authority: RCW 82.01.060(2), 82.32.300, and 84.33.096. WSR 18-02-058, § 458-40-540, filed 12/29/17, effective 1/1/18; WSR 17-02-003, § 458-40-540, filed 12/22/16, effective 1/1/17; WSR 16-01-069, § 458-40-540, filed 12/14/15, effective 1/1/16. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, 84.33.091, and 84.33.140. WSR 15-01-095, § 458-40-540, filed 12/17/14, effective 1/1/15. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, and 84.33.091. WSR 14-01-097, § 458-40-540, filed 12/17/13, effective 1/1/14; WSR 13-02-034, § 458-40-540, filed 12/21/12, effective 1/1/13. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, 84.33.091 and 84.33.140. WSR 12-02-040, § 458-40-540, filed 12/29/11, effective 1/1/12. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, and 84.33.091. WSR 11-02-019, § 458-40-540, filed 12/29/10, effective 1/1/11; WSR

10-02-031, § 458-40-540, filed 12/29/09, effective 1/1/10; WSR  
 09-02-044, § 458-40-540, filed 12/31/08, effective 1/1/09; WSR  
 08-02-063, § 458-40-540, filed 12/28/07, effective 1/1/08; WSR  
 07-02-038, § 458-40-540, filed 12/26/06, effective 1/1/07. Statutory  
 Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, and 84.33.140. WSR  
 06-02-006, § 458-40-540, filed 12/22/05, effective 1/1/06; WSR  
 05-02-037, § 458-40-540, filed 12/30/04, effective 1/1/05. Statutory  
 Authority: RCW 82.32.300 and 84.33.140. WSR 04-02-018, § 458-40-540,  
 filed 12/30/03, effective 1/1/04. Statutory Authority: RCW  
 82.01.060(2), 82.32.300, 84.33.096, 84.33.091, and 84.33.140. WSR  
 03-02-004, § 458-40-540, filed 12/19/02, effective 1/1/03. Statutory  
 Authority: RCW 82.32.300, 84.33.096, 84.33.091 and 84.33.120. WSR  
 02-02-033, § 458-40-540, filed 12/24/01, effective 1/1/02. Statutory  
 Authority: RCW 82.32.300, 84.33.096 and 84.33.120. WSR 01-02-018, §  
 458-40-540, filed 12/21/00, effective 1/1/01; WSR 00-02-018, §  
 458-40-540, filed 12/27/99, effective 1/1/00; WSR 99-02-030, §  
 458-40-540, filed 12/30/98, effective 1/1/99; WSR 98-02-014, §  
 458-40-540, filed 12/30/97, effective 1/1/98; WSR 97-07-041, §  
 458-40-540, filed 3/14/97, effective 4/14/97; WSR 96-02-055, §  
 458-40-540, filed 12/29/95, effective 1/1/96. Statutory Authority: RCW  
 82.32.300 and 84.33.120. WSR 95-02-039, § 458-40-540, filed 12/30/94,  
 effective 1/1/95. Statutory Authority: RCW 82.32.300. WSR 94-02-046, §  
 458-40-540, filed 12/30/93, effective 1/1/94. Statutory Authority: RCW  
 84.33.120. WSR 93-02-024, § 458-40-540, filed 12/31/92, effective  
 1/1/93; WSR 91-24-026, § 458-40-540, filed 11/26/91, effective 1/1/92.  
 Statutory Authority: RCW 84.33.120 and 84.08.010. WSR 90-24-012, §  
 458-40-540, filed 11/27/90, effective 12/28/90; WSR 89-23-095, §  
 458-40-540, filed 11/21/89, effective 12/22/89. Statutory Authority:  
 RCW 84.33.120 and 84.33.130. WSR 88-23-055 (Order FT-88-3), §  
 458-40-540, filed 11/15/88; WSR 87-22-068 (Order FT-87-3), §  
 458-40-540, filed 11/4/87. Statutory Authority: Chapter 84.33 RCW. WSR  
 87-02-023 (Order 86-4), § 458-40-540, filed 12/31/86.]

AMENDATORY SECTION (Amending WSR 22-14-029, filed 6/24/22, effective 7/1/22)

**WAC 458-40-660 Timber excise tax—Stumpage value tables—Stumpage value adjustments.** (1) **Introduction.** This rule provides stumpage value tables and stumpage value adjustments used to calculate the amount of a harvester's timber excise tax.

(2) **Stumpage value tables.** The following stumpage value tables are used to calculate the taxable value of stumpage harvested from ~~((July 1 through December 31, 2022))~~ January 1 through June 30, 2023:

Washington State Department of Revenue

**WESTERN WASHINGTON STUMPAGE VALUE TABLE**

~~((July 1 through December 31, 2022))~~

January 1 through June 30, 2023

Stumpage Values per Thousand Board Feet Net Scribner Log Scale<sup>(1)</sup>  
 Starting January 1, 2019, there are no Haul Zone ad-  
 justments.

Species Name	Species Code	SVA (Stumpage Value Area)	Stumpage Values
Douglas-fir <sup>(2)</sup>	DF	1	\$((509)) <u>547</u>
		2	((611)) <u>591</u>
		3	((658)) <u>597</u>
		4	((640)) <u>627</u>
		5	((559)) <u>561</u>
		9	((495)) <u>533</u>
Western Hemlock and Other Conifer <sup>(3)</sup>	WH	1	((342)) <u>345</u>
		2	((448)) <u>458</u>
		3	((404)) <u>418</u>
		4	((418)) <u>406</u>
		5	((399)) <u>408</u>
		9	((328)) <u>331</u>
Western Redcedar <sup>(4)</sup>	RC	1-5	((1472)) <u>1358</u>
		9	((1458)) <u>1344</u>
Ponderosa Pine <sup>(5)</sup>	PP	1-5	((185)) <u>200</u>
		9	((171)) <u>186</u>
Red Alder	RA	1-5	((521)) <u>564</u>
		9	((507)) <u>550</u>
Black Cottonwood	BC	1-5	((39)) <u>23</u>
		9	((25)) <u>9</u>
Other Hardwood	OH	1-5	((251)) <u>243</u>
		9	((237)) <u>229</u>
Douglas-fir Poles & Piles	DFL	1-5	((975)) <u>1061</u>
		9	((961)) <u>1047</u>
Western Redcedar Poles	RCL	1-5	((1763)) <u>1745</u>
		9	((1749)) <u>1731</u>
Chipwood <sup>(6)</sup>	CHW	1-5	((1)) <u>8</u>
		9	((1)) <u>6</u>



Species Name	Species Code	SVA (Stumpage Value Area)	Stumpage Values
RC Shake & Shingle Blocks <sup>(7)</sup>	RCS	1-9	<del>((322))</del> <u>588</u>
Posts <sup>(8)</sup>	LPP	1-9	0.35
DF Christmas Trees <sup>(9)</sup>	DFX	1-9	0.25
Other Christmas Trees <sup>(9)</sup>	TFX	1-9	0.50

- (1) Log scale conversions Western and Eastern Washington. See conversion methods WAC 458-40-680.
- (2) Includes Western Larch.
- (3) Includes all Hemlock, Spruce and true Fir species, or any other conifer not listed on this page.
- (4) Includes Alaska-Cedar.
- (5) Includes all Pines in SVA 1-5 & 9.
- (6) Stumpage value per ton.
- (7) Stumpage value per cord.
- (8) Includes Lodgepole posts and other posts, Stumpage value per 8 lineal feet or portion thereof.
- (9) Stumpage value per lineal foot.

**Washington State Department of Revenue**  
**EASTERN WASHINGTON STUMPAGE VALUE TABLE**  
 ((July 1 through December 31, 2022))  
 January 1 through June 30, 2023

Stumpage Values per Thousand Board Feet Net Scribner Log Scale<sup>(1)</sup>  
 Starting January 1, 2019, there are no Haul Zone adjustments.

Species Name	Species Code	SVA (Stumpage Value Area)	Stumpage Values
Douglas-fir <sup>(2)</sup>	DF	6	<del>\$(410)</del> <u>416</u>
		7	<del>((424))</del> <u>430</u>
Western Hemlock and Other Conifer <sup>(3)</sup>	WH	6	<del>((304))</del> <u>336</u>
		7	<del>((318))</del> <u>350</u>
Western Redcedar <sup>(4)</sup>	RC	6	<del>((1689))</del> <u>1662</u>
		7	<del>((1703))</del> <u>1676</u>
Ponderosa Pine <sup>(5)</sup>	PP	6	<del>((171))</del> <u>186</u>
		7	<del>((185))</del> <u>200</u>
Other Hardwood	OH	6	1
		7	9
Western Redcedar Poles	RCL	6	<del>((1891))</del> <u>1833</u>
		7	<del>((1905))</del> <u>1847</u>
Chipwood <sup>(6)</sup>	CHW	6	1
		7	1

Species Name	Species Code	SVA (Stumpage Value Area)	Stumpage Values
Small Logs <sup>(6)</sup>	SML	6	23
		7	25
RC Shake & Shingle Blocks <sup>(7)</sup>	RCS	6-7	<del>((322))</del> <u>588</u>
Posts <sup>(8)</sup>	LPP	6-7	0.35
DF Christmas Trees <sup>(9)</sup>	DFX	6-7	0.25
Other Christmas Trees <sup>(9)</sup>	TFX	6-7	0.50

- (1) Log scale conversions Western and Eastern Washington. See conversion methods WAC 458-40-680.
- (2) Includes Western Larch.
- (3) Includes all Hemlock, Spruce and true Fir species, and Lodgepole Pine in SVA 6-7, or any other conifer not listed on this table.
- (4) Includes Alaska-Cedar.
- (5) Includes Western White Pine in SVA 6-7.
- (6) Stumpage value per ton.
- (7) Stumpage value per cord.
- (8) Includes Lodgepole posts and other posts, Stumpage value per 8 lineal feet or portion thereof.
- (9) Stumpage value per lineal foot.

(3) **Harvest value adjustments.** The stumpage values in subsection (2) of this rule for the designated stumpage value areas are adjusted for various logging and harvest conditions, subject to the following:

(a) No harvest adjustment is allowed for special forest products, chipwood, or small logs.

(b) Conifer and hardwood stumpage value rates cannot be adjusted below one dollar per MBF.

(c) Except for the timber yarded by helicopter, a single logging condition adjustment applies to the entire harvest unit. The taxpayer must use the logging condition adjustment class that applies to a majority (more than 50 percent) of the acreage in that harvest unit. If the harvest unit is reported over more than one quarter, all quarterly returns for that harvest unit must report the same logging condition adjustment. The helicopter adjustment applies only to the timber volume from the harvest unit that is yarded from stump to landing by helicopter.

(d) The volume per acre adjustment is a single adjustment class for all quarterly returns reporting a harvest unit. A harvest unit is established by the harvester prior to harvesting. The volume per acre is determined by taking the volume logged from the unit excluding the volume reported as chipwood or small logs and dividing by the total acres logged. Total acres logged does not include leave tree areas (RMZ, UMZ, forested wetlands, etc.,) over two acres in size.

(e) A domestic market adjustment applies to timber which meet the following criteria:

(i) **Public timber** - Harvest of timber not sold by a competitive bidding process that is prohibited under the authority of state or federal law from foreign export may be eligible for the domestic market adjustment. The adjustment may be applied only to those species of timber that must be processed domestically. According to type of sale, the adjustment may be applied to the following species:

Federal Timber Sales: All species except Alaska-cedar. (Stat. Ref. - 36 C.F.R. 223.10)

State, and Other Nonfederal, Public Timber Sales: Western Redcedar only. (Stat. Ref. - 50 U.S.C. appendix 2406.1)

(ii) **Private timber** - Harvest of private timber that is legally restricted from foreign export, under the authority of The Forest Resources Conservation and Shortage Relief Act (Public Law 101-382), (16 U.S.C. Sec. 620 et seq.); the Export Administration Act of 1979 (50 U.S.C. App. 2406(i)); a Cooperative Sustained Yield Unit Agreement made pursuant to the act of March 29, 1944 (16 U.S.C. Sec. 583-583i); or Washington Administrative Code (WAC 240-15-015(2)) is also eligible for the Domestic Market Adjustment.

The following harvest adjustment tables apply from January 1 through June 30, (~~2022~~) 2023:

**TABLE 9—Harvest Adjustment Table**  
**Stumpage Value Areas 1, 2, 3, 4, 5, and 9**  
 ((July 1 through December 31, 2022)) January 1 through June 30, 2023

Type of Adjustment	Definition	Dollar Adjustment Per Thousand Board Feet Net Scribner Scale
<b>I. Volume per acre</b>		
Class 1	Harvest of 30 thousand board feet or more per acre.	\$0.00
Class 2	Harvest of 10 thousand board feet to but not including 30 thousand board feet per acre.	-\$15.00
Class 3	Harvest of less than 10 thousand board feet per acre.	-\$35.00
<b>II. Logging conditions</b>		
Class 1	Ground based logging a majority of the unit using tracked or wheeled equipment or draft animals.	\$0.00
Class 2	Logging a majority of the unit: Using an overhead system of winch-driven cables and/or logging on slopes greater than 45% using tracked or wheeled equipment supported by winch-driven cables.	-\$85.00
Class 3	Applies to logs yarded from stump to landing by helicopter. This does not apply to special forest products.	-\$200.00
<b>III. Remote island adjustment:</b>		
	For timber harvested from a remote island	-\$50.00
<b>IV. Thinning</b>		
Class 1	A limited removal of timber described in WAC 458-40-610 (28)	-\$100.00

**TABLE 10—Harvest Adjustment Table**  
**Stumpage Value Areas 6 and 7**  
 ((July 1 through December 31, 2022)) January 1 through June 30, 2023

Type of Adjustment	Definition	Dollar Adjustment Per Thousand Board Feet Net Scribner Scale
<b>I. Volume per acre</b>		
Class 1	Harvest of more than 8 thousand board feet per acre.	\$0.00
Class 2	Harvest of 8 thousand board feet per acre and less.	-\$8.00
<b>II. Logging conditions</b>		

Type of Adjustment	Definition	Dollar Adjustment Per Thousand Board Feet Net Scribner Scale
Class 1	The majority of the harvest unit has less than 40% slope. No significant rock outcrops or swamp barriers.	\$0.00
Class 2	The majority of the harvest unit has slopes between 40% and 60%. Some rock outcrops or swamp barriers.	-\$50.00
Class 3	The majority of the harvest unit has rough, broken ground with slopes over 60%. Numerous rock outcrops and bluffs.	-\$85.00
Class 4	Applies to logs yarded from stump to landing by helicopter. This does not apply to special forest products.	-\$200.00
Note:	A Class 2 adjustment may be used for slopes less than 40% when cable logging is required by a duly promulgated forest practice regulation. Written documentation of this requirement must be provided by the taxpayer to the department of revenue.	
III. Remote island adjustment:		
	For timber harvested from a remote island	-\$50.00

**TABLE 11—Domestic Market Adjustment**

Class	Area Adjustment Applies	Dollar Adjustment Per Thousand Board Feet Net Scribner Scale
	SVAs 1 through 5 only:	\$0.00
Note:	This adjustment only applies to published MBF sawlog values.	

(4) **Damaged timber.** Timber harvesters planning to remove timber from areas having damaged timber may apply to the department of revenue for an adjustment in stumpage values. The application must contain a map with the legal descriptions of the area, an accurate estimate of the volume of damaged timber to be removed, a description of the damage sustained by the timber with an evaluation of the extent to which the stumpage values have been materially reduced from the values shown in the applicable tables, and a list of estimated additional costs to be incurred resulting from the removal of the damaged timber. The application must be received and approved by the department of revenue before the harvest commences. Upon receipt of an application, the department of revenue will determine the amount of adjustment to be applied against the stumpage values. Timber that has been damaged due to sudden and unforeseen causes may qualify.

(a) Sudden and unforeseen causes of damage that qualify for consideration of an adjustment include:

(i) Causes listed in RCW 84.33.091; fire, blow down, ice storm, flood.

(ii) Others not listed; volcanic activity, earthquake.

(b) Causes that do not qualify for adjustment include:

(i) Animal damage, root rot, mistletoe, prior logging, insect damage, normal decay from fungi, and pathogen caused diseases; and

(ii) Any damage that can be accounted for in the accepted normal scaling rules through volume or grade reductions.

(c) The department of revenue will not grant adjustments for applications involving timber that has already been harvested but will consider any remaining undisturbed damaged timber scheduled for removal if it is properly identified.

(d) The department of revenue will notify the harvester in writing of approval or denial. Instructions will be included for taking any adjustment amounts approved.

(5) **Forest-derived biomass**, has a \$0/ton stumpage value.

[Statutory Authority: RCW 82.01.060(2) and 84.33.096. WSR 22-14-029, § 458-40-660, filed 6/24/22, effective 7/1/22. Statutory Authority: RCW 82.01.060(2), 84.33.096, 84.33.091, and 84.33.140. WSR 22-01-185, § 458-40-660, filed 12/20/21, effective 1/1/22. Statutory Authority: RCW 82.01.060(2) and 84.33.096. WSR 21-13-100, § 458-40-660, filed 6/18/21, effective 7/1/21. Statutory Authority: RCW 82.01.060(2), 84.33.096, 84.33.091, and 84.33.140. WSR 21-02-020, § 458-40-660, filed 12/28/20, effective 1/1/21. Statutory Authority: RCW 82.01.060(2) and 84.33.096. WSR 20-14-067, § 458-40-660, filed 6/26/20, effective 7/1/20; WSR 20-02-053, § 458-40-660, filed 12/23/19, effective 1/1/20; WSR 19-14-013, § 458-40-660, filed 6/21/19, effective 7/1/19; WSR 19-02-069, § 458-40-660, filed 12/28/18, effective 1/1/19. Statutory Authority: RCW 82.01.060(2), 82.32.300, and 84.33.096. WSR 18-14-023, § 458-40-660, filed 6/26/18, effective 7/1/18; WSR 18-02-058, § 458-40-660, filed 12/29/17, effective 1/1/18; WSR 17-14-020, § 458-40-660, filed 6/23/17, effective 7/1/17; WSR 17-02-003, § 458-40-660, filed 12/22/16, effective 1/1/17. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, 84.33.091, and 84.33.140. WSR 16-14-035, § 458-40-660, filed 6/28/16, effective 7/1/16. Statutory Authority: RCW 82.01.060(2), 82.32.300, and 84.33.096. WSR 16-01-069, § 458-40-660, filed 12/14/15, effective 1/1/16. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, 84.33.091, and 84.33.140. WSR 15-14-019, § 458-40-660, filed 6/22/15, effective 7/1/15; WSR 15-01-095, § 458-40-660, filed 12/17/14, effective 1/1/15. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096 and 84.33.091. WSR 14-14-079, § 458-40-660, filed 6/27/14, effective 7/1/14; WSR 14-01-097, § 458-40-660, filed 12/17/13, effective 1/1/14; WSR 13-14-056, § 458-40-660, filed 6/28/13, effective 7/1/13; WSR 13-02-034, § 458-40-660, filed 12/21/12, effective 1/1/13; WSR 12-14-065, § 458-40-660, filed 6/29/12, effective 7/1/12. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, 84.33.091 and 84.33.140. WSR 12-02-040, § 458-40-660, filed 12/29/11, effective 1/1/12. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096 and 84.33.091. WSR 11-14-051, § 458-40-660, filed 6/29/11, effective 7/1/11; WSR 11-02-014, § 458-40-660, filed 12/29/10, effective 1/1/11; WSR 10-14-095, § 458-40-660, filed 7/6/10, effective 7/6/10; WSR 10-02-032, § 458-40-660, filed 12/29/09, effective 1/1/10; WSR 09-14-109, § 458-40-660, filed 6/30/09, effective 7/1/09; WSR 09-02-043, § 458-40-660, filed 12/31/08, effective 1/1/09; WSR 08-14-085, § 458-40-660, filed 6/27/08, effective 7/1/08; WSR 08-02-064, § 458-40-660, filed 12/28/07, effective 1/1/08; WSR 07-14-095, § 458-40-660, filed 6/29/07, effective 7/1/07; WSR 07-02-039, § 458-40-660, filed 12/26/06, effective 1/1/07; WSR 06-14-064, § 458-40-660, filed 6/30/06, effective 7/1/06; WSR 06-02-005, § 458-40-660, filed 12/22/05, effective 1/1/06; WSR 05-14-087, § 458-40-660, filed 6/30/05, effective 7/1/05; WSR 05-02-040, § 458-40-660, filed 12/30/04, effective 1/1/05; WSR 04-14-033, § 458-40-660, filed 6/29/04, effective 7/1/04; WSR 04-01-125, § 458-40-660, filed 12/18/03, effective 1/1/04; WSR 03-14-072, § 458-40-660, filed 6/26/03, effective 7/1/03. Statutory Authority: RCW 82.01.060(2), 82.32.300, 84.33.096, 84.33.091, and 84.33.140. WSR 03-02-004, § 458-40-660, filed 12/19/02, effective 1/1/03. Statutory Authority: RCW 82.32.300, 84.33.096, and 84.33.091. WSR 02-14-019, § 458-40-660, filed 6/21/02, effective 7/1/02. Statutory Authority: RCW 82.32.300, 84.33.096, 84.33.091 and 84.33.120. WSR

02-02-033, § 458-40-660, filed 12/24/01, effective 1/1/02. Statutory Authority: RCW 82.32.300, 84.33.096, and 84.33.091. WSR 01-13-105, § 458-40-660, filed 6/20/01, effective 7/1/01; WSR 01-02-020, § 458-40-660, filed 12/21/00, effective 1/1/01. Statutory Authority: RCW 82.32.300, 84.33.096, 84.33.091, 82.32.060, and 84.33.077. WSR 00-19-067, § 458-40-660, filed 9/19/00, effective 1/1/01. Statutory Authority: RCW 82.32.300, 84.33.096 and 84.33.091. WSR 00-14-011, § 458-40-660, filed 6/27/00, effective 7/1/00; WSR 00-02-019, § 458-40-660, filed 12/27/99, effective 1/1/00; WSR 99-14-055, § 458-40-660, filed 6/30/99, effective 7/1/99; WSR 99-02-032, § 458-40-660, filed 12/30/98, effective 1/1/99; WSR 98-14-083, § 458-40-660, filed 6/30/98, effective 7/1/98; WSR 98-02-015, § 458-40-660, filed 12/30/97, effective 1/1/98; WSR 97-14-068, § 458-40-660, filed 6/30/97, effective 7/1/97. Statutory Authority: RCW 82.32.330, 84.33.096 and 84.33.091. WSR 97-02-069, § 458-40-660, filed 12/31/96, effective 1/1/97; WSR 96-14-063, § 458-40-660, filed 6/28/96, effective 7/1/96; WSR 96-02-057, § 458-40-660, filed 12/29/95, effective 1/1/96. Statutory Authority: RCW 82.32.330, 84.33.096 and 84.33.200. WSR 95-18-027, § 458-40-660, filed 8/25/95, effective 9/25/95. Statutory Authority: RCW 82.32.300 and 84.33.096. WSR 95-02-038, § 458-40-660, filed 12/30/94, effective 1/1/95. Statutory Authority: RCW 84.33.091, 84.32.300 [82.32.300] and 84.33.096. WSR 94-14-048, § 458-40-660, filed 6/30/94, effective 7/1/94; WSR 94-02-047, § 458-40-660, filed 12/30/93, effective 1/1/94; WSR 93-14-051, § 458-40-660, filed 6/30/93, effective 7/1/93; WSR 93-02-025, § 458-40-660, filed 12/31/92, effective 1/1/93; WSR 92-14-083, § 458-40-660, filed 6/29/92, effective 7/1/92; WSR 92-02-067, § 458-40-660, filed 12/31/91, effective 1/1/92. Statutory Authority: RCW 84.33.096 and 82.32.300. WSR 91-14-077, § 458-40-660, filed 6/28/91, effective 7/1/91; WSR 91-09-030, § 458-40-660, filed 4/12/91, effective 5/13/91; WSR 91-02-088, § 458-40-660, filed 12/31/90, effective 1/31/91; WSR 90-14-033, § 458-40-660, filed 6/29/90, effective 7/30/90; WSR 90-02-049, § 458-40-660, filed 12/29/89, effective 1/29/90. Statutory Authority: Chapter 84.33 RCW and RCW 84.33.091. WSR 89-14-051 (Order FT-89-2), § 458-40-660, filed 6/30/89; WSR 89-02-027 (Order FT-88-5), § 458-40-660, filed 12/30/88; WSR 88-14-032 (Order FT-88-2), § 458-40-660, filed 6/30/88; WSR 88-02-026 (Order FT-87-5), § 458-40-660, filed 12/31/87. Statutory Authority: Chapter 84.33 RCW. WSR 87-14-042 (Order 87-2), § 458-40-660, filed 6/30/87; WSR 87-02-023 (Order 86-4), § 458-40-660, filed 12/31/86.]

## WSR 23-02-055

## PERMANENT RULES

## BUILDING CODE COUNCIL

[Filed January 3, 2023, 12:59 p.m., effective July 1, 2023]

Effective Date of Rule: July 1, 2023.

Purpose: The proposed rule adopts the 2021 edition of the International Mechanical Code and International Fuel Gas Code, published by the International Code Council, with state amendments to incorporate proposed changes as adopted by the Washington state building code council and codified under chapter 51-52 WAC. The rules will provide increased clarity and life safety measures for building construction and use in Washington state.

Citation of Rules Affected by this Order: New seven sections in chapter 51-52 WAC; and amending 19 sections in chapter 51-52 WAC.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074.

Other Authority: RCW 19.27.031, 19.27.074.

Adopted under notice filed as WSR 22-17-147 on August 23, 2022.

Changes Other than Editing from Proposed to Adopted Version: WAC 51-52-0403: Section 403.4.7.3.1 Field verification and diagnostic testing for local intermittent kitchen exhaust system, item 2 was modified to add the AHAM product directory as an allowable source for showing range hood compliance.

WAC 51-52-0501: Section 501.3.1 Location of exhaust outlets item 6 for transformer vault exhaust system outlets was modified to include language from NFPA 70 rather than just a reference to that document.

Option 1 was selected for WAC 51-52-0605, requiring MERV 13 filters in most occupancies and requires filtering of both indoor and outdoor air.

A final cost-benefit analysis is available by contacting Stoyan Bumbalov, P.O. Box 41449, Olympia, WA 98504-1449, phone 360-407-9255, email sbcc@des.wa.gov, website <https://sbcc.wa.gov/2021-code-adoption-cycle>.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 7, Amended 19, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 20, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 26, Repealed 0.

Date Adopted: November 4, 2022.

Tony Doan  
Chair

OTS-3989.3

Chapter 51-52 WAC

STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((2018)) 2021 EDITION OF THE INTERNATIONAL MECHANICAL CODE  
Formerly chapter 51-42 WAC

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-003 International Mechanical Code.** The ((2018)) 2021 edition of the *International Mechanical Code* published by the International Code Conference is hereby adopted by reference with the exceptions noted in this chapter of the Washington Administrative Code (WAC).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-003, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-003, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-003, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-003, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-003, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-104, § 51-52-003, filed 12/17/03, effective 7/1/04.]

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

**WAC 51-52-008 Implementation.** The International Mechanical Code adopted by chapter 51-52 WAC shall become effective in all counties and cities of this state on ((February 1, 2021)) July 1, 2023.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-11-066, § 51-52-008, filed 5/14/21, effective 6/14/21; WSR 20-03-041, § 51-52-008, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-008, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-008, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-008, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-008, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-104, § 51-52-008, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-0101 Section 101—General.**



**101.2 Scope.** This code shall regulate the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within buildings. This code shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed herein. The installation of fuel gas distribution piping and equipment, fuel gas-fired appliances and fuel gas-fired appliance venting systems shall be regulated by the *International Fuel Gas Code*. References in this code to Group R shall include Group I-1, Condition 2 assisted living facilities licensed by Washington state under chapter 388-78A WAC and Group I-1, Condition 2 residential treatment facilities licensed by Washington state under chapter 246-337 WAC.

EXCEPTIONS: 1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.  
2. The standards for liquefied petroleum gas installations shall be the ((2017)) 2020 Edition of NFPA 58 (Liquefied Petroleum Gas Code) and the ((2018)) 2021 Edition of ANSI Z223.1/NFPA 54 (National Fuel Gas Code).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0101, filed 1/8/20, effective 7/1/20. Statutory Authority: RCW 19.27.031, 19.27.074, and chapters 19.27 and 34.05 RCW. WSR 17-17-159, § 51-52-0101, filed 8/23/17, effective 10/1/17. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-01-148, § 51-52-0101, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0101, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0101, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0101, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-104, § 51-52-0101, filed 12/17/03, effective 7/1/04.]

#### NEW SECTION

##### **WAC 51-52-0113 Section 113—Stop work order.**

**113.4 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 subject to fines established by the code official.

[ ]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

##### **WAC 51-52-0202 Section 202—General definitions.**

**BALANCED WHOLE HOUSE VENTILATION.** Any combination of concurrently operating residential dwelling or sleeping unit mechanical exhaust and mechanical supply whereby the total mechanical exhaust airflow rate is within 10 percent or 5 cfm, whichever is greater, of the total mechanical supply airflow rate. (~~Intermittent dryer exhaust, intermittent range hood~~)

exhaust, and intermittent toilet room exhaust airflow rates above the residential dwelling or sleeping unit minimum ventilation rate are exempt from the balanced airflow calculation.)

**NOT BALANCED WHOLE HOUSE VENTILATION.** A whole house ventilation system serving a dwelling or sleeping unit that is not considered balanced in accordance with the definition in this code for *balanced whole house ventilation system*. Only other than Group R-2 dwelling and sleeping units are allowed in accordance with Section 403.4.4.1 to have *not balanced whole house ventilation systems*.

**DISTRIBUTED WHOLE HOUSE VENTILATION.** A whole house ventilation system shall be considered distributed when it supplies outdoor air directly (not transfer air) to each dwelling or sleeping unit habitable space, (living room, den, office, *interior adjacent room*, interior adjoining spaces or bedroom), and exhausts air from all kitchens and bathrooms directly outside.

**NOT DISTRIBUTED WHOLE HOUSE VENTILATION.** A whole house ventilation system shall be considered not distributed when either the supply system or the exhaust system is not distributed. Supply systems are not distributed when a habitable space is supplied with outdoor air to ventilate an *interior adjacent room* or an *interior adjoining space*. Exhaust systems are not distributed when all bathrooms and kitchens are not exhausted by the whole house ventilation system. If either the supply system or the exhaust system is not distributed, then the ventilation quality adjustment system coefficient adjustment is required in accordance with Section C403.4.3.

**ENCLOSED KITCHEN.** A kitchen whose permanent openings to interior adjacent spaces do not exceed a total of 60 square feet (6 m<sup>2</sup>).

**INTERIOR ADJACENT ROOM.** An enclosed room without exterior windows or openings to the outdoors located within a dwelling or sleeping unit that does not have interior unobstructed openings required for an *interior adjoining space*.

**INTERIOR ADJOINING SPACE.** A room or space without openings to the outdoors that is naturally ventilated from another habitable space by unobstructed fixed openings size in accordance with Section 402.3.

**LOCAL EXHAUST.** An exhaust system that uses one or more fans to exhaust air from a specific room or rooms within a residential dwelling or sleeping unit.

**PERMANENT CONSTRUCTION.** Construction that, if removed, would disturb the structural integrity of the building or the fire-resistance rating of a building assembly.

**RELIEF AIR.** Exhausted return air from a system that provides ventilation for human usage.

**REPLACEMENT AIR.** Outdoor air that is used to replace air removed from a building through an exhaust system. Replacement air may be derived from one or more of the following: Makeup air, supply air, transfer air, and infiltration. However, the ultimate source of all replacement air is outdoor air. When replacement air exceeds exhaust, the result is exfiltration.

**WHOLE HOUSE VENTILATION SYSTEM.** A mechanical ventilation system, including fans, controls, and ducts, which replaces, by direct means, air from the habitable rooms with *outdoor air*.

**VENTILATION ZONE.** Any indoor area that requires ventilation and comprises one or more spaces with the same occupancy category (see Table 403.3.1.1), occupant density, zone air distribution effectiveness (see Section 403.3.1.1.2), and design zone primary airflow per unit area.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0202, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-0202, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0202, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0202, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0202, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-104, § 51-52-0202, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-0306 Section 306—Access and service space.**

**306.5 Equipment and appliances on roofs or elevated structures.** Where equipment requiring access or appliances are located on an elevated structure or the roof of a building such that personnel will have to climb higher than 16 feet (4877 mm) above grade to access such equipment or appliances, an interior or exterior means of access shall be provided. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) in height or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33 percent slope). Such access shall not require the use of portable ladders. Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall.

Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 42 inches (1067 mm).
2. Ladders shall have rung spacing not to exceed 12 inches (305 mm) on center. The uppermost rung shall be a maximum of 24 inches below the upper edge of the roof hatch, roof or parapet, as applicable.
3. Ladders shall have a toe spacing not less than 7 inches (178 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1 kg) load.
6. Ladders over 30 feet (9144 mm) in height shall be provided with offset sections and landings capable of withstanding 100 pounds (488.2 kg/m<sup>2</sup>) per square foot. Landing dimensions shall be not less than 18 inches and not less than the width of the ladder served. A guardrail shall be provided on all open sides of the landing.
7. Climbing clearances. The distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be a minimum of 30 inches measured perpendicular to the rungs. This distance shall be maintained from the point of ladder ac-

cess to the bottom of the roof hatch. A minimum clear width of 15 inches shall be provided on both sides of the ladder measured from the midpoint of and parallel with the rungs except where cages or wells are installed.

8. Landing required. The ladder shall be provided with a clear and unobstructed bottom landing area having a minimum dimension of 30 inches by 30 inches centered in front of the ladder.

9. Ladders shall be protected against corrosion by approved means.

10. Access to ladders shall be provided at all times.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

EXCEPTION: This section shall not apply to Group R-3 occupancies.

**306.6 Appliances above ceilings.** Appliances that are located above ~~((the))~~ ceilings shall have ~~((ready))~~ access for inspection, service and repair without removing *permanent construction*. Appliances that are located above a ceiling shall be provided with access to ~~((panel or removable ceiling tile with minimum nominal dimensions of 24 inches by 24 inches (609 mm x 609 mm))~~ the working space(s) by an opening not smaller than 22 inches by 22 inches (559 mm by 559 mm). All enclosure doors or hinged panels shall be capable of opening a minimum of 90 degrees.

The appliance is not required to be removable or replaceable through the ~~((access panel or removable ceiling tile))~~ enclosure door, hinged panel, removable lay-in ceiling tile, or other removable covers. The appliance may be removed or replaced by removing the ceiling or wall assemblies adjacent to the appliance as long as they are *not permanent construction*.

EXCEPTIONS: 1. This section shall not apply to replacement appliances installed in existing compartments and alcoves where the working space clearances are in accordance with the ~~((equipment or))~~ appliance manufacturer's installation instructions.  
2. A smaller ~~((access panel or removable ceiling tile))~~ enclosure door, hinged panel, removable lay-in ceiling tile, or other removable covers shall be permitted when allowed by the ~~((equipment or))~~ appliance manufacturer's installation instructions and electrical access is not required.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0306, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-0306, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0306, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0306, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-0401 Section 401—General.**

**401.2 Ventilation required.** Every occupied space other than enclosed parking garages and buildings used for repair of automobiles shall be ventilated in accordance with Section 401.2.1, 401.2.2 or 401.2.3. Enclosed parking garages and buildings used for repair of automobiles shall be ventilated by mechanical means in accordance with Sections 403 and 404.

**401.2.1 Group R occupancies.** Ventilation in Group R occupancies shall be provided in accordance with Section 403.4.

**401.2.2 Ambulatory care facilities and Group I-2 occupancies.** Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.

**401.2.3 All other occupancies.** Ventilation in all other occupancies shall be provided by natural means in accordance with Section 402 or by mechanical means in accordance with Sections 403.1 to 403.7.

**401.3 When required.** Group R occupancies shall be vented continuously or intermittently in accordance with Section 403.4. Ventilation in all other occupancies shall be provided during the periods that the room or space is occupied.

**401.4 Intake opening location.** Air intake openings shall comply with all of the following:

1. Intake openings shall be located not less than 10 feet (3048 mm) from lot lines or buildings on the same lot. Lot lines shall not be defined as a separation from a street or public way.

2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots, and loading docks, except as specified in Item 3 or Section 501.3.1. Outdoor air intake openings shall be permitted to be located less than 10 feet (3048 mm) horizontally from streets, alleys, parking garage entries, parking lots, and loading docks provided that the openings are located not less than 25 feet (7620 mm) vertically above such locations. Where openings front on a street or public way, the distance shall be measured from the closest edge of the street or public way.

**EXCEPTIONS:**

1. Intake air openings providing less than 500 cfm of outdoor air to Group R occupancies are permitted to be located less than 10 feet (3048 mm) horizontally from parking lots provided that the openings are not less than 15 feet (4572 mm) vertically above the parking lot.

2. Intake air openings providing less than 500 cfm of outdoor air to Group R occupancies are permitted to be located less than 10 feet (3048 mm) horizontally from parking lots provided that the openings are not less than 15 feet (4572 mm) vertically above the clear height for vehicles in the parking garage.

3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located within 10 feet (3048 mm) of the opening. Separation is not required between intake air openings, operable openings, and living space exhaust air openings of an individual dwelling unit or sleeping unit where an approved factory-built intake/exhaust combination termination fitting is used to separate the air streams in accordance with the manufacturer's instructions. For these combined terminations, the exhaust air concentration within the intake airflow shall not exceed 10 percent as established by the manufacturer, in accordance with ASHRAE 62.2 Section 6.8, Exception 4.

((EXCEPTION: Separation is not required between intake air openings and living space environmental air exhaust air openings of an individual dwelling unit or sleeping unit where a factory-built intake/exhaust combination termination fitting is used to separate the air streams in accordance with the manufacturer's instructions. A minimum of 3 feet (914 mm) separation shall be maintained between other environmental air exhaust outlets and other dwelling or sleeping unit factory-built intake/exhaust combination termination fittings.))

4. Intake openings on structures in flood hazard areas shall be at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.

EXCEPTION: Enclosed parking garage and repair garage ventilation air intakes are permitted to be located less than 10 feet horizontally from or 25 feet vertically above a street, alley, parking lot, and loading dock.

**401.7 Testing and balancing.** At the discretion of the building official, flow testing may be required to verify that the mechanical sys-

tem(s) satisfies the requirements of this chapter. Flow testing may be performed using flow hood measuring at the intake or exhaust points of the system, in-line pitot tube, or pitot-traverse type measurement systems in the duct, short term tracer gas measurements, or other means approved by the ((building)) code official.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0401, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-0401, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0401, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0401, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-015, § 51-52-0401, filed 12/2/04, effective 7/1/05.]

AMENDATORY SECTION (Amending WSR 22-09-009, filed 4/8/22, effective 5/9/22)

**WAC 51-52-0403 Section 403—Mechanical ventilation.**

**403.1 Ventilation system.** Mechanical ventilation shall be provided by a method of supply air and return or *exhaust air*. The amount of supply air shall be approximately equal to the amount of return and *exhaust air*. The system shall not be prohibited from producing negative or positive pressure. The system to convey ventilation air shall be designed and installed in accordance with Chapter 6.

**403.2 Outdoor air required.** The minimum *outdoor airflow rate* shall be determined in accordance with Section 403.3.

EXCEPTIONS: 1. Where the registered design professional demonstrates that an engineered ventilation system design will prevent the maximum concentration of contaminants from exceeding that obtainable by the rate of *outdoor air* ventilation determined in accordance with Section 403.3, the minimum required rate of *outdoor air* shall be reduced in accordance with such engineered system design.  
2. Alternate systems designed in accordance with ASHRAE Standard 62.1 Section 6.2, Ventilation Rate Procedure, shall be permitted.

**403.2.1 Recirculation of air.** The air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that:

1. Ventilation air shall not be recirculated from one dwelling to another or to dissimilar occupancies.

2. Supply air to a swimming pool and associated deck areas shall not be recirculated unless such air is dehumidified to maintain the relative humidity of the area at 60 percent or less. Air from this area shall not be recirculated to other spaces where 10 percent or more of the resulting supply airstream consists of air recirculated from these spaces. The design and installation of dehumidification systems shall comply with ANSI/ACCA 10 Manual SPS.

3. Where mechanical exhaust is required by Note b in Table 403.3.1.1, recirculation of air from such spaces shall be prohibited. All air supplied to such spaces shall be exhausted, including any air in excess of that required by Table 403.3.1.1.

4. Where mechanical exhaust is required by Note g in Table 403.3.1.1, mechanical exhaust is required and recirculation from such spaces is prohibited where more than 10 percent of the resulting supply airstream consists of air recirculated from these spaces. ((Return

air from such spaces shall only be permitted to be recirculated when returned to an energy recovery ventilation system complying with Section 514.) Recirculation of air that is contained completely within such spaces shall not be prohibited.

**403.3 Outdoor air and local exhaust airflow rates.** Group R occupancies shall be provided with outdoor air and local exhaust in accordance with Section 403.4. All other buildings intended to be occupied shall be provided with outdoor air and local exhaust in accordance with Section 403.3.1.

**403.3.1.1 Outdoor airflow rate.** Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with this section. In each occupiable space, the ventilation system shall be designed to deliver the required rate of outdoor airflow to the breathing zone. Outdoor air shall be supplied directly to each occupiable space from an air handling unit through a fully ducted path or ducted to within 12 inches of the return air opening of a fan-powered terminal unit used to transfer the outdoor air to the occupiable space. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3.1.1. Ventilation rates for occupancies not represented in Table 403.3.1.1 shall be those for a listed occupancy classification that is most similar in terms of occupant density, activities and building construction; or shall be determined by an approved engineering analysis. The ventilation system, including transfer fan-powered terminal units shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges, the ventilation rates in Table 403.3.1.1 are based on the absence of smoking in occupiable spaces. Where smoking is anticipated in a space other than a smoking lounge, the ventilation system serving the space shall be designed to provide ventilation over and above that required by Table 403.3.1.1 in accordance with accepted engineering practice.

EXCEPTION: Where occupancy density is known and documented in the plans, the outside air rate may be based on the design occupant density. Under no circumstance shall the occupancies used result in outside air less than one-half that resulting from application of Table 403.3.1.1 estimated maximum occupancy rates.

**Table 403.3.1.1**

**REQUIRED OUTDOOR VENTILATION AIR**

((The following categories in Table 403.3.1.1 have been modified. The remainder remain as printed in the 2018 International Mechanical Code))

Occupancy Classification	Occupant Density #/1000 ft <sup>2a</sup>	People Outdoor Airflow Rate in Breathing Zone <i>R<sub>p</sub></i> cfm/Person	Area Outdoor Airflow Rate in Breathing Zone <i>R<sub>a</sub></i> cfm/ft <sup>2a</sup>	Exhaust Airflow Rate cfm/ft <sup>2a</sup>
<b>Correctional facilities</b>				
Booking/waiting	50	7.5	0.06	=
Cells				
Without plumbing fixtures	25	5	0.12	=
With plumbing fixtures <sup>b</sup>	25	5	0.12	1.0
Day room	30	5	0.06	=
Dining halls	=	=	=	=
(see "Food and beverage service")	=	=	=	=
Guard stations	15	5	0.06	=

Occupancy Classification	Occupant Density #/1000 ft <sup>2a</sup>	People Outdoor Airflow Rate in Breathing Zone $R_p$ cfm/Person	Area Outdoor Airflow Rate in Breathing Zone $R_a$ cfm/ft <sup>2a</sup>	Exhaust Airflow Rate cfm/ft <sup>2a</sup>
<b>Dry cleaners, laundries</b>				
Coin-operated dry cleaner	20	15	=	=
Coin-operated laundries	20	7.5	0.12	=
Commercial dry cleaner	30	30	=	=
Commercial laundry	10	5	0.12	=
Storage, pick up	30	7.5	0.12	=
<b>Education</b>				
Art classroom <sup>g</sup>	20	10	0.18	0.7
Auditoriums	150	5	0.06	=
Classrooms (ages 5 through 8)	25	10	0.12	=
Classrooms (age 9 plus)	35	10	0.12	=
Computer lab	25	10	0.12	=
Corridors (see "Public spaces")	=	=	=	=
Day care (through age 4)	25	10	0.18	=
Lecture classroom	65	7.5	0.06	=
Lecture hall (fixed seats)	150	7.5	0.06	=
Locker/dressing rooms <sup>g</sup>	=	=	=	0.25
Media center	25	10	0.12	=
Multiuse assembly	100	7.5	0.06	=
Music/theater/dance	35	10	0.06	=
Science laboratories <sup>g</sup>	25	10	0.18	1.0
Smoking lounges <sup>b</sup>	70	60	=	=
Sports locker rooms <sup>g</sup>	=	=	=	0.5
Wood/metal shops <sup>g</sup>	20	10	0.18	0.5
<b>Food and beverage service</b>				
Bars, cocktail lounges	100	7.5	0.18	=
Cafeteria, fast food	100	7.5	0.18	=
Dining rooms	70	7.5	0.18	=
Kitchens (cooking) <sup>b</sup>	20	7.5	0.12	0.7
<b>Hotels, motels, resorts, and dormitories</b>				
Bathrooms/toilets—private <sup>g</sup>	=	=	=	25/50 <sup>f</sup>
Bedroom/living room	10	5	0.06	=
Conference/meeting	50	5	0.06	=
Dormitory sleeping area	20	5	0.06	=
Gambling casinos	120	7.5	0.18	=
Lobbies/prefunction	30	7.5	0.06	=
Multipurpose assembly	120	50	0.06	=
<b>Offices</b>				
Conference rooms	50	5	0.06	=
Kitchenettes <sup>k</sup>	25	5	0.06	0.30
Office spaces	5	5	0.06	=
Reception areas	30	5	0.06	=
Telephone/data entry	60	5	0.06	=
Main entry lobbies	10	5	0.06	=
<b>Private dwellings, single and multiple</b>				
Garages, common for multiple units <sup>b</sup>	=	=	=	0.75
Kitchens <sup>b</sup>	=	=	=	See Table 403.4.7
Living areas <sup>c</sup>	=	See Table 403.4.2	=	=
Toilet rooms and bathrooms <sup>g</sup>	=	=	=	See Table 403.4.7
<b>Public spaces</b>				



Occupancy Classification	Occupant Density #/1000 ft <sup>2a</sup>	People Outdoor Airflow Rate in Breathing Zone <i>R<sub>p</sub></i> cfm/Person	Area Outdoor Airflow Rate in Breathing Zone <i>R<sub>a</sub></i> cfm/ft <sup>2a</sup>	Exhaust Airflow Rate cfm/ft <sup>2a</sup>
Corridors serving other than Group R occupancies	—	—	0.06	—
Corridors serving Group R dwelling or sleeping units with whole house exhaust system	—	—	0.12	—
Corridors serving Group R dwelling or sleeping units with other than whole house exhaust system	—	—	0.06	—
Courtrooms	70	5	0.06	—
Elevator car	—	—	—	1
Elevator lobbies in parking garage	—	—	1.0	—
Legislative chambers	50	5	0.06	—
Libraries	10	5	0.12	—
Museums (children's)	40	7.5	0.12	—
Museums/galleries	40	7.5	0.06	—
Places of religious worship	120	5	0.06	—
Shower room (per showerhead) <sup>g</sup>	—	—	—	50/20 <sup>f</sup>
Smoking lounges <sup>b</sup>	70	60	—	—
Toilet rooms—Public <sup>g</sup>	—	—	—	50/70 <sup>e</sup>
<b><u>Retail stores, sales floors, and showroom floors</u></b>				
Dressing rooms	—	—	—	0.25
Mall common areas	40	7.5	0.06	—
Sales	15	7.5	0.12	—
Shipping and receiving	2	10	0.12	—
Smoking lounges <sup>b</sup>	70	60	—	—
Storage rooms	—	—	0.12	—
Warehouses (see "Storage")	—	10	0.06	—
<b><u>Specialty shops</u></b>				
Automotive motor fuel-dispensing stations <sup>b</sup>	—	—	—	1.5
Barber	25	7.5	0.06	0.5
Beauty salons <sup>b</sup>	25	20	0.12	0.6
Embalming rooms <sup>b</sup>	—	—	—	2.0
Nail salons <sup>b,h</sup>	25	20	0.12	0.6
Pet shops (animal areas) <sup>b</sup>	10	7.5	0.18	0.9
Supermarkets	8	7.5	0.06	—
<b><u>Sports and amusement</u></b>				
Disco/dance floors	100	20	0.06	—
Bowling alleys (seating areas)	40	10	0.12	—
Game arcades	20	7.5	0.18	—
Ice arenas, without combustion engines <sup>i</sup>	—	—	0.30	0.5
Gym, stadium, arena (play area) <sup>j</sup>	—	—	0.30	—
Spectator areas	150	7.5	0.06	—
Swimming pools (pool and deck area)	—	—	0.48	—
Health club/aerobics room	40	20	0.06	—
Health club/weight room	10	20	0.06	—
<b><u>Storage</u></b>				
Janitor closets, trash rooms, recycling rooms	—	—	—	1.0
Repair garages, enclosed parking garage <sup>b, d</sup>	—	—	—	0.75
Storage rooms, chemical	—	—	—	1.5
Warehouses	—	—	0.06	—
<b><u>Theaters</u></b>				

Occupancy Classification	Occupant Density #/1000 ft <sup>2a</sup>	People Outdoor Airflow Rate in Breathing Zone R <sub>p</sub> cfm/Person	Area Outdoor Airflow Rate in Breathing Zone R <sub>a</sub> cfm/ft <sup>2a</sup>	Exhaust Airflow Rate cfm/ft <sup>2a</sup>
Auditoriums (see "Education")	=	=	=	=
Lobbies	150	5	0.06	=
Stages, studios	70	10	0.06	=
Ticket booths	60	5	0.06	=
<b>Transportation</b>				
Platforms	100	7.5	0.06	=
Transportation waiting	100	7.5	0.06	=
<b>Workrooms</b>				
Bank vaults/safe deposit	5	5	0.06	—
Darkrooms	—	—	—	1.0
Copy, printing rooms	4	5	0.06	0.5
Freezer and refrigerated spaces (<50°F)	0	10	0	0
Meat processing <sup>c</sup>	10	15	—	—
Pharmacy (prep. area)	10	5	0.18	—
Photo studios	10	5	0.12	—
Computer (without printing)	4	5	0.06	—

For SI: 1 cubic foot per minute = 0.0004719 m<sup>3</sup>/s, 1 ton = 908 kg, 1 cubic foot per minutes per square foot = 0.00508 m<sup>3</sup>/(s•m<sup>2</sup>), °C = [(°F) -32]/1.8, 1 square foot = 0.0929 m<sup>2</sup>.

- a. Based upon *net occupiable floor area*.
- b. Mechanical exhaust required and the recirculation of air from such spaces is prohibited. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Item 3).
- c. Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.
- d. Ventilation systems in enclosed parking garages shall comply with Section 404.
- e. Rates are per water closet or urinal. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.
- f. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.
- g. Mechanical exhaust is required and recirculation from such spaces is prohibited (~~except that recirculation shall be permitted where the resulting supply airstream consists of not more than 10 percent air recirculated from these spaces. Return air from such spaces only be permitted to be recirculated when returned to an energy recovery ventilation system complying with Section 514~~). For occupancies other than science laboratories, where there is a wheel-type energy recovery ventilation (ERV) unit in the exhaust system design, the volume of air leaked from the exhaust airstream into the outdoor airstream within the ERV shall be less than 10 percent of the outdoor air volume. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Items 2 and 4).
- h. For nail salons, each manicure and pedicure station shall be provided with a *source capture system* capable of exhausting not less than 50 cfm per station. Exhaust inlets shall be located in accordance with Section 502.20. Where one or more required source capture systems operate continuously during occupancy, the exhaust rate from such systems shall be permitted to be applied to the exhaust flow rate required by Table 403.3.1.1 for the nail salon.
- i. Reserved.
- j. When combustion equipment is intended to be used on the playing surface, additional dilution ventilation and/or source control shall be provided.
- k. Kitchenettes require exhaust when they contain a domestic cooking appliance range or oven that is installed in accordance with Table ((507.2-1)) 507.1.2. Kitchenettes that only contain a microwave cooking appliance are not required to have exhaust. A kitchenette may not contain commercial cooking appliances that require Type I or Type II exhaust as these occupancies are required to be exhausted to the kitchen category in Table 403.3.1.1.

**403.3.1.1.2.3 Multiple zone recirculating systems.** For ventilation systems wherein one or more air handlers supply a mixture of outdoor air and recirculated air to more than one ventilation zone, the outdoor air intake flow (V<sub>ot</sub>) shall be determined in accordance with Sections 403.3.1.1.2.3.1 through 403.3.1.1.2.3.4.

**403.3.1.1.2.3.1 Uncorrected outdoor air intake.** The uncorrected outdoor air intake flow (V<sub>ot</sub>) shall be determined in accordance with Equation 4-5.

$$V_{ou} = D \sum_{all\ zones} (R_p \times P_z) + \sum_{all\ zones} (R_a \times A_z) \quad \text{(Equation 4-5)}$$

**403.3.1.1.2.3.1.1 Occupant diversity.** The occupant diversity ratio (D) shall be determined in accordance with Equation 4-6 to account for variations in population within the ventilation zones served by the system.

$$D = P_s / \sum_{all\ zones} P_z \quad \text{(Equation 4-6)}$$

where:

$P_s$  = System population: The total population in the area served by the system.

EXCEPTION: Alternative methods to account for occupant diversity shall be permitted, provided the resulting  $V_{ou}$  value is no less than that determined using Equation 4-5.

**403.3.1.1.2.3.1.2 Design system population.** Design system population ( $P_s$ ) shall equal the largest (peak) number of people expected to occupy all ventilation zones served by the ventilation system during use.

Note: Design system population is always equal to or less than the sum of design zone population for all zones in the area served by the system because all zones may or may not be simultaneously occupied at design population.

**403.3.1.1.2.3.2 System ventilation efficiency.** The system ventilation efficiency ( $E_v$ ) shall be determined in accordance with Section 403.3.1.1.2.3.3 for the Simplified Procedure or Appendix A of ASHRAE 62.1 for the Alternative Procedure.

Note: These procedures also establish zone minimum primary air-flow rates for VAV systems.

**403.3.1.1.2.3.3 Simplified procedure.**

**403.3.1.1.2.3.3.1 System ventilation efficiency.** System ventilation efficiency ( $E_v$ ) shall be determined in accordance with Equation 4-6a or 4-6b.

$$E_v = 0.88 \times D + 0.22 \text{ for } D < 0.60 \text{ (Equation 4-6a)}$$

$$E_v = 0.75 \text{ for } D \geq 0.60 \text{ (Equation 4-6b)}$$

**403.3.1.1.2.3.3.2 Zone minimum primary airflow.** For each zone, the minimum primary airflow ( $V_{pz-min}$ ) shall be determined in accordance with Equation 4-7.

$$V_{pz-min} = V_{oz} \times 1.5 \text{ (Equation 4-7)}$$

**403.3.1.1.2.3.4 Outdoor air intake.** The design outdoor air intake flow ( $V_{ot}$ ) shall be determined in accordance with Equation 4-8.

$$V_{ot} = V_{ou}/E_v \text{ (Equation 4-8)}$$

**403.3.2 Group R-2, R-3 and R-4 occupancies.** This section is not adopted. See Section 403.4.

**403.3.2.1 Outdoor air for dwelling units.** This section is not adopted.

**403.3.2.2 Outdoor air for other spaces.** This section is not adopted.

**403.3.2.3 Local exhaust.** This section is not adopted.

**403.4 Group R whole house mechanical ventilation system.** Each dwelling unit or sleeping unit shall be equipped with a whole house mechanical ventilation system that complies with Sections 403.4.1 through 403.4.6. Each dwelling unit or sleeping unit shall be equipped with local exhaust complying with Section 403.4.7. All occupied spaces, including public corridors, other than the Group R dwelling units and/or sleeping units, that support these Group R occupancies shall meet the ventilation requirement of natural ventilation requirements of Section 402 or the mechanical ventilation requirements of Sections 403.1 through 403.3.

EXCEPTION: Alternate balanced whole house ventilation systems and local exhaust systems subject to the Washington State Energy Code, Residential Provisions serving Group R dwelling units designed and commissioned in accordance with ASHRAE Standard 62.2 are permitted.

**403.4.1 System design.** The whole house ventilation system shall consist of one or more supply fans, one or more exhaust fans, or an ERV/HRV with integral fans; and the associated ducts and controls. Local exhaust fans shall be permitted to serve as part of the whole house ventilation system when provided with the proper controls in accordance with Section 403.4.5. The systems shall be designed and installed to supply and exhaust the minimum outdoor airflow rates ((per)) in accordance with Section 403.4.2 as corrected by the balanced and/or distributed whole house ventilation system coefficients in accordance with Section 403.4.3 where applicable.

**Table 403.4.2**  
**WHOLE HOUSE MECHANICAL VENTILATION AIRFLOW RATE**  
**(CONTINUOUSLY OPERATING SYSTEMS)**

Floor Area (ft <sup>2</sup> )	Bedrooms <sup>1</sup>				
	1	2	3	4	>5
<500	30	30	35	45	50
500 - 1000	30	35	40	50	55
1001 - 1500	30	40	45	55	60
1501 - 2000	35	45	50	60	65
2001 - 2500	40	50	55	65	70
2501 - 3000	45	55	60	70	75
3001 - 3500	50	60	65	75	80
3501 - 4000	55	65	70	80	85
4001 - 4500	60	70	75	85	90
4501 - 5000	65	75	80	90	95

<sup>1</sup> Minimum airflow (Q<sub>r</sub>) is set at not less than 30 cfm for each dwelling units.

**403.4.2 Whole house mechanical ventilation rates.** The sleeping unit whole house mechanical ventilation minimum outdoor airflow rate shall be determined in accordance with the breathing zone ventilation rates minimum outdoor airflow rate shall be determined in accordance with the breathing zone ventilation rates requirements of Section 403.3.1.1.1.2 using Equation 4-2. The dwelling unit whole house mechanical ventilation minimum outdoor airflow rate shall be determined in accordance with Equation 4-10 or Table 403.4.2.

$$Q_r = 0.01 * A_{\text{floor}} + 7.5 * (N_{\text{br}} + 1) \quad \text{(Equation 4-10)}$$

where:

Q<sub>r</sub> = Ventilation airflow rate, cubic feet per minute (cfm) but not less than 30 cfm for each dwelling unit.

A<sub>floor</sub> = Conditioned floor area, square feet (ft<sup>2</sup>)

N<sub>br</sub> = Number of bedrooms, not less than one.

**Table 403.4.3**  
**SYSTEM COEFFICIENT (C<sub>system</sub>)**

System Type	Distributed	Not Distributed
Balanced	1.0	1.25
Not Balanced	1.25	1.5

**403.4.3 Ventilation quality adjustment.** The minimum whole house ventilation rate from Section 403.4.2 shall be adjusted by the system coefficient in Table 403.4.3 based on the system type not meeting the def-

inition of a *balanced whole house ventilation system* and/or not meeting the definition of a *distributed whole house ventilation system*.

$$Q_v = Q_r * C_{\text{system}} \quad (\text{Equation 4-11})$$

where:

$Q_v$  = Quality-adjusted ventilation airflow rate in cubic feet per minute (cfm)

$Q_r$  = Ventilation airflow rate, cubic feet per minute (cfm) from Equation 4-10 or Table 403.4.1

$C_{\text{system}}$  = System coefficient from Table 403.4.3

**403.4.4 Whole house ventilation residential occupancies.** Residential dwelling and sleeping unit whole house ventilation systems shall meet the requirements of Sections 403.4.4.1 or 403.4.4.2 depending on the occupancy of the residential unit.

**403.4.4.1 Whole house ventilation in Group R-2 occupancies.** Residential dwelling and sleeping units in Group R-2 occupancies system shall include supply and exhaust fans and be a *balanced whole house ventilation system* in accordance with Section 403.4.6.3. The system shall include a heat or energy recovery ventilator with a sensible heat recovery effectiveness as prescribed in Section C403.3.6 or when selected as an option of R406 of the Washington State Energy Code. The whole house ventilation system shall operate continuously at the minimum ventilation rate determined in accordance with Section 403.4. The whole house supply fan shall provide ducted outdoor ventilation air to each habitable space within the residential unit.

**EXCEPTIONS:**

1. Interior adjoining spaces that are ventilated from another habitable space are not required to have outdoor air ducted directly to the adjoining space. These systems are considered *not distributed whole house ventilation systems* and shall use the "not distributed" quality adjustment system coefficient in accordance with Section 403.4.3.
2. Interior adjacent rooms that are ventilated from another habitable space are not required to have outdoor air ducted directly to the interior adjacent room. These systems are considered *not distributed whole house ventilation systems* and shall use the "not distributed" quality adjustment system coefficient in accordance with Section 403.4.3. The interior adjacent room shall be provided with a transfer fan with a minimum airflow rate of 30 cfm or with relief air inlet with a minimum airflow of 20 cfm that is connected to the exhaust/relief air inlet of an ERV/HRV whole house ventilation system. Transfer fans that ventilate *interior adjacent rooms* shall meet the same rating in Section 403.3.6 and shall have whole house ventilation controls in accordance with Section 403.4.5.

**403.4.4.2 Whole house ventilation for other than Group R-2 occupancies.** Residential dwelling and sleeping units in other than Group R-2 occupancies, including I-1 condition 2 occupancies, shall have a whole house mechanical ventilation system with supply and exhaust fans in accordance with Section 403.4.6.1, 403.4.6.2, 403.4.6.3, or 403.4.6.4. The whole house ventilation system shall operate continuously at the minimum ventilation rate determined in accordance with Section 403.4.2 unless configured with intermittent off controls in accordance with Section 403.4.6.5. The whole house supply fan shall provide ducted outdoor ventilation air to each habitable space within the residential unit.

**EXCEPTIONS:**

1. Interior adjoining spaces that are ventilated from another habitable space are not required to have outdoor air ducted directly to the adjoining space. These systems are considered *not distributed whole house ventilation systems* and shall use the "not distributed" quality adjustment system coefficient in accordance with Section 403.4.3.
2. Interior adjacent rooms that are ventilated from another habitable space are not required to have outdoor air ducted directly to the interior adjacent room. These systems are considered *not distributed whole house ventilation systems* and shall use the "not distributed" quality adjustment system coefficient in accordance with Section 403.4.3. The interior adjacent room shall be provided with a transfer fan with a minimum airflow rate of 30 cfm or with relief air inlet with a minimum airflow of 20 cfm that is connected to the exhaust/relief air inlet of an ERV/HRV whole house ventilation system. Transfer fans that ventilate *interior adjacent rooms* shall meet the same rating in Section 403.4.6 and shall have whole house ventilation controls in accordance with Section 403.4.5.

**403.4.5 Whole house ventilation controls.**

1. The whole house ventilation system shall be controlled with manual switches, timers or other means that provide for automatic op-

eration of the ventilation system that are readily accessible by the occupant;

2. Whole house mechanical ventilation system shall be provided with controls that enable manual override off of the system by the occupant during periods of poor outdoor air quality. Controls shall include permanent text or a symbol indicating their function. Recommended control permanent labeling to include text similar to the following: "Leave on unless outdoor air quality is very poor." Manual controls shall be provided with ready access for the occupant.

EXCEPTION: Central whole house mechanical systems with supply air and/or exhaust that serve more than one dwelling or sleep units are not required to have manual override off controls accessible to the occupant.

3. Whole house ventilation systems shall be configured to operate continuously except where intermittent off controls are provided in accordance with Section 403.4.6.5 and allowed by Section 403.4.4.2.

**403.4.6 Whole house ventilation system component requirements.** Whole house ventilation supply and exhaust fans specified in this section shall have a minimum efficacy as prescribed in the *Washington State Energy Code*. The fans shall be rated for sound at a maximum of 1.0 sone at design airflow and static pressure conditions. Design and installation of the system or equipment shall be carried out in accordance with manufacturer's installation instructions.

EXCEPTIONS: 1. Central supply or exhaust fans serving multiple residential units do not need to comply with the maximum fan sone requirements.  
2. Interior joining spaces provided with a 30 cfm transfer fan or a 25 square foot permanent opening do not require supply ventilation air directly to the space. Transfer fans shall meet the sone rating above and have whole house ventilation controls in accordance with Section 403.4.5.

**403.4.6.1 Exhaust fans.** Exhaust fans required shall be ducted directly to the outside in accordance with Section 501.3. Exhaust air outlets shall be designed to limit the pressure difference to the outside to limiting the outlet free area maximum velocity to 500 feet per minute and equipped with backdraft dampers or motorized dampers in accordance with *Washington State Energy Code*. Exhaust fans shall be tested and rated in accordance with HVI 915, HVI 916, and HVI 920. Exhaust fans required in this section may be used to provide local ventilation. Exhaust fans servicing spaces other than kitchens that are designed for intermittent exhaust (~~(airflow rates higher than the continuous exhaust airflow)~~) rates in Table ~~((403.4.2))~~ 403.4.7 shall be provided with occupancy sensors ~~(( $\varnothing$ ))~~, humidity sensors, timer controls, or pollutant sensor controls to automatically override the fan to the high speed airflow rate. The exhaust fans shall be tested and the testing results shall be submitted and posted in accordance with Section 403.4.6.7.

EXCEPTIONS: 1. Central exhaust fans serving multiple residential units do not need to comply with the HVI testing requirements.  
2. Inlet free area maximum velocity may exceed 500 feet per minute when a factory-built combined exhaust/intake termination fitting is used.

**403.4.6.2 Supply fans.** Supply fans used in meeting the requirements of this section shall supply outdoor air from intake openings in accordance with Sections 401.4 and 401.5. Intake air openings shall be designed to limit the pressure difference to the outside to limiting the inlet free area maximum velocity to 500 feet per minute and when designed for intermittent off operation shall be equipped with motorized dampers in accordance with the *Washington State Energy Code*. Supply fans shall be tested and rated in accordance with HVI 915, HVI 916, and HVI 920. Where outdoor air is provided to each habitable dwelling unit or sleeping unit by supply fan systems the outdoor air shall be filtered. The filter shall be provided with access for regular maintenance.

nance and replacement. The filter shall have a Minimum Efficiency Rating Value (MERV) of at least 8.

EXCEPTION: Central supply fans serving multiple residential units do not need to comply with the HVI testing requirements.

**403.4.6.3 Balanced whole house ventilation system.** A balanced whole house ventilation system shall include both supply and exhaust fans. The supply and exhaust fans shall have airflow that is within 10 percent of each other. The tested and balanced total mechanical exhaust airflow rate is within 10 percent or 5 cfm, whichever is greater, of the total mechanical supply airflow rate. The flow rate test results shall be submitted and posted in accordance with Section 403.4.6.7. The exhaust fan shall meet the requirements of Section 403.4.6.1. The supply fan shall meet the requirements of Section 403.4.6.2. For Group R-2 dwelling and sleeping units, the system is required to have balanced whole house ventilation but is not required to have distributed whole house ventilation where the not distributed system coefficient from Table 403.4.3 is utilized to correct the whole house mechanical ventilation rate. The system shall be ~~((design))~~ designed and balanced to meet the pressure equalization requirements of Section 501.4. ~~((Intermittent dryer exhaust, intermittent range hood exhaust, and intermittent toilet room exhaust airflow rates above the residential dwelling or sleeping unit minimum ventilation rate))~~ Local exhaust systems that are not a component of the whole-house mechanical ventilation system are exempt from the balanced airflow calculation.

**403.4.6.4 Furnace integrated supply.** Systems using space condition heating and/or cooling air handler fans for outdoor air supply air distribution are not permitted.

EXCEPTION: Air handler fans shall be permitted that have multi-speed or variable speed supply airflow control capability with a low speed operation not greater than 25 percent of the rated supply air flow capacity during ventilation only operation. Outdoor air intake openings must meet the provisions of Sections 401.4 and 401.5 and must include a motorized damper that is activated by the whole house ventilation system controller. Intake air openings shall be designed to limit the pressure difference to the outside to limiting the inlet free area maximum velocity to 500 ft per min. The motorized damper must be controlled to maintain the outdoor airflow intake airflow within 10 percent of the whole house mechanical exhaust airflow rate. The supply air handler shall provide supply air to each habitable space in the residential unit. The whole house ventilation system shall include exhaust fans in accordance with Section 403.4.6.1 to meet the pressure equalization requirements of Section 501.4. The flow rate for the outdoor air intake must be tested and verified at the minimum ventilation fan speed and the maximum heating or cooling fan speed. The results of the test shall be submitted and posted in accordance with Section 403.4.6.7.

**403.4.6.5 Intermittent off operation.** Whole house mechanical ventilation systems shall be provided with advanced controls that are configured to operate the system with intermittent off operation and shall operate for a least two hours in each four-hour segment. The whole house ventilation airflow rate determined in accordance with Section 403.4.2 as corrected by Section 403.4.3 shall be multiplied by the factor determined in accordance with Table 403.4.6.5.

**Table 403.4.6.5**

**INTERMITTENT WHOLE HOUSE MECHANICAL VENTILATION RATE FACTORS<sup>a, b</sup>**

Run-time Percentage in Each 4-hour Segment	50%	66%	75%	100%
Factor <sup>a</sup>	2	1.5	1.3	1.0

<sup>a</sup> For ventilation system run-time values between those given, the factors are permitted to be determined by interpolation.

<sup>b</sup> Extrapolation beyond the table is prohibited.

**403.4.6.6 Testing.** Whole house mechanical ventilation systems shall be tested, balanced and verified to provide a flow rate not less than the minimum required by Sections 403.4.2 and 403.4.3. Testing shall be performed according to the ventilation equipment manufacturer's instructions, or by using a flow hood, flow grid, or other airflow measuring device at the mechanical ventilation fan's inlet terminals, outlet terminals or grilles or in the connected ventilation ducts. Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official and shall be posted in the residential unit in accordance with Section 403.4.6.7.

**403.4.6.7 Certificate.** A permanent certificate shall be completed by the mechanical contractor, test and balance contractor or other approved party and posted on a wall in the space where the furnace is located, a utility room, or an approved location inside the building. When located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels. The certificate shall list the flow rate determined from the delivered airflow of the whole house mechanical ventilation system as installed and the type of mechanical whole house ventilation system used to comply with Section 403.4.3.

**403.4.7 Local exhaust.** Bathrooms, toilet rooms and kitchens shall include a local exhaust system. Such local exhaust systems shall have the capacity to exhaust the minimum airflow rate in accordance with Table 403.4.7 and Table 403.3.1.1, including notes. Fans required by this section shall be provided with controls that enable manual override or automatic occupancy sensor, humidity sensor, timer controls, or pollutant sensor controls. An "on/off" switch shall meet this requirement for manual controls. Manual fan controls shall be provided with ready access in the room served by the fan.

**Table 403.4.7**  
MINIMUM EXHAUST RATES

Area to be exhausted	Exhaust Rate	
	Intermittent	Continuous
<del>((Kitchens</del>	100 cfm	30 cfm))
<u>Open kitchens</u>	<u>In accordance with Section 403.4.7.3</u>	<u>Not permitted</u>
<u>Enclosed kitchens</u>	<u>In accordance with Section 403.4.7.3</u>	<u>5 ACH based on kitchen volume</u>
<b>Bathrooms - Toilet rooms</b>	50 cfm	20 cfm

**403.4.7.1 Whole house exhaust controls.** If the local exhaust fan is included in a whole house ventilation system in accordance with Section 403.4.6, the exhaust fan shall be controlled to operate as specified in Section 403.4.5.

**403.4.7.2 Local exhaust fans.** Exhaust fans shall meet the following criteria.

1. Exhaust fans shall be tested and rated in accordance with HVI 915, HVI 916, and HVI 920 or equivalent.



((EXCEPTION: Where a range hood or down draft exhaust fan is used for local exhaust for a kitchen, the device is not required to be rated per these standards.))

2. Fan airflow rating and duct system shall be designed and installed to deliver at least the exhaust airflow required by Table 403.4.7. The airflows required refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measurement device. Local exhaust systems shall be tested (~~(balanced)~~) and verified to provide a flow rate not less than the minimum required by this section.

3. Design and installation of the system or equipment shall be carried out in accordance with manufacturers' installation instructions.

4. (~~Fan airflow rating and duct system shall be designed and installed to deliver at least the exhaust airflow required by Table 403.4.3.~~) Intermittent local exhaust system serving kitchens shall be rated for sound at a maximum of 3 sones at one or more airflow settings not less than 100 cfm at a static pressure not less than that determined at working speed as specified in HVI 916 Section 7.2.

5. Continuous local exhaust system serving kitchens shall be rated for sound at a maximum of 1 sone at one or more airflow settings not less than 100 cfm at a static pressure not less than that determined at working speed as specified in HVI 916 Section 7.2.

EXCEPTIONS: 1. The installed airflow is not required to be field-verified where an exhaust airflow rating at a pressure of 0.25 in. w.g. may be used, provided the duct sizing meets the prescriptive requirements of Table 403.4.7.2.  
 2. (~~Where a range hood or down draft exhaust fan is used to satisfy the local ventilation requirements for kitchens, the range hood or down draft exhaust shall not be less than 100 cfm at 0.10 in. w.g.~~) Remote mounted fans need not meet sound requirements. To be considered for this exception, a remote mounted fan shall be mounted outside the kitchen, and there shall be at least 4 feet (1 m) of ductwork between the fan and the intake grille.

**Table 403.4.7.2**  
**PRESCRIPTIVE EXHAUST DUCT SIZING**

Fan Tested cfm at 0.25 inches w.g.	Minimum Flex Diameter	Maximum Length in Feet	Minimum Smooth Diameter	Maximum Length in Feet	Maximum Elbows <sup>a</sup>
50	4 inches	25	4 inches	70	3
50	5 inches	90	5 inches	100	3
50	6 inches	No Limit	6 inches	No Limit	3
80	4 inches <sup>b</sup>	NA	4 inches	20	3
80	5 inches	15	5 inches	100	3
80	6 inches	90	6 inches	No Limit	3
100	5 inches <sup>b</sup>	NA	5 inches	50	3
100	6 inches	45	6 inches	No Limit	3
125	6 inches	15	6 inches	No Limit	3
125	7 inches	70	7 inches	No Limit	3

- a. For each additional elbow, subtract 10 feet from length.
- b. Flex ducts of this diameter are not permitted with fans of this size.

**403.4.7.3 Local intermittent kitchen exhaust system.** Kitchen range hoods for domestic cooking appliances shall meet or exceed either the minimum airflow or the minimum capture efficiency in accordance with Table 403.4.7.3. Capture efficiency ratings shall be determined in accordance with ASTM E3087.

EXCEPTION: Other intermittent kitchen exhaust fans, including downdraft, shall meet or exceed 300 cfm airflow.

**Table 403.4.7.3**  
**Kitchen Range Hood Airflow Rates (CFM) and ASTM E3087 Capture Efficiency (CE) Ratings According to Kitchen Range Fuel Type**

<u>Hood Over Electric Range</u>	<u>Hood Over Combustion Range</u>
65 percent CE or 160 cfm	80 percent CE or 250 cfm

**403.4.7.3.1 Field verification and diagnostic testing for local intermittent kitchen exhaust system.** The local exhaust system for kitchens shall be installed to comply with local mechanical exhaust requirements specified in 403.4.7.3 and shall be field verified in accordance with the procedures below to confirm the model is rated by HVI or AHAM to comply with the following requirements:

1. Local intermittent exhaust system for kitchens shall be tested and verified to provide a minimum airflow rate or capture efficiency required by Section 403.4.7.3. Testing shall include verification of the maximum sound rating as specified in Section 403.4.7.2. Testing for the intermittent kitchen exhaust systems shall occur with the whole house ventilation system operating and with all dwelling unit or sleeping unit entry doors closed. Testing for exhaust systems that require mechanical makeup air in accordance with Section 505.4 shall include verifying that the mechanical makeup air opening is open. Testing for exhaust systems that require mechanical makeup air in accordance with Section 505.4 shall include verifying that the mechanical makeup air system is controlled to automatically start. Testing for exhaust systems that do not require mechanical makeup air in accordance with Section 505.4 and that are exempt from pressurize equalization per Section 501.4 shall be tested with operable openings manually opened unless design exhaust airflow can be achieved with all operable openings closed. Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official.

**EXCEPTION:** The installed airflow is not required to be field-verified where an exhaust airflow rating at a pressure of 0.25 in. w.g. is used, provided the duct sizing meets the prescriptive requirements of Table 403.4.7.2.

2. The verification shall utilize certified rating data from HVI Publication 911, AHAM-Certified Range Hood Directory, or another directory of certified product performance ratings approved by the code official for determining compliance. The verification procedure shall consist of visual inspection of the local intermittent kitchen exhaust system to verify and record the following information:

2.1. The manufacturer name and model number.

2.2. The model is listed in the HVI, AHAM, or equivalent directory.

2.3. The rated airflow value listed in the HVI, AHAM, or equivalent directory.

2.4. The sound rating value listed in the HVI, AHAM, or equivalent directory.

2.5. If the value for the rated airflow given in the directory is greater than or equal to the airflow requirements specified in Section 403.4.7.3 and if the value for the sone rating given in the directory is less than or equal to the sone rating requirements specified in 403.4.7.2, then the local intermittent kitchen exhaust system complies, otherwise the local intermittent kitchen exhaust system does not comply.

[Statutory Authority: RCW 19.27.031, 19.27.074, and chapter 19.27 RCW. WSR 22-09-009, § 51-52-0403, filed 4/8/22, effective 5/9/22. Statutory Authority: RCW 19.27.035 and 19.27.074. WSR 21-05-020, § 51-52-0403, filed 2/8/21, effective 3/11/21. Statutory Authority: RCW 19.27.031

and 19.27.074. WSR 20-03-041, § 51-52-0403, filed 1/8/20, effective 7/1/20; WSR 17-10-075, § 51-52-0403, filed 5/3/17, effective 6/3/17; WSR 16-01-148, § 51-52-0403, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0403, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031, 19.27.035, 19.27.074, and chapters 19.27 and 34.05 RCW. WSR 12-07-020, § 51-52-0403, filed 3/12/12, effective 4/12/12. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0403, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0403, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-015, § 51-52-0403, filed 12/2/04, effective 7/1/05.]

**Reviser's note:** The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-0501 Section 501—General.**

**501.3.1 Location of exhaust outlets.** The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. **For ducts conveying explosive or flammable vapors, fumes or dusts:** 30 feet (9144 mm) from the property line; 10 feet (3048 mm) from operable openings into the building; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into the building which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.

2. **For other product-conveying outlets:** 10 feet (3048 mm) from property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into the building; 10 feet (3048 mm) above adjoining grade.

3. **For environmental air exhaust other than enclosed parking garage and transformer vault exhaust:** 3 feet (914 mm) from property lines, 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious. Separation is not required between intake air openings and living space exhaust air openings of an individual dwelling unit or sleeping unit where an approved factory-built intake/exhaust combination termination fitting is used to separate the air streams in accordance with the manufacturer's instructions.

**EXCEPTIONS:**

1. The separation between an air intake and exhaust outlet on a single listed package HVAC unit.
2. Exhaust from environmental air systems other than garages may be discharged into an open parking garage.
3. Except for Group I occupancies, where ventilation system design circumstances require building HVAC air to be relieved, such as during economizer operation, such air may be relieved into an open or enclosed parking garage within the same building.

4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the elevation required by Section 1613 of the *International Building Code* for utilities and attendant equipment.

5. For enclosed parking garage exhaust system outlets and transformer vault exhaust system outlets: 10 feet (3048 mm) from property lines which separate one lot from another; 10 feet (3048 mm) from op-

erable openings into buildings; 3 feet (914 mm) horizontally from, 10 feet above, or 10 feet below adjoining finished (~~sidewalk~~) walkways.

6. For transformer vault exhaust system outlets, subject to the requirements of NFPA 70 Section 450.45: Ten feet (3048 mm) from fire escapes, required means of egress at the exterior of the building, elements of exit discharge, exterior combustible materials, and openings that are not protected in accordance with Section 705.8 of the International Building Code; 10 feet (3048 mm) from property lines which separate one lot from another; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above walkways.

7. For elevator machinery rooms in enclosed or open parking garages: Exhaust outlets may discharge air directly into the parking garage.

~~(7.)~~ 8. For specific systems see the following sections:

~~(7.1.)~~ 8.1. Clothes dryer exhaust, Section 504.4.

~~(7.2.)~~ 8.2. Kitchen hoods and other kitchen exhaust equipment, Sections 506.3.13, 506.4 and 506.5.

~~(7.3.)~~ 8.3. Dust stock and refuse conveying systems, Section 511.2.

~~(7.4.)~~ 8.4. Subslab soil exhaust systems, Section 512.4.

~~(7.5.)~~ 8.5. Smoke control systems, Section 513.10.3.

~~(7.6.)~~ 8.6. Refrigerant discharge, Section 1105.7.

~~(7.7.)~~ 8.7. Machinery room discharge, Section 1105.6.1.

**501.4 Pressure equalization.** Mechanical exhaust systems shall be sized to remove the quantity of air required by this chapter to be exhausted. The system shall operate when air is required to be exhausted. Where mechanical exhaust is required in a room or space, such space shall be maintained with a neutral or negative pressure. If a greater quantity of air is supplied by a mechanical ventilating supply system than is removed by a mechanical exhaust for a room, adequate means shall be provided for the natural or mechanical exhaust of the excess air supplied. If only a mechanical exhaust system is installed for a room or if a greater quantity of air is removed by a mechanical exhaust system than is supplied by a mechanical ventilating supply system for a room, adequate makeup air consisting of supply air, transfer air or outdoor air shall be provided to satisfy the deficiency. The calculated building infiltration rate shall not be used to satisfy the requirements of this section.

EXCEPTION: Intermittent (~~domestic range~~) kitchen exhaust, intermittent domestic dryer exhaust, and intermittent local exhaust systems in R-3 occupancies and dwelling units in R-2 occupancies are excluded from the pressure equalization requirement unless required by Section 504 or Section 505.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0501, filed 1/8/20, effective 7/1/20. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0501, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0501, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0501, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 05-01-015, § 51-52-0501, filed 12/2/04, effective 7/1/05.]

AMENDATORY SECTION (Amending WSR 16-01-148, filed 12/21/15, effective 7/1/16)

**WAC 51-52-0504 Section 504—Clothes dryer exhaust.**

**504.4 Exhaust installation.** Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper located where the duct terminates. Dryer exhaust ducts may terminate at exterior wall louvers with openings spaced not less than 1/2-inch in any direction.

Screens shall not be installed at the duct termination. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or chimney. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

Domestic dryer exhaust ducts may terminate at a common location where each duct has an independent back-draft damper.

~~((504.10))~~ **504.11 Common exhaust systems for clothes dryers located in multistory structures.** Where a common multistory duct system is designed and installed to convey exhaust from multiple clothes dryers, the construction of the system shall be in accordance with all of the following:

1. The shaft in which the duct is installed shall be constructed and fire-resistance rated as required by the *International Building Code*.
2. Dampers shall be prohibited in the exhaust duct. Penetrations of the shaft and ductwork shall be protected in accordance with Section 607.5.5, Exception 2.
3. Rigid metal ductwork shall be installed within the shaft to convey the exhaust. The ductwork shall be constructed of sheet steel having a minimum thickness of 0.0187 inch (0.4712 mm) (No. 26 gage) and in accordance with *SMACNA Duct Construction Standards*.
4. The ductwork within the shaft shall be designed and installed without offsets.
5. The exhaust fan motor design shall be in accordance with Section 503.2.
6. The exhaust fan motor shall be located outside of the airstream.
7. The exhaust fan shall run continuously, and shall be connected to a standby power source.
8. Exhaust fan operation shall be monitored in an *approved* location and shall initiate an audible or visual signal when the fan is not in operation.
9. Makeup air shall be provided for the exhaust system to maintain the minimum flow for the exhaust fan when the dryers are not operating. Additionally, makeup air shall be provided when required by Section ~~((504.5))~~ **504.7**.
10. A cleanout opening shall be located at the base of the shaft to provide access to the duct to allow for cleaning and inspection. The finished opening shall be not less than 12 inches by 12 inches (305 mm by 305 mm).
11. Screens shall not be installed at the termination.
12. The common multistory duct system shall serve only clothes dryers and shall be independent of other exhaust systems.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-01-148, § 51-52-0504, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0504, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0504, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0504, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 16-01-148, filed 12/21/15, effective 7/1/16)

**WAC 51-52-0505 Section 505—Domestic ((kitchen)) cooking exhaust equipment.**

**((505.1)) 505.3 Domestic ((systems)) exhaust ducts.** ((Where domestic range hoods and domestic appliances equipped with downdraft exhaust are provided, such hoods and appliances)) Ducts serving domestic cooking exhaust equipment shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, shall be ((air tight)) airtight, shall be equipped with a backdraft damper and shall be independent of all other exhaust systems.

Domestic kitchen exhaust ducts may terminate with other domestic dryer exhaust and residential local exhaust ducts at a common location where each duct has an independent back-draft damper.

Listed and labeled exhaust booster fans shall be permitted when installed in accordance with the manufacturer's installation instructions.

- EXCEPTIONS:
1. In other than Group I-1 and I-2, where installed in accordance with the manufacturer's installation instructions and where ((mechanical ventilation is otherwise provided in accordance with Chapter 4)) continuous local exhaust is provided in an enclosed kitchen in accordance with Table 403.4.7, listed and labeled ductless range hoods shall not be required to discharge to the outdoors. The local exhaust from the residential dwelling or sleeping unit kitchen area may be combined with other exhaust ductwork where the exhaust register/grille in the kitchen is a minimum of 6 feet (1.8 M) from the domestic range cooktop. The exhaust register/grille shall be provided with a minimum MERV 3 filter or mesh filter (washable) for trapping grease.
  2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
    - 2.1. The duct shall be installed under a concrete slab poured on grade.
    - 2.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
    - 2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
    - 2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
    - 2.5. The PVC ducts shall be solvent cemented.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-01-148, § 51-52-0505, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0505, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0505, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-0506 Section 506—Commercial kitchen hood ventilation system ducts and exhaust equipment.**

**506.3.2.4 Vibration isolation.** A vibration isolation connector for connecting a duct to a fan shall consist of noncombustible packing in a metal sleeve joint of approved design or shall be a coated-fabric flexible duct connector rated for continuous duty at temperature of not less than 1500°F (816°C). Vibration isolation connectors shall be installed only at the connection of a duct to a fan inlet or outlet.

**506.3.9 Grease duct cleanout location, spacing and installation.**

**506.3.9.1 Grease duct horizontal cleanout.** Cleanouts located on horizontal sections of ducts shall:

1. Be spaced not more than 20 feet (6096 mm) apart.
2. Be located not more than 10 feet (3048 mm) from changes in direction that are greater than 45 degrees (0.79 rad).
3. Be located on the bottom only where other locations are not available and shall be provided with internal damming of the opening such that grease will flow past the opening without pooling. Bottom cleanouts and openings shall be approved for the application and installed liquid-tight.
4. Not be closer than 1 inch (25.4 mm) from the edges of the duct.
5. Have dimensions of not less than 12 inches by 12 inches (305 mm by 305 mm). Where such dimensions preclude installation, the openings shall be not less than 12 inches (305 mm) on one side and shall be large enough to provide access for cleaning and maintenance.
6. Shall be located at grease reservoirs.
7. Be located within 3 feet (914 mm) of horizontal discharge fans.

**506.3.9.2 Grease duct vertical cleanouts.** Where ducts pass vertically through floors, cleanouts shall be provided. A minimum of one cleanout shall be provided on each floor. Cleanout openings shall be not less than 1 1/2 inches (38 mm) from all outside edges of the duct or welded seams.

**506.3.11 Grease duct enclosures.** A commercial kitchen grease duct serving a Type I hood that penetrates a ceiling, wall, floor or any concealed spaces shall be enclosed from the point of penetration to the outlet terminal. In-line exhaust fans not located outdoors shall be enclosed as required for grease ducts. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the *International Building Code*. The duct enclosure shall serve a single grease duct and shall not contain other ducts, piping or wiring systems. Duct enclosures shall be a shaft enclosure in accordance with Section 506.3.11.1, a field-applied enclosure assembly in accordance with Section 506.3.11.2 or a factory-built enclosure assembly in accordance with Section 506.3.11.3. Duct enclosures shall have a fire-resistance rating of not less than that of the assembly penetrated. The duct enclosure need not exceed 2 hours but shall not be less than 1 hour. Fire dampers and smoke dampers shall not be installed in grease ducts.

EXCEPTION: A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0506, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-0506, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0506, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW

19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0506, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0506, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-0515 Section 515—Waste or linen chute venting.**

**515.1 General.** Waste or linen chutes shall be gravity vented (~~((per))~~) in accordance with NFPA 82.

EXCEPTION: Waste or linen chutes may be mechanically ventilated by an exhaust fan(~~(-The exhaust fan)~~) in accordance with Section 713.13.7 of the International Building Code ((Section 713.13.7)).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0515, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-0515, filed 12/21/15, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 22-09-009, filed 4/8/22, effective 5/9/22)

**WAC 51-52-0601 Section 601—General.**

**601.2 Air movement in egress elements.** Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

EXCEPTIONS:

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted provided that each such corridor is directly supplied with *outdoor air* at a rate greater than the rate of makeup air taken from the corridor.
2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
3. Where located within tenant spaces of one thousand square feet (93 m<sup>2</sup>) or less in area, utilization of corridors for conveying return air is permitted.
4. ~~((Incidental air movement from pressurized rooms within health care facilities, provided that the corridor is not the primary source of supply or return to the room.))~~ Transfer air movement required to maintain pressurization difference within health care facilities in accordance with ASHRAE 170.
5. Where such air is part of an engineered smoke control system.
6. Air supplied to corridors serving residential occupancies shall not be considered as providing ventilation air to the dwelling units and sleeping units subject to the following:
  - 6.1 The air supplied to the corridor is one hundred percent outside air; and
  - 6.2 The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and
  - 6.3 For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors installed in accordance with Section 606.2.4; or
  - 6.4 For high-rise buildings, the supply fan will automatically shut off upon activation of the smoke detectors required by *International Fire Code* Section 907.2.12.1 or upon receipt of another approved fire alarm signal. The supply fan is not required to be automatically shut off when used as part of an approved building stairwell or elevator hoistway pressurization system. Corridor smoke detectors shall be installed in accordance with Section 606.2.5.

[Statutory Authority: RCW 19.27.031, 19.27.074, and chapter 19.27 RCW. WSR 22-09-009, § 51-52-0601, filed 4/8/22, effective 5/9/22. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0601, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-0601, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0601, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0601, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-0601, filed 12/19/06, effective 7/1/07. Statu-



tory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-104, § 51-52-0601, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 10-03-099, filed 1/20/10, effective 7/1/10)

**WAC 51-52-0603 Section 603—Duct construction and installation.**

**603.5.1 Gypsum ducts.** The use of gypsum boards to form air shafts (ducts) shall be limited to return air systems where the air temperatures do not exceed 125°F (52°C) and the gypsum board surface temperature is maintained above the airstream dew-point temperature. Supply air ducts formed by gypsum boards shall not be incorporated in air-handling systems utilizing ~~direct evaporative ((coolers))~~ cooling systems.

EXCEPTION: In other than Group I-2 occupancies, gypsum boards may be used for ducts that are only used for stairwell or elevator pressurization supply air. The gypsum duct shall not attach directly to the equipment.

[Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-0603, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-0605 Section 605—Air filters.**

**605.1 General.** (~~(Heating and air-conditioning))~~ Air handlers and ventilation systems shall be provided with *approved* air filters in accordance with Section 605.4. Filters shall be installed such that all return air, recirculated air, outdoor air and makeup air is filtered upstream from any heat exchanger or coil. Filters shall be installed in an *approved* convenient location. Liquid adhesive coatings used on filters shall have a flash point not lower than 325°F (163°C).

EXCEPTIONS: 1. Cooling coils that are designed, controlled and operated to provide sensible cooling only do not require filtration at the terminal device.  
2. Ambient air that enters the building through intentional openings for natural ventilation or by infiltration is not required to be filtered.  
3. Recirculated air serving systems without wetted cooling coils or with unducted heater (hydronic coils, fossil fuel heating elements or electric resistance heating elements) do not require filtration at the terminal device.

**605.4 Particulate matter removal.** Particulate matter filters or air cleaners (~~(having))~~ shall have a minimum efficiency reporting value (MERV) of not less than ((6 for ducted air handlers and not less than 4 for ductless mini-split systems shall be provided upstream of all cooling coils or other devices with wetted surfaces through which air is supplied to an occupiable space.)) the following:

1. MERV 13 for ducted air handlers and ventilation systems serving occupiable spaces in Groups A, B, E, M, R and I occupancies.
2. MERV 8 for ducted air handlers and ventilation systems serving occupiable spaces in Groups F, H, S, and U occupancies.
3. MERV 4 for unducted air handlers and fan coil units.

EXCEPTIONS: 1. Ducted air handlers and ventilation systems 500 cfm or less shall have a filter not less than MERV 8.  
2. Recirculated air at fan powered variable air volume terminal units with hydronic heating coils or electric resistance heating elements shall have a filter not less than MERV 8.  
3. Exhaust or relief air upstream of a heat exchanger or coil shall have a filter not less than MERV 6.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-0605, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-0605, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-0605, filed 2/1/13, effective 7/1/13.]

## NEW SECTION

### **WAC 51-52-0607 Section 607—Ducts and transfer openings.**

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

**EXCEPTION:**

Fire dampers are not required at penetrations of fire barriers where any of the following apply:

1. Penetrations are tested in accordance with ASTM E119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an *approved* smoke control system in accordance with Section 513 and where the fire damper would interfere with the operation of the smoke control system.
3. Such walls are penetrated by fully ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code*. For the purposes of this exception, a fully ducted HVAC system shall be a duct system for the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage (0.0217 inch (0.55 mm)) thickness and shall be continuous from the air-handling *appliance* or *equipment* to the air outlet and inlet terminals. Flexible air connectors shall be permitted in a fully ducted system, limited to the following installations:
  - 3.1. Nonmetallic flexible connections that connect a duct to an air handling unit or *equipment* located within a mechanical room or located outdoors in accordance with Section 603.9.
  - 3.2. Nonmetallic flexible air connectors in accordance with Section 603.6.2 that connect an overhead metal duct to a diffuser, grille, or register where the metal duct and diffuser, grille, or register are located within the same room.

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

**EXCEPTION:**

In *occupancies* other than Group H, fire dampers are not required where any of the following apply:

1. Corridor walls in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code* and the duct is protected as a through penetration in accordance with Section 714 of the *International Building Code*.
2. The partitions are tenant partitions in covered and open mall buildings where the walls are not required by provisions elsewhere in the *International Building Code* to extend to the underside of the floor or roof sheathing, slab, or deck above.
3. The duct system is constructed of *approved* materials in accordance with Section 603 and the duct penetrating the wall complies with all of the following requirements:
  - 3.1. The duct shall not exceed 100 square inches (0.06 m<sup>2</sup>).
  - 3.2. The duct shall be constructed of steel not less than 0.0217 inch (0.55 mm) in thickness.
  - 3.3. The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.
  - 3.4. The duct shall be installed above a ceiling.
  - 3.5. The duct shall not terminate at a wall register in the fire-resistance-rated wall.
  - 3.6. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening. The sleeve shall be secured to both sides of the wall and all four sides of the sleeve with minimum 1.5-inch by 1.5-inch by 0.060-inch (38 mm by 38 mm by 1.52 mm) steel retaining angles. The retaining angles shall be secured to the sleeve and the wall with No. 10 (M5) screws. The annular space between the steel sleeve and the wall opening shall be filled with rock (mineral) wool batting on all sides.
4. Such walls are penetrated by fully ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, and are in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code*. For the purposes of this exception, a fully ducted HVAC system shall be a duct system for conveying supply, return or *exhaust air* as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage (0.0217 inch (0.55 mm)) in thickness and shall be continuous from the air-handling *appliance* or *equipment* to the air outlet and inlet terminals. Flexible air connections shall be permitted in a fully ducted system, limited to the following installations:
  - 4.1. Nonmetallic flexible connections that connect a duct to an air-handling unit or *equipment* located within a mechanical room or located outdoors in accordance with Section 603.9.
  - 4.2. Nonmetallic flexible air connectors in accordance with Section 603.2.6 that connect an overhead metal duct to a diffuser, grille, or register where the metal duct and diffuser, grille, or register are located in the same room. Where the fully ducted HVAC system metal ductwork penetrates a corridor fire partition, the ductwork shall be continuous without openings to the corridor, to a mechanical room, or to a shaft enclosure.

[ ]

NEW SECTION**WAC 51-52-0915 Section 915—Engine and gas turbine-powered equipment and appliances.****915.3 Installation of emergency and legally required power systems.**

Emergency power systems and legally required standby power systems required by the *International Building Code* or *International Fire Code* shall be installed in accordance with the *International Fire Code*, NFPA 70, NFPA 110, and NFPA 111.

**915.3.1 Air intakes.** Air intake opening locations for combustion and radiator cooling intake air shall be located on the exterior of the building in accordance with NFPA 110 and a minimum of 5 feet from the property line.

**915.3.2 Air outlets.** Air outlet opening locations shall comply with the following:

1. Combustion exhaust shall be located on the exterior of the building in accordance with Section 501.3.1 Item 2 for product conveying exhaust.

2. Radiator cooling outlet air shall be located on the exterior of the building in accordance with NFPA 110, a minimum of 5 feet from the property line and a minimum of 2 feet above grade.

**915.4 Installation of optional standby power systems.** Optional standby power systems shall be installed in accordance with the *International Fire Code*, NFPA 37, NFPA 70, and NFPA 111 as applicable.

**915.4.1 Air intakes.** Air intake opening locations for combustion and radiator cooling intake air shall be located on the exterior of the building in accordance with NFPA 110 and a minimum of 5 feet from the property line and may be located within an open or enclosed parking garage with sufficient exterior permanent opening area to provide the intake air.

**915.4.2 Air outlets.** Air outlet opening locations shall comply with the following:

1. Combustion exhaust shall be located on the exterior of the building in accordance with Section 501.3.1 Item 2 for product conveying exhaust.

2. Radiator cooling outlet air shall be located a minimum of 5 feet from the property line and may be discharged into an open or enclosed parking garage with sufficient exterior permanent opening area to relieve heat from the generator.

[ ]

AMENDATORY SECTION (Amending WSR 22-09-009, filed 4/8/22, effective 5/9/22)

**WAC 51-52-1101 ((Section 1101—Refrigeration, general.)) Re-served.**

~~((1101.2 Factory-built equipment and appliances. Listed and labeled self-contained, factory-built equipment and appliances shall be tested in accordance with UL 207, 412, 471, 1995, or 60335-2-40. Such equipment and appliances are deemed to meet the design, manufacture and~~

factory test requirements of this code if installed in accordance with their listing and the manufacturer's instructions.

~~**1101.6 General.** Refrigeration systems shall comply with the requirements of this code and, except as modified by this code, ASHRAE 15. Ammonia refrigerating systems shall comply with this code and, except as modified by this code, ASHRAE 15, IIAR 2, IIAR 3, IIAR 4, and IIAR 25.~~

EXCEPTION: Systems utilizing A2L refrigerants complying with ASHRAE 15 are deemed to meet this code.)

[Statutory Authority: RCW 19.27.031, 19.27.074, and chapter 19.27 RCW. WSR 22-09-009, § 51-52-1101, filed 4/8/22, effective 5/9/22.]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-1105 ((Section 1105—Machinery room, general requirements.) Reserved.**

~~((**1105.6.3 Ventilation rate.** For other than ammonia systems, the mechanical ventilation systems shall be capable of exhausting the minimum quantity of air both at normal operating and emergency conditions, as required by Sections 1105.6.3.1 and 1105.6.3.2. The minimum required emergency ventilation rate for ammonia shall be 30 air changes per hour and the room conditions shall be in accordance with IIAR2. Multiple fans or multispeed fans shall be allowed to produce the emergency ventilation rate and to obtain a reduced airflow for normal ventilation.))~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-1105, filed 1/8/20, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 22-09-009, filed 4/8/22, effective 5/9/22)

**WAC 51-52-1200 Chapter 12—Hydronic piping.**

**1209.5 ((Thermal barrier)) Insulation and thermal break required.** Radiant floor heating and snow melt systems shall be provided with insulation and a thermal ~~((barrier))~~ break in accordance with Sections 1209.5.1 and 1209.5.2. Concrete slab-on-grade, asphalt and paver-system type pavements shall have a minimum of R-10 insulation installed under the area to be snow melted, or R-5 insulation shall be installed under and at the slab edges of the area to be snow melted. The insulation shall be located underneath the snow and ice melt hydronic piping or cable and along all edges of the pavement where the snow and ice melt system is installed in accordance with the snow and ice melt manufacturer's instructions. Insulation R-values for slab-on-grade and suspended floor insulation shall be in accordance with the Washington State Energy Code.

**1210.7.6 Expansion tanks.** Shutoff valves shall be installed at connections to expansion tanks. A method of draining the expansion tank downstream of the shutoff valve shall be provided.

[Statutory Authority: RCW 19.27.031, 19.27.074, and chapter 19.27 RCW. WSR 22-09-009, § 51-52-1200, filed 4/8/22, effective 5/9/22. Statutory Authority: RCW 19.27.035 and 19.27.074. WSR 21-05-020, § 51-52-1200, filed 2/8/21, effective 3/11/21. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-1200, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-1200, filed 12/21/15, effective 7/1/16.]

NEW SECTION

**WAC 51-52-1305 Section 1305—Fuel oil system installation.**

**1305.7 Vent piping.** Liquid fuel vent pipes shall terminate outside of buildings at a point not less than 5 feet (1524 mm) from building openings and not less than 15 feet (4572 mm) from outdoor air intakes. Outer ends of vent pipes shall terminate in a weatherproof vent cap or fitting or be provided with a weatherproof hood. Vent caps shall have a minimum free open area equal to the cross-sectional area of the vent pipe and shall not employ screens finer than No. 4 mesh. Vent pipes shall terminate sufficiently above the ground to avoid being obstructed with snow or ice. Vent pipes from tanks containing heaters shall be extended to a location where oil vapors discharging from the vent will be readily diffused. If the static head with a vent pipe filled with oil exceeds 10 pounds per square inch (psi) (69 kPa), the tank shall be designed for the maximum static head that will be imposed.

Liquid fuel vent pipes shall not be cross connected with fill pipes, lines from burners, or overflow lines from auxiliary tanks.

EXCEPTION: Liquid fuel vent pipes may terminate outside the building at a point not less than 2 feet from the fuel oil equipment combustion exhaust outlet.

[ ]

AMENDATORY SECTION (Amending WSR 20-03-041, filed 1/8/20, effective 7/1/20)

**WAC 51-52-1400 (~~Chapter 14 Solar thermal systems.~~) Reserved.**

~~((1402.8.1.2 Rooftop-mounted solar thermal collectors and systems. The roof shall be constructed to support the loads imposed by roof-mounted solar collectors. Where mounted on or above the roof covering, the collector array, mounting systems and their attachments to the roof shall be constructed of noncombustible materials or fire-retardant-treated wood conforming to the International Building Code to the extent required for the type of roof construction of the building to which the collectors are accessory.))~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-1400, filed 1/8/20, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 22-09-009, filed 4/8/22, effective 5/9/22)

WAC 51-52-1500 Chapter 15—Referenced standards. The following referenced standards are added to Chapter 15.

**AHAM**

Association of Home Appliance Manufacturers  
1111 19th St. N.W., #402  
Washington D.C. 20036

AHAM-Certified Range Hood  
Directory. . . . . 403.4.7.3.1  
HRH-2 Household Range Hoods . . . . . 403.4.7.3.1

**ANCE**

**UL/CSA/ANCE 60335-2-40—2019** Household and Similar Electrical Appliances - Safety - Part 2-40: Particular Requirements for Electrical Heat Pumps, Air Conditioners and Dehumidifiers . . . . . 1101.2

**ASHRAE**

~~((15-2019 Safety Standards for Refrigeration Systems. . . . . 1101.6, 1105.8, 1108.1~~  
~~34-2019 Designation and classification of refrigerants. . . . . 202, 1102.2.1, 1103.1~~  
**62.2-2016)) 62.2-2019** Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings 401.4, 403.4, 403.4.7.3.3, 403.4.11

**ASTM**

**E3087—18:** Standard Test Method for Measuring Capture Efficiency of Domestic Range Hoods . . . . . 403.4.7.3.2, Table 403.4.7.3.2

**CSA**

**UL/CSA/ANCE 60335-2-40—2019** Household and Similar Electrical Appliances - Safety - Part 2-40: Particular Requirements for Electrical Heat Pumps, Air Conditioners and Dehumidifiers. . . . . 1101.2

**HVI address:**

Home Ventilating Institute  
1740 Dell Range Blvd., Suite H, PMB 450  
Cheyenne, WY 82009

**HVI Publication 911** Certified Home Ventilating Product Directory . . . . . 403.4.7.3.4

**HVI ((915-2015)) 915-2020** Procedure for Loudness Testing of Residential Fan Products. . . . . 403.4.6.1, 403.4.6.2, 403.4.7.2

**HVI ((916-2015)) 916-2020** Air Flow Test Procedure. . . . . 403.4.6.1, 403.4.6.2, 403.4.7.2

**HVI ((920-2015)) 920-2020** Product Performance Certification Procedure Including Verification and Challenge. . . . . 403.4.6.1, 403.4.6.2, 403.4.7.2

**NFPA**

110-22 Standard for Emergency and Standby Power Systems . . . . . 915.3, 915.3.1, 915.3.2

111-22 Standard on Stored Electrical Energy Emergency and Standby Power Systems . . . . . 915.3, 915.4

**UL**

**(~~864-03~~) 864-2014** Control Units and Accessories for Fire Alarm Systems with revisions through (~~December 2014~~) October 2018. . . . . 606.2.2

**UL/CSA/ANCE 60335-2-40—2019** Household and Similar Electrical Appliances - Safety - Part 2-40: Particular Requirements for Electrical Heat Pumps, Air Conditioners and Dehumidifiers. . . . . 1101.2

[Statutory Authority: RCW 19.27.031, 19.27.074, and chapter 19.27 RCW. WSR 22-09-009, § 51-52-1500, filed 4/8/22, effective 5/9/22. Statutory Authority: RCW 19.27.035 and 19.27.074. WSR 21-05-020, § 51-52-1500, filed 2/8/21, effective 3/11/21. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-041, § 51-52-1500, filed 1/8/20, effective 7/1/20; WSR 16-01-148, § 51-52-1500, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-1500, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-1500, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 16-01-148, filed 12/21/15, effective 7/1/16)

**WAC 51-52-21101 Section 101 (IFGC)—General.**

**101.2 Scope.** This code shall apply to the installation of fuel gas piping systems, fuel gas utilization equipment, gaseous hydrogen systems and regulated accessories in accordance with Section 101.2.1 through 101.2.5.

- EXCEPTIONS:
- 1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.
  - 2. The standards for liquefied petroleum gas installations shall be the (~~2014~~) 2020 Edition of NFPA 58 (Liquefied Petroleum Gas Code) and the (~~2015~~) 2021 Edition of ANSI Z223.1/NFPA 54 (National Fuel Gas Code).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-01-148, § 51-52-21101, filed 12/21/15, effective 7/1/16. Statutory Authority: RCW 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-053, § 51-52-21101, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-099, § 51-52-21101, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-092, § 51-52-21101, filed 12/19/06, effective 7/1/07.]

NEW SECTION

**WAC 51-52-21116 Section 116 (IFGC)—Stop work order.**

**116.4 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 subject to fines established by the code official.

[ ]

NEW SECTION

**WAC 51-52-21409 Section 409 (IFGC)—Drips and sloped piping.**

**Table 409.1.1  
Natural Gas Valve Standards**

Valve Standards	Appliance Shutoff Valve Application Up to 1/2 psig Pressure	Other Valve Applications			
		Up to 1/2 psig Pressure	Up to 2 psig Pressure	Up to 5 psig Pressure	Up to 125 psig Pressure
ANSI Z21.15/CGA 9.1	X	--	--	--	--
ASME B16.44	X	X	X <sup>a</sup>	X <sup>b</sup>	--
ASME B16.33	X	X	X	X	X
ASME B16.38	--	X	X	X	X

For SI: 1 pound per square inch gauge = 6.895 cPsa  
 a. If labeled 2G.  
 b. If labeled 5G.

[ ]

NEW SECTION

**WAC 51-52-21800 Chapter 8—Referenced standards.** The following referenced standards are added to Chapter 8.

**ASME**

**B16.38-2012 (R2017):** Large Metallic Valves for Gas Distribution: Manually Operated, NPS 2 1/2 (DN 65) to NPS 12 (DN 300), 125 psig (8.6 bar) Maximum. . . . . Table 409.1.1

[ ]



**WSR 23-02-056**  
**PERMANENT RULES**  
**BUILDING CODE COUNCIL**

[Filed January 3, 2023, 1:48 p.m., effective July 1, 2023]

Effective Date of Rule: July 1, 2023.

Purpose: The purpose of this permanent rule making is to adopt the 2021 Washington Wildland - Urban Interface Code, with state amendments to incorporate proposed changes as adopted by the Washington state building code council on November 18, 2022. The rules provide increased clarity and life safety measures for building construction in Washington state. The implementation date is July 1, 2023.

Citation of Rules Affected by this Order: New 14.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074.

Other Authority: RCW 19.27.560.

Adopted under notice filed as WSR 22-17-150 on August 23, 2022.

Changes Other than Editing from Proposed to Adopted Version:

<b>WAC</b>	<b>Section</b>	<b>Change</b>	<b>Rationale/Discussion</b>
51-55-0200	Chapter 2	Adds definition: "High-Density Vegetation Area."	The addition of this definition allows the end user to navigate more effectively the process of application and enforcement.
51-55-0200	Chapter 2	Adds definition: "Washington Wildland Urban Interface Map."	The addition of this definition allows the end user to navigate more effectively the process of application and enforcement.
51-55-0300	301	Adds Section 301: "General."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	301.1	Adds Section 301.1: "Scope."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	301.2	Adds Section 301.2: "Construction in wildland-urban interface or intermix areas."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	301.3	Adds Section 301.3: "Construction in wildland areas."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.1	Replaces Section 302.1 "Declaration" with Section 302.1 "General."	The alteration of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.2	Replaces the text in Section 302.2 with the following: "The applicable wildland urban interface designation shall be based on a finding of fact. The finding of fact shall comply with the provisions of Appendix E or is permitted to be based on the worksheet and procedures in Section 302.3."	The alteration of this section allows the end user to navigate more effectively the process of application and enforcement.

WAC	Section	Change	Rationale/Discussion
51-55-0300	302.2.1	Removes Section 302.2.1.	The removal of this section allows the end user to navigate more effectively the process of application and enforcement.
	Table 302.2.1	Removes Table 302.2.1	The removal of this table allows the end user to navigate more effectively the process of application and enforcement.
	Table 302.2.1(b)	Removes Table 302.2.1(b)	The removal of this table allows the end user to navigate more effectively the process of application and enforcement.
	302.2	Removes Option 2 for Section 302.2: "Table/Worksheet"	The removal of this section/table allows the end user to navigate more effectively the process of application and enforcement.
	302.3	Replaces Section 302.3 "Mapping" with Section 302.3 "Simplified wildland urban interface designation worksheet."	The replacement of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.1	Adds Section "302.3.1 Area to be evaluated."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.2	Adds Section "302.3.2 Structure density category."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.3	Adds Section "302.3.3 Vegetation density category."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.4	Adds Section "302.3.4 Proximity category."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.5	Adds Section "302.3.5 WUIC applicability."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.6	Adds Section "302.3.6 Wildland urban interface designation."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.6.1	Adds Section "302.3.6.1 Intermix designation."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	302.3.6.2	Adds Section "302.3.6.2 Interface designation."	The addition of this section allows the end user to navigate more effectively the process of application and enforcement.
	Figure 302(1)	Adds Figure "302(1) Outline of simplified procedure for determining wildland interface designation."	The addition of this figure allows the end user to navigate more effectively the process of application and enforcement.
Figure 302(2)	Adds Figure "302(2) Worksheet for simplified procedure for determining wildland interface designation."	The addition of this figure allows the end user to navigate more effectively the process of application and enforcement.	

A final cost-benefit analysis is available by contacting Dustin Curb, 1500 Jefferson Street S.E., Olympia, WA 98501, phone 360-972-4158, email [dustin.curb@des.wa.gov](mailto:dustin.curb@des.wa.gov), website [www.sbcc.wa.gov](http://www.sbcc.wa.gov).

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 14, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 14, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: November 18, 2022.

Tony Doan  
Chair

OTS-4050.3

**Chapter 51-55 WAC**

**STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE 2021 EDITION OF THE WILDLAND-URBAN INTERFACE CODE**

NEW SECTION

**WAC 51-55-001 Authority.** These rules are adopted under the authority of chapter 19.27 RCW.

[]

NEW SECTION

**WAC 51-55-002 Purpose.** The purpose of these rules is to implement the provisions of chapter 19.27 RCW, which provides that the state building code council shall maintain the state building code in a status which is consistent with the purpose as set forth in RCW 19.27.020. In maintaining the codes the council shall regularly review updated versions of the codes adopted under the act, and other pertinent information, and shall amend the codes as deemed appropriate by the council.

[]

NEW SECTION

**WAC 51-55-003 International Wildland-Urban Interface Code.** The 2021 edition of the *International Urban-Interface Code*, published by the International Code Council, is hereby adopted by reference with the following additions, deletions, and exceptions.

[]

NEW SECTION

**WAC 51-55-008 Implementation.** The International Wildland-Urban Interface Code adopted by this chapter shall become effective in all counties and cities of this state on July 1, 2023.

[]

NEW SECTION**WAC 51-55-0100 Scope and administration.****101 Scope and general requirements.**

**101.2 Scope.** The provisions of this code shall apply to the construction, alteration, movement, repair, maintenance and use of any building, structure, or premises within the wildland-urban interface areas in this jurisdiction.

Buildings or conditions in existence at the time of the adoption of this code are allowed to have their use or occupancy continued, if such condition, use or occupancy was legal at the time of the adoption of this code, provided that such continued use does not constitute an egregious danger to life or property.

Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code for new buildings or structures.

**101.4 Retroactivity.** The provisions of the code shall apply to conditions arising after the adoption thereof, conditions not legally in existence at the adoption of this code and conditions that, as determined by the code official, constitute an egregious hazard to life or property.

EXCEPTION: Provisions of this code that specifically apply to existing conditions are retroactive.

[]

NEW SECTION**WAC 51-55-0200 Chapter 2—Definitions.****202 Definitions.**

**ACCESSORY STRUCTURE.** A building or structure used to shelter or support any material, equipment, chattel or occupancy other than a habitable building, or a habitable building or structure that is accessory to and incidental to that of the dwelling(s) and that is located on the same lot.

**BUILDING OFFICIAL.** Not adopted.

**EGREGIOUS DANGER.** A danger that if left unmitigated, places the occupants or property in immediate danger.

**FUEL, HEAVY.** Vegetation consisting of round wood 3 to 8 inches (76 to 203 mm) in diameter. See Fuel Models G, I, J, K, and U described in Chapter 9.

**FUEL, LIGHT.** Vegetation consisting of herbaceous plants and round wood less than 1/4-inch (6.4 mm) in diameter. See Fuel Models A, C, E, L, N, P, R, and S described in Chapter 9.

**FUEL, MEDIUM.** Vegetation consisting of round wood 1/4 to 3 inches (6.4 mm to 76 mm) in diameter. See Fuel Models B, D, F, H, O, Q, and T described in Chapter 9.

**HIGH-DENSITY VEGETATED AREA.** An area defined by a square determined in accordance with Section 302.3.1, with 75 percent or more vegetation.

**WASHINGTON WILDLAND-URBAN INTERFACE MAP (WA-WUI).** The Washington department of natural resources map designating urban areas, wildland-urban interface, wildland-urban intermix, wildlands, and long-term nonbuildable areas, designated as the Washington wildland-urban interface as mapped for 2019 by the Washington state department of natural resources—wildfire and forest health divisions under consultation from the USFS Rocky Mountain Research Station.

**WILDLAND-URBAN INTERFACE/INTERMIX AREA.** That geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.

[]

## NEW SECTION

### **WAC 51-55-0300 Wildland-urban interface areas.**

#### **301 General.**

**301.1 Scope.** Wildland urban interface areas shall be determined using the Washington wildland urban interface map (WA-WUI). WA-WUI designations are permitted to be modified, upon approval of a finding of fact in accordance with Section 302.

**User note:** The WA-WUI map is available at <https://data-wadnr.opendata.arcgis.com/apps/wildland-urban-interface-viewing-app/explore>.

#### **301.2 Construction in wildland-urban interface or intermix areas.**

Where a structure is proposed to be constructed in an area designated by the WA-WUI map as wildland-urban interface or intermix, the construction shall comply with the provisions of this code.

**301.3 Construction in wildlands areas.** Where a structure is proposed to be constructed in an area designated by the WA-WUI map as wildlands, the applicable wildland urban interface area designation shall be based on a finding of fact in accordance with Section 302.

#### **302 Wildland-urban interface area designations.**

**302.1 General.** Wildland urban interface area designations are permitted to be established in accordance with this section.

**302.2 Finding of fact.** The applicable wildland urban interface designation shall be based on a finding of fact. The finding of fact shall comply with the provisions of Appendix E or is permitted to be based on the worksheet and procedures in Section 302.3.

**302.3 Simplified wildland urban interface designation worksheet.** The wildland urban interface designation is permitted to be established using the procedure outlined in Figure 302(1), using the worksheet in Figure 302(2).

**302.3.1 Area to be evaluated.** For the purposes of establishing structure and vegetation densities, the area covered by a square of 1320 feet on a side (40 acres) shall be evaluated. The square area shall be located such that the site under consideration is in its center, except where the square would overlap a water body shown on the WA-WUI map with a surface area greater than 200,000 square feet, the location shall be adjusted such that no part of the square overlaps the water body.

**302.3.2 Structure density category.** The structure density category shall be determined by counting the number of structures within the area to be evaluated per Section 302.3.1. The structure density category shall be determined as follows:

UNINHABITED:	0 structures
VERY LOW:	1 structure
LOW:	2 to 8 structures
MEDIUM:	9 to 120 structures
HIGH:	more than 120 structures

**302.3.3 Vegetation density category.** Vegetation coverage within the area to be evaluated per Section 302.3.1 shall be determined in accordance with Chapter 9. Vegetation density shall be determined by dividing the vegetation coverage by 1,742,400 square feet (40 acres). Where the vegetation density is less than 50 percent, the vegetation density category for the site shall be nonvegetated. Where the vegetation density is 50 percent or more, the vegetation density category for the site shall be vegetated.

**302.3.4 Proximity category.** The distance from the site being evaluated to a high-density vegetated area shall be measured from the closest edge of the site boundary to the closest edge of the nearest high-density vegetated area. Where the distance is less than 1.5 miles, the proximity category shall be near. Where the distance is 1.5 miles or more, the proximity category shall be distant.

**302.3.5 WUIC applicability.** The WUIC shall apply, and the site shall be designated as intermix or interface in accordance with Section 302.3.6 under either of the following conditions:

1. The structure density category is very low to high, and the vegetation density category is vegetated.

2. The structure density category is very low to high, and the proximity category is near.

The WUIC shall not apply under either of the following conditions:

1. The structure density category is uninhabited, and the site is not located within an area designated as intermix or interface on the WA-WUI map.

2. The structure density category is uninhabited to high, the vegetation density category is nonvegetated, and the proximity category is distant.

**302.3.6 Wildland urban interface area designation.** Where required by Section 302.3.5, the site shall be designated as intermix or interface in accordance with Section 302.3.6.1 or 302.3.6.2.

**302.3.6.1 Intermix designation.** The site shall be designated as intermix where the structure density category is very low to high, and the vegetation density category is vegetated.

**302.3.6.2 Interface designation.** The site shall be designated as interface where the structure density category is very low to high, and the proximity category is near.

For the area to be evaluated in Section 302.3.1:

1. Determine structure density category (uninhabited, very low, low, medium, or high).
2. Determine vegetation density category (nonvegetated or vegetated).
3. Determine proximity category (near or distant).
4. Based on structure density, vegetation density, and proximity categories, determine if compliance with this code is required (WUIC applies, WUIC does not apply).
5. Where compliance with this code is required, determine wildland urban interface area designation (intermix or interface).

**Figure 302(1). Outline of simplified procedure for determining wildland interface designation**

1. Determine structure density category in accordance with Section 302.3.2. Numbers in table are the number of structures within the area determined by Section 302.3.1.

UNINHABITED	VERY LOW	LOW	MEDIUM	HIGH
0	1	2 TO 8	9 TO 120	MORE THAN 120

2. Determine vegetation density category within the area determined by Section 302.3.1.

NONVEGETATED	VEGETATED
Less than 50% vegetated	50% or more vegetated

3. Determine proximity category to the nearest high-density vegetated area.

NEAR	DISTANT
Less than 1.5 mi (2.414 km)	1.5 mi (2.414 km) or more

4. Use structure density, vegetation density, and proximity categories from above to determine if WUIC applies.

WUIC Applies	WUIC Does Not Apply
<ul style="list-style-type: none"> <li>• Structure density category is very low to high; and</li> <li>• Vegetation density category is vegetated.</li> </ul>	<ul style="list-style-type: none"> <li>• Structure density category is uninhabited; and</li> <li>• The site is not located within an area designated as intermix or interface on the WA-WUI map.</li> </ul>
<ul style="list-style-type: none"> <li>• Structure density category is very low to high; and</li> </ul>	<ul style="list-style-type: none"> <li>• Structure density category is uninhabited to high; and</li> </ul>

WUIC Applies	WUIC Does Not Apply
<ul style="list-style-type: none"> <li>• Proximity category is near.</li> </ul>	<ul style="list-style-type: none"> <li>• Vegetation density category is nonvegetated; and</li> <li>• Proximity category is distant.</li> </ul>

5. Where WUIC applies, the site shall be designated as intermix or interface as follows:

INTERMIX	INTERFACE
<ul style="list-style-type: none"> <li>• Structure density category is very low to high; and</li> <li>• Vegetation density category is vegetated.</li> </ul>	<ul style="list-style-type: none"> <li>• Structure density category is very low to high; and</li> <li>• Proximity category is near.</li> </ul>

**Figure 302(2). Worksheet for simplified procedure for determining wildland interface designation**

**302.4 Review of wildland-urban interface areas.** The *code official* shall review for approval evaluated areas for new or modified findings of fact. Where a new or modified findings of fact are *approved*, the *code official* shall recommend to WADNR a modification to the *wildland-urban interface areas* mapping.

[ ]

NEW SECTION

**WAC 51-55-0400 Wildland-urban interface area requirements.**

**401 General.**

**401.1 Scope.** *Wildland-urban interface areas* shall be provided with emergency vehicle access and water supply in accordance with this chapter.

**401.2 Objective.** This section is not adopted.

**401.3 General safety precautions.** This section is not adopted.

**402 Applicability.**

**402.1 Subdivisions.** Subdivisions shall comply with locally adopted standards.

**402.1.1 Access.** This section is not adopted.

**402.1.2 Water supply.** This section is not adopted.

**402.2 Individual structures.** Individual structures shall comply with Sections 402.2.1 and 402.2.2.

**402.2.1 Access.** Individual structures hereafter constructed or relocated into or within *wildland-urban interface areas* shall be provided with driveways in accordance with Section 403.2 and locally adopted standards. Marking of fire protection equipment shall be provided in accordance with Section 403.5 and address markers shall be provided in accordance with Section 403.6.



**402.2.2 Water supply.** Individual structures hereafter constructed or relocated into or within *wildland-urban interface areas* shall be provided with a conforming water supply in accordance with locally adopted standards.

EXCEPTION: Not adopted.

**402.3 Existing conditions.** This section is not adopted.

**403 Access.**

**403.2.1 Dimensions.** This section is not adopted.

**403.2.2 Length.** This section is not adopted.

**403.2.3 Service limitations.** This section is not adopted.

**403.2.4 Turnarounds and turnouts.** *Driveways* in excess of three hundred feet in length shall be provided with turnarounds. *Driveways* in excess of five hundred feet in length and less than twenty feet in width shall be provided with turnouts and turnarounds. Turnarounds and turnouts shall be designed as required by locally adopted standards.

**403.2.5 Turnouts.** This section is not adopted.

**403.3 Fire apparatus access road.** Where required, fire apparatus access roads shall be provided and maintained as required by locally adopted street, road, and access standards.

**403.4 Marking of roads.** This section is not adopted.

**403.4.1 Sign construction.** This section is not adopted.

**404 Water supply.**

**404.1 General.** Water supply shall be provided and maintained as required by locally adopted standards.

**404.2 Water sources.** This section is not adopted.

**404.3 Draft sites.** This section is not adopted.

**404.3.1 Access.** This section is not adopted.

**404.3.2 Pumper access points.** This section is not adopted.

**404.4 Hydrants.** This section is not adopted.

**404.5 Adequate water supply.** This section is not adopted.

**404.6 Fire department.** This section is not adopted.

**404.7 Obstructions.** This section is not adopted.

**404.8 Identification.** This section is not adopted.

**404.9 Testing and maintenance.** This section is not adopted.

**404.10 Reliability.** This section is not adopted.

**404.10.1 Objective.** This section is not adopted.

**404.10.2 Clearance of fuel.** This section is not adopted.

**404.10.3 Standby power.** This section is not adopted.

[]

NEW SECTION**WAC 51-55-0500 Special building construction regulations.****Section 501 General.**

**501.1 General.** Buildings and structures hereafter constructed, modified, or relocated into or within the *wildland-urban interface area* shall meet the construction requirements of Sections 501.4 through 501.8.

EXCEPTIONS:

1. Buildings and structures with fire hazard severity determined in Section 502 and with ignition-resistant construction classification determined in Section 503.
2. Accessory structures not exceeding 200 square feet (11 m<sup>2</sup>) in floor area and where located not less than 50 feet (15,240 mm) from buildings or structures containing habitable spaces.
3. Agricultural buildings located not less than 50 feet (15,240 mm) from buildings or structures containing habitable spaces.

**501.2 Objective.** This section is not adopted.

**501.4 Roof covering.** Roofs shall have a roof assembly that complies with a Class A rating when tested in accordance with ASTM E108 or UL 790. For roof assemblies where the profile allows a space between the roof covering and roof deck, the space at the eave ends shall be fire-stopped to preclude entry of flames or embers or have one layer of 72-pound (32.4 kg) mineral-surfaced, nonperforated cap sheet complying with ASTM D3909 installed over the combustible roof deck.

EXCEPTIONS:

1. Class A roof assemblies including those with coverings of brick, masonry, or an exposed concrete roof deck.
2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile or slate installed on noncombustible decks or ferrous, copper or metal sheets installed without a roof deck on noncombustible framing.
3. Class A roof assemblies include minimum 16 oz/sq. ft. (0.0416 kg/m<sup>2</sup>) copper sheets installed over combustible roof decks.

**501.4.1 Roof valleys.** Where provided, valley flashings shall be not less than 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide (914 mm) underlayment consisting of one layer of 72-pound (32.4 kg) mineral-surfaced, nonperforated cap sheet complying with ASTM D3909 running the full length of the valley.

**501.5 Exterior walls and projections other than decks.** Exterior walls and projections other than decks, of buildings, or structures, or *accessory structures* attached to buildings or structures with habitable spaces, shall be constructed with one of the following methods, with materials extending from the top of the foundation to the underside of the roof sheathing:

1. Materials approved for not less than one hour fire-resistance rated construction on the exterior side;
2. Approved noncombustible materials;
3. Heavy timber or log wall construction;
4. Fire-retardant-treated wood on the exterior side. The fire-retardant-treated wood shall be labeled for exterior use and meet the requirements of Section 2303.2 of the International Building Code; or
5. Ignition-resistant materials, complying with Section 503.2 on the exterior side.

EXCEPTION: Unenclosed accessory structures attached to buildings with habitable spaces and projections, such as decks, attached to the first floor of a building, if when the structure is built with building materials at least two inches nominal depth and the area below the unenclosed accessory structure is screened with material with openings no greater than 1/4-inch maximum to prevent accumulation of combustibles and to prevent embers from coming in underneath.

**501.6 Decks and appendages.** The material of decks, porches, balconies, and stairs shall be constructed with any of the following materials:

1. Ignition-resistant material that complies with the minimum performance requirement of Section 503.2.
2. Exterior fire-retardant-treated wood.

3. Noncombustible material.

4. Any material that complies with the minimum performance requirements of Section 503.2 when attached exterior wall covering is also either noncombustible or ignition-resistant material.

5. Heavy timber construction consisting of the following:

5.1. Posts shall be a minimum of 6 inches x 6 inches nominal dimension.

5.2. Beams shall be a minimum of 6 inches x 8 inches nominal dimension.

5.3. Joists shall be a minimum of 4 inches x 8 inches nominal dimension spaced at no greater than 24 inches on center.

**501.6.1 Clearance.** Decks with less than 48 inches of clearance from finished grade to deck joists shall be enclosed with screen material with openings no greater than 1/4-inch maximum to prevent accumulation of combustibles and to prevent embers from coming in underneath.

**501.6.2 Walking surfaces.** The walking surface material of decks, porches, balconies, and stairs shall be constructed with one of the following materials:

1. Ignition-resistant material that complies with the performance requirements of Section 503.2.

2. Exterior fire-retardant-treated wood.

3. Noncombustible material.

4. Where the deck, porch, balcony, or stairs are constructed of heavy timber in accordance with Section 501.6, natural wood decking products shall be:

4.1. 2-inch nominal dimension lumber; or

4.2. 5/4-inch nominal hardwood (i.e., teak, mahogany, or other approved hardwood).

5. Material that complies with the performance requirements of Section 501.6.2.1 when tested in accordance with ASTM E2632 and when attached exterior wall covering is also composed of only noncombustible or ignition-resistant materials.

**EXCEPTION:** Wall material shall be permitted to be of any material that otherwise complies with Section 501.5 when the decking surface material complies with the performance requirements of ASTM E84 with a Class B flame spread index.

**501.6.2.1 Material in Section 501.6.2, Item 5.** The walking surface material shall be tested in accordance with ASTM E2632 and shall comply with the following condition of acceptance. The ASTM E2632 test shall be conducted on a minimum of three test specimens and the peak heat release rate shall be less than or equal to 25 kW/ft<sup>2</sup> (269 kW/m<sup>2</sup>). If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All the additional tests shall meet the condition of acceptance.

**501.7 Exterior glazing.** Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, multilayered glazed panels, glass block, or have a fire protection rating of not less than 20 minutes.

**501.8 Vents.** Attic ventilation openings, foundation or underfloor vents, or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches (0.0929 m<sup>2</sup>) each. Such vents shall be covered with noncombustible corrosion-resistant mesh with openings not to exceed 1/4 inch (6.4 mm), or shall be designed and approved to prevent flame or ember penetration into the structure.

1. Attic ventilation openings shall not be located in soffits, in eave overhands, between rafters at eaves, or in other overhang areas. Gable end and dormer vents shall be located not less than 10 feet (3048 mm) from lot lines. Underfloor ventilation openings shall be located as close to grade as possible.

## **502 Fire hazard severity.**

**502.1 General.** The fire hazard severity of building sites for buildings hereafter constructed, modified, or relocated into *wildland-urban interface areas* shall be established in accordance with Table 502.1. See also Chapter 8.

**502.2 Fire hazard severity reduction.** The fire hazard severity identified in Table 502.1 is allowed to be reduced by implementing a vegetation management plan in accordance with Chapter 7.

**TABLE 502.1**  
**FIRE HAZARD SEVERITY**  
(No change to the table)

## **504 Class 1 ignition-resistant construction.**

**504.7 Appendages and projections.** *Accessory structures* attached to buildings with habitable spaces and projections other than decks, porches, balconies, or stairs, shall be not less than 1-hour fire-resistance-rated construction, *heavy timber construction*, or constructed of one of the following:

1. *Approved noncombustible materials.*
2. Fire-retardant-treated wood identified for exterior use and meeting the requirements of Section 2303.2 of the *International Building Code*.
3. Ignition-resistant building materials in accordance with Section 503.2.

EXCEPTION: Not adopted.

**504.8 Decks and appendages.** The material of decks, porches, balconies, and stairs shall be constructed with any of the following materials:

1. Ignition-resistant material that complies with the minimum performance requirement of Section 503.2.
2. Exterior fire-retardant-treated wood.
3. Noncombustible material.
4. Any material that complies with the minimum performance requirements of Section 503.2 when attached exterior wall covering is also either noncombustible or ignition-resistant material.
5. Heavy timber construction consisting of the following:
  - 5.1. Posts shall be a minimum of 6 inches x 6 inches nominal dimension.
  - 5.2. Beams shall be a minimum of 6 inches x 8 inches nominal dimension.
  - 5.3. Joists shall be a minimum of 4 inches x 8 inches nominal dimension spaced at no greater than 24 inches on center.

**504.8.1 Clearance.** Decks with less than 48 inches of clearance from finished grade to deck joists shall be enclosed with screen material with openings no greater than 1/4-inch maximum to prevent accumulation of combustibles and to prevent embers from coming in underneath.

**504.8.2 Walking surfaces.** The walking surface material of decks, porches, balconies, and stairs shall be constructed with one of the following materials:

1. Ignition-resistant material that complies with the performance requirements of Section 503.2.
2. Exterior fire-retardant-treated wood.
3. Noncombustible material.
4. Where the deck, porch, balcony, or stairs are constructed of heavy timber in accordance with Section 501.6, natural wood decking products shall be:
  - 4.1. 2-inch nominal dimension lumber; or
  - 4.2. 5/4-inch nominal hardwood (i.e., teak, mahogany, or other approved hardwood).
5. Material that complies with the performance requirements of Section 504.8.2.1 when tested in accordance with ASTM E2632 and when attached exterior wall covering is also composed of only noncombustible or ignition-resistant materials.

EXCEPTION: Wall material shall be permitted to be of any material that otherwise complies with Section 501.5 when the decking surface material complies with the performance requirements of ASTM E84 with a Class B flame spread index.

**504.8.2.1 Material in Section 504.8.1, Item 5.** The walking surface material shall be tested in accordance with ASTM E2632 and shall comply with the following condition of acceptance. The ASTM E2632 test shall be conducted on a minimum of three test specimens and the peak heat release rate shall be less than or equal to 25 kW/ft<sup>2</sup> (269 kW/m<sup>2</sup>). If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All the additional tests shall meet the condition of acceptance.

**504.9 Exterior glazing.** Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, *multilayered glazed panels*, glass block or have a fire protection rating of not less than 20 minutes.

**504.10 Exterior doors.** Exterior doors shall be *approved* noncombustible construction, solid core wood not less than 1 3/4 inches thick (44 mm), or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with Section 504.8.

EXCEPTION: Vehicle access doors.

**504.11 Vents.** Attic ventilation openings, foundation or underfloor vents, or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches (0.0929 m<sup>2</sup>) each. Such vents shall be covered with *noncombustible* corrosion-resistant mesh with openings not to exceed 1/4 inch (6.4 mm), or shall be designed and *approved* to prevent flame or ember penetration into the structure.

**504.11.1 Vent locations.** Attic ventilation openings shall not be located in soffits, in eave overhangs, between rafters at eaves, or in other overhang areas. Gable end and dormer vents shall be located not less than 10 feet (3048 mm) from lot lines. Underfloor ventilation openings shall be located as close to grade as practical.

**504.12 Detached accessory structures.** Detached accessory structures located less than 50 feet (15,240 mm) from a building containing habitable space shall have exterior walls constructed with materials *approved* for not less than 1-hour *fire-resistance-rated construction*, heavy timber, *log wall construction*, or constructed with *approved noncombustible* materials or fire-retardant-treated wood on the exterior side. The fire-retardant-treated wood shall be labeled for exterior

use and meet the requirements of Section 2303.2 of the *International Building Code*.

**504.12.1 Underfloor areas.** Where the detached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the structure shall have underfloor areas enclosed to within 6 inches (152 mm) of the ground, with exterior wall construction in accordance with Section 504.5 or underfloor protection in accordance with Section 504.6.

EXCEPTION: The enclosure shall not be required where the underside of exposed floors and exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour *fire-resistance-rated construction* or *heavy timber construction* or fire-retardant-treated wood on the exterior side. The fire-retardant-treated wood shall be labeled for exterior use and meet the requirements of Section 2303.2 of the *International Building Code*.

**505 Class 2 ignition-resistant construction.**

**505.7 Appendages and projections.** *Accessory structures* attached to buildings with habitable spaces and projections, other than decks, porches, balconies, or stairs, shall be not less than 1-hour *fire-resistance-rated construction*, *heavy timber construction* or constructed of one of the following:

1. *Approved noncombustible* materials.
2. Fire-retardant-treated wood identified for exterior use and meeting the requirements of Section 2303.2 of the *International Building Code*.
3. Ignition-resistant building materials in accordance with Section 503.2.

EXCEPTION: Not adopted.

**505.8 Decks and appendages.** The material of decks, porches, balconies, and stairs shall be constructed with any of the following materials:

1. Ignition-resistant material that complies with the minimum performance requirement of Section 503.2.
2. Exterior fire-retardant-treated wood.
3. Noncombustible material.
4. Any material that complies with the minimum performance requirements of Section 503.2 when attached exterior wall covering is also either noncombustible or ignition-resistant material.
5. Heavy timber construction consisting of the following:
  - 5.1. Posts shall be a minimum of 6 inches x 6 inches nominal dimension.
  - 5.2. Beams shall be a minimum of 6 inches x 8 inches nominal dimension.
  - 5.3. Joists shall be a minimum of 4 inches x 8 inches nominal dimension spaced at no greater than 24 inches on center.

**505.8.1 Clearance.** Decks with less than 48 inches of clearance from finished grade to deck joists shall be enclosed with screen material with openings no greater than 1/4-inch maximum to prevent accumulation of combustibles and to prevent embers from coming in underneath.

**505.8.2 Walking surfaces.** The walking surface material of decks, porches, balconies, and stairs shall be constructed with one of the following materials:

1. Ignition-resistant material that complies with the performance requirements of Section 503.2.
2. Exterior fire-retardant-treated wood.
3. Noncombustible material.

4. Where the deck, porch, balcony, or stairs are constructed of heavy timber in accordance with Section 501.6, natural wood decking products shall be:

4.1. 2-inch nominal dimension lumber; or

4.2. 5/4-inch nominal hardwood (i.e., teak, mahogany, or other approved hardwood).

5. Material that complies with the performance requirements of Section 505.8.1.1 when tested in accordance with ASTM E2632 and when attached exterior wall covering is also composed of only noncombustible or ignition-resistant materials.

EXCEPTION: Wall material shall be permitted to be of any material that otherwise complies with Section 501.5 when the decking surface material complies with the performance requirements of ASTM E84 with a Class B flame spread index.

**505.8.2.1 Material in Section 505.8.1, Item 5.** The walking surface material shall be tested in accordance with ASTM E2632 and shall comply with the following condition of acceptance. The ASTM E2632 test shall be conducted on a minimum of three test specimens and the peak heat release rate shall be less than or equal to 25 kW/ft<sup>2</sup> (269 kW/m<sup>2</sup>). If any one of the three tests does not meet the conditions of acceptance, three additional tests shall be run. All the additional tests shall meet the condition of acceptance.

**505.9 Exterior glazing.** Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, *multilayered glazed panels*, glass block or have a fire protection rating of not less than 20 minutes.

**505.10 Exterior doors.** Exterior doors shall be *approved noncombustible* construction, solid core wood not less than 1 3/4 inches thick (45 mm), or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with Section 505.8.

EXCEPTION: Vehicle access doors.

**505.11 Vents.** Attic ventilation openings, foundation or underfloor vents or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches (0.0929 m<sup>2</sup>) each. Such vents shall be covered with *noncombustible* corrosion-resistant mesh with openings not to exceed 1/4 inch (6.4 mm) or shall be designed and *approved* to prevent flame or ember penetration into the structure.

**505.11.1 Vent locations.** Attic ventilation openings shall not be located in soffits, in eave overhangs, between rafters at eaves, or in other overhang areas. Gable end and dormer vents shall be located not less than 10 feet (3048 mm) from lot lines. Underfloor ventilation openings shall be located as close to grade as practical.

**505.12 Detached accessory structures.** Detached accessory structures located less than 50 feet (15,240 mm) from a building containing habitable space shall have exterior walls constructed with materials *approved* for not less than 1-hour *fire-resistance-rated construction*, heavy timber, *log wall construction*, or constructed with *approved noncombustible* materials or fire-retardant-treated wood on the exterior side. The fire-retardant-treated wood shall be labeled for exterior use and meet the requirements of Section 2303.2 of the *International Building Code*.

**505.12.1 Underfloor areas.** Where the detached *accessory structure* is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the structure shall have underfloor areas enclosed to within 6 inches (152 mm) of the ground, with exterior wall construction in accordance with Section 505.5 or underfloor protection in accordance with Section 505.6.

EXCEPTION: The enclosure shall not be required where the underside of exposed floors and exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour *fire-resistance-rated construction* or heavy-timber construction or fire-retardant-treated wood on the exterior side. The fire-retardant-treated wood shall be labeled for exterior use and meet the requirements of Section 2303.2 of the *International Building Code*.

## **507 Replacement or repair of roof coverings.**

**507.1 General.** The *roof covering* on buildings or structures in existence prior to the adoption of this code that are replaced or have 50 percent or more replaced in a 12-month period shall be replaced with a *roof covering* required by Section 501.4 or based on the type of ignition-resistant construction as determined by Section 501.1 Exception 1.

[ ]

## NEW SECTION

### **WAC 51-55-0600 Fire protection requirements.**

## **602 Automatic sprinkler systems.**

**602.1 General.** An *approved* automatic sprinkler system shall be installed when required by the authority having jurisdiction.

[ ]

## NEW SECTION

### **WAC 51-55-0700 Chapter 7—Vegetation management plan.**

**User note:** *About this chapter: The purpose of this chapter is to provide criteria for submitting vegetation management plans, specifying their content and establishing a criterion for considering vegetation management as being a fuel modification.*

## **701 General.**

**701.1 Scope.** Vegetation management plans shall be submitted to the *code official* where required for review and approval as part of the plans required for a permit.

**701.2 Plan content.** Vegetation management plans shall describe all actions that will be taken to prevent a fire from being carried toward or away from the building. A vegetation management plan shall include the following information:

1. A copy of the site plan.
2. Methods and timetables for controlling, changing or modifying areas on the property. Elements of the plan shall include removal of slash, snags, vegetation that may grow into overhead electrical lines,



other ground fuels, ladder fuels and dead trees, and the thinning of live trees.

3. A plan for maintaining the proposed fuel-reduction measures.

**701.3 Fuel modification.** To be considered a *fuel modification* for purposes of this code, continuous maintenance of the clearance is required.

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#### NEW SECTION

##### **WAC 51-55-0800 Chapter 8—Fire hazard severity form.**

**User note:** *About this chapter: The purpose of this chapter is to provide an alternative methodology to using Table 502.1 for analyzing the fire hazard severity of building sites using a preassigned value/scoring system for each feature that impacts the hazard level of a building site. Included in the evaluation are site access, types and management of vegetation, percentage of defensible space on the site, site topography, class of roofing and other construction materials used on the building (existing or to be constructed on the site), fire protection water supply, and whether utilities are installed above or below ground.*

**801 Fire hazard severity form.** Where adopted, Table 801.1 is permitted to be used as an alternative to Table 502.1 for analyzing the fire hazard severity of building sites.

##### **TABLE 801.1 FIRE HAZARD SEVERITY FORM (No change to the table)**

[]

#### NEW SECTION

##### **WAC 51-55-0900 Chapter 9—Fire danger rating system.**

**User note:** *About this chapter: The fuel models included in Chapter 9 are only general descriptions because they represent all wildfire fuels from Florida to Alaska and from the East Coast to California.*

*The National Fire Danger Rating System (NFDRS) is a set of computer programs and algorithms that allows land management agencies to estimate today's or tomorrow's fire danger for a given rating area. NFDRS characterizes fire danger by evaluating the approximate upper limit of fire behavior in a fire danger rating area during a 24-hour period based on fuels, topography and weather, or what is commonly called the fire triangle. Fire danger ratings are guides for initiating presuppression activities and selecting the appropriate level of initial response to a reported wildfire in lieu of detailed, site- and time-specific information.*

*Predicting the potential behavior and effects of wildland fire are essential tasks in fire management. Surface fire behavior and fire effects models and prediction systems are driven in part by fuelbed*

*inputs such as load, bulk density, fuel particle size, heat content and moisture content. To facilitate use in models and systems, fuelbed inputs have been formulated into fuel models. A fuel model is a set of fuelbed inputs needed by a particular fire behavior or fire effects model. Different kinds of fuel models are used in fire spread models in a variety of fire behavior modeling systems. The fuel models in this appendix correlate with the light, medium, and heavy fuel definitions found in Chapter 2 of the code.*

## **901 Fuel models.**

**901.1 General.** The Fuel Model Key is provided in Table 901.1. Fuel Models are described in Sections 901.1.1 through 901.1.20.

**TABLE 901.1  
FUEL MODEL KEY  
(No change to the table)**

901.1.1	FUEL MODEL A.	(No change to the text)
901.1.2	FUEL MODEL B.	(No change to the text)
901.1.3	FUEL MODEL C.	(No change to the text)
901.1.4	FUEL MODEL D.	(No change to the text)
901.1.5	FUEL MODEL E.	(No change to the text)
901.1.6	FUEL MODEL F.	(No change to the text)
901.1.7	FUEL MODEL G.	(No change to the text)
901.1.8	FUEL MODEL H.	(No change to the text)
901.1.9	FUEL MODEL I.	(No change to the text)
901.1.10	FUEL MODEL J.	(No change to the text)
901.1.11	FUEL MODEL K.	(No change to the text)
901.1.12	FUEL MODEL L.	(No change to the text)
901.1.13	FUEL MODEL N.	(No change to the text)
901.1.14	FUEL MODEL O.	(No change to the text)
901.1.15	FUEL MODEL P.	(No change to the text)
901.1.16	FUEL MODEL Q.	(No change to the text)
901.1.17	FUEL MODEL R.	(No change to the text)
901.1.18	FUEL MODEL S.	(No change to the text)
901.1.19	FUEL MODEL T.	(No change to the text)
901.1.20	FUEL MODEL U.	(No change to the text)

[ ]

## NEW SECTION

**WAC 51-55-1000 Chapter 10—Referenced standards.**

### **ASTM**

**E2632-2020: Standard Test Method for Evaluating the Under-Deck Fire  
Test Response of Deck Materials**

**501.6**

[ ]

**WSR 23-02-057**

**PERMANENT RULES**

**BUILDING CODE COUNCIL**

[Filed January 3, 2023, 1:49 p.m., effective July 1, 2023]

Effective Date of Rule: July 1, 2023.

Purpose: The purpose of this permanent rule making is to adopt the 2021 Uniform Plumbing Code, published by the International Association of Plumbing and Mechanical Officials, with state amendments to incorporate proposed changes as adopted by the Washington state building code council on November 18, 2022. The rules provide increased clarity and life safety measures for building construction in Washington state. The implementation date is July 1, 2023.

Citation of Rules Affected by this Order: Amending 10.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074.

Adopted under notice filed as WSR 22-17-153 on August 23, 2022.

Changes Other than Editing from Proposed to Adopted Version:

WAC	Section	Change	Rationale/Discussion
51-56-0102	913	Removes all the language proposed for section 913 in the CR-102	This section was originally proposed to mimic language in the International Plumbing code which allows for air admittance valves. After testimony that these devices fail and allow noxious gases into structures, the proposal was removed after council vote.

A final cost-benefit analysis is available by contacting Dustin Curb, 1500 Jefferson Street S.E., Olympia, WA 98501, phone 360-972-4158, email [dustin.curb@des.wa.gov](mailto:dustin.curb@des.wa.gov), website [www.sbcc.wa.gov](http://www.sbcc.wa.gov).

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 10, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: November 18, 2022.

Tony Doan  
Chair

**OTS-4044.2**

**Chapter 51-56 WAC**

**STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((2018)) 2021 EDITION OF THE UNIFORM PLUMBING CODE**

AMENDATORY SECTION (Amending WSR 20-02-072, filed 12/26/19, effective 7/1/20)

**WAC 51-56-003 Uniform Plumbing Code.** The ((2018)) 2021 edition of the Uniform Plumbing Code, including Appendices A, B, ((and)) I, and M, published by the International Association of Plumbing and Mechanical Officials, is hereby adopted by reference with the following additions, deletions and exceptions: Provided that chapters 12 and 14 of this code are not adopted. Provided further, that those requirements of the Uniform Plumbing Code relating to venting and combustion air of fuel fired appliances as found in chapter 5 and those portions of the code addressing building sewers are not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-02-072, § 51-56-003, filed 12/26/19, effective 7/1/20; WSR 16-02-044, § 51-56-003, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-003, filed 2/1/13, effective 7/1/13; WSR 10-03-101, § 51-56-003, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-003, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-003, filed 12/17/03, effective 7/1/04; WSR 02-01-114, § 51-56-003, filed 12/18/01, effective 7/1/02.]

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

**WAC 51-56-008 Implementation.** The Uniform Plumbing Code adopted by chapter 51-56 WAC shall become effective in all counties and cities of this state on ((February 1, 2021)) July 1, 2023.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-11-066, § 51-56-008, filed 5/14/21, effective 6/14/21; WSR 20-02-072, § 51-56-008, filed 12/26/19, effective 7/1/20; WSR 16-02-044, § 51-56-008, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074 and 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-008, filed 2/1/13, effective 7/1/13; WSR 10-03-101, § 51-56-008, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-008, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-008, filed 12/17/03, effective 7/1/04; WSR 02-01-114, § 51-56-008, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 20-02-072, filed 12/26/19, effective 7/1/20)

**WAC 51-56-0200 Chapter 2—Definitions.**

**205.0 Certified Backflow Assembly Tester** - A person certified by the Washington state department of health under chapter 246-292 WAC to inspect (for correct installation and approval status) and test (for

proper operation), maintain and repair (in compliance with chapter 18.106 RCW) backflow prevention assemblies, devices and air gaps.

**210.0 Hot Water** - Water at a temperature exceeding or equal to 100°F.

~~((211.0 Insanitary~~ - A condition that is contrary to sanitary principles or is injurious to health.

~~Conditions to which "insanitary" shall apply include the following:~~

- ~~(1) A trap that does not maintain a proper trap seal.~~
- ~~(2) An opening in a drainage system, except where lawful, that is not provided with an approved liquid-sealed trap.~~
- ~~(3) A plumbing fixture or other waste discharging receptor or device that is not supplied with water sufficient to flush and maintain the fixture or receptor in a clean condition, except as otherwise provided in this code.~~
- ~~(4) A defective fixture, trap, pipe, or fitting.~~
- ~~(5) A trap, except where in this code exempted, directly connected to a drainage system, the seal of which is not protected against siphonage and backpressure by a vent pipe.~~
- ~~(6) A connection, cross-connection, construction, or condition, temporary or permanent, that would permit or make possible by any means whatsoever for an unapproved foreign matter to enter a water distribution system used for domestic purposes.~~
- ~~(7) The foregoing enumeration of conditions to which the term "insanitary" shall apply, shall not preclude the application of that term to conditions that are, in fact, insanitary.))~~

**218.0 Plumbing System** - Includes all potable water, building supply and distribution pipes, all reclaimed or other alternate source water systems, all rainwater systems, all plumbing fixtures and traps, all drainage and vent pipe(s), and all building drains including their respective joints and connection, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, medical gas and medical vacuum systems, and water heaters: Provided, That no certification shall be required for the installation of a plumbing system within the property lines and outside a building.

**221.0 Spray Sprinkler Body** - The exterior case or shell of a sprinkler incorporating a means of connection to the piping system designed to convey water to a nozzle or orifice.

**225.0 Water Heater (consumer electric storage)** - A consumer product that uses electricity as the energy source to heat domestic potable water, has a nameplate input rating of twelve kilowatts or less, contains nominally forty gallons but no more than one hundred twenty gallons of rated hot water storage volume, and supplies a maximum hot water delivery temperature less than one hundred eighty degrees Fahrenheit.

**Water Heater (mini-tank electric)** - A small electric water heater that has a measured storage volume of more than one gallon and a rated storage volume of less than twenty gallons.

**Water/Wastewater Utility** - A public or private entity, including a water purveyor as defined in chapter 246-290 WAC, which may treat, deliver, or do both functions to reclaimed (recycled) water, potable water, or both to wholesale or retail customers.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-02-072, § 51-56-0200, filed 12/26/19, effective 7/1/20; WSR 16-02-044, §

51-56-0200, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-23-094, § 51-56-0200, filed 11/20/13, effective 4/1/14. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-0200, filed 2/1/13, effective 7/1/13; WSR 10-03-101, § 51-56-0200, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-0200, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-0200, filed 12/17/03, effective 7/1/04; WSR 02-01-114, § 51-56-0200, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 16-02-044, filed 12/30/15, effective 7/1/16)

**WAC 51-56-0300 Chapter 3—General regulations.**

**301.2.2 Standards.** Standards listed or referred to in this chapter or other chapters cover materials which will conform to the requirements of this code, when used in accordance with the limitations imposed in this or other chapters thereof and their listing. Where a standard covers materials of various grades, weights, quality, or configurations, the portion of the listed standard that is applicable shall be used. Design and materials for special conditions or materials not provided for herein shall be permitted to be used by special permission of the authority having jurisdiction after the authority having jurisdiction has been satisfied as to their adequacy in accordance with Section 301.2.

~~((301.3 Alternative Materials and Methods of Construction Equivalency. Nothing in this code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this code. Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency. The authority having jurisdiction shall have the authority to approve or disapprove the system, method, or device for the intended purpose. Where the alternate material, design or method of construction is not approved, the code official shall respond in writing, stating the reasons why the alternative was not approved.~~

~~However, the exercise of this discretionary approval by the authority having jurisdiction shall have no effect beyond the jurisdictional boundaries of said authority having jurisdiction. An alternate material or method of construction so approved shall not be considered as in accordance with the requirements, intent or both of this code for a purpose other than that granted by the authority having jurisdiction where the submitted data does not prove equivalency.))~~

**310.4 Use of Vent and Waste Pipes.** Except as hereinafter provided in Sections 908.0 through 911.0 and Appendix C, no vent pipe shall be used as a soil or waste pipe, nor shall any soil or waste pipe be used as a vent.

**312.6 Freezing Protection.** No water, soil, or waste pipe shall be installed or permitted outside of a building, in attics or crawl spaces, or in an exterior wall unless, where necessary, adequate provision is

made to protect such pipe from freezing. All hot and cold water pipes installed outside the conditioned space shall be insulated to ((~~a minimum R-3~~)) meet the minimum requirements of the Washington State Energy Code.

**312.7 Fire-Resistant Construction.** All pipe penetrating floor/ceiling assemblies and fire-resistance rated walls or partitions shall be protected in accordance with the requirements of the building code.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-02-044, § 51-56-0300, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-0300, filed 2/1/13, effective 7/1/13; WSR 10-03-101, § 51-56-0300, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-0300, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-0300, filed 12/17/03, effective 7/1/04; WSR 02-01-114, § 51-56-0300, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 21-01-125, filed 12/15/20, effective 1/15/21)

**WAC 51-56-0400 Chapter 4—Plumbing fixtures and fixture fittings.**

**402.5 Setting.** Fixtures shall be set level and in proper alignment with reference to adjacent walls. No water closet or bidet shall be set closer than fifteen (15) inches (381 mm) from its center to any side wall or obstruction nor closer than thirty (30) inches (762 mm) center to center to any similar fixture. The clear space in front of any water closet or bidet shall be not less than twenty-four (24) inches (610 mm). No urinal shall be set closer than twelve (12) inches (305 mm) from its center to any side wall or partition nor closer than twenty-four (24) inches (610 mm) center to center.

EXCEPTIONS: 1. The clear space in front of a water closet, lavatory or bidet in dwelling units and sleeping units shall be not less than 21 inches (533 mm).  
2. The installation of paper dispensers or accessibility grab bars shall not be considered obstructions.

**405.4 Application.** No individual, public or private corporation, firm, political subdivision, government agency, or other legal entity, may, for purposes of use in the state of Washington, distribute, sell, offer for sale, import, install, or approve for installation any plumbing fixtures or fittings unless the fixtures or fittings meet the standards as provided for in this chapter.

**407.2 Water Consumption.** The maximum water flow rate of faucets shall comply with Section 407.2.1 through 407.2.2.

**407.2.1 Maximum Flow Rate.** The maximum flow rate for public lavatory faucets shall not exceed 0.5 gpm at 60 psi (1.9 L/m at 414 kPa).

**407.2.1.1 Residential Lavatory Faucets.** The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons (4.54 L) per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons (3.03 L) per minute at 20 psi.

**407.2.1.2 Lavatory Faucets in Common and Public Use Areas.** The maximum flow rate of lavatory faucets, installed in common and public use



areas (outside of dwellings or sleeping units) in residential buildings, shall not exceed 0.5 gallons (1.89 L) per minute at 60 psi.

**407.2.2 Metering Faucets.** Metered faucets shall deliver a maximum of 0.25 gallons (1.0 L) per metering cycle in accordance with ASME A112.18.1/CSA B125.1.

**407.4 Metering Valves.** Lavatory faucets located in restrooms intended for use by the general public shall be equipped with a metering valve designed to close by spring or water pressure when left unattended (self-closing).

EXCEPTIONS: 1. Where designed and installed for use by persons with a disability.  
2. Where installed in day care centers, for use primarily by children under 6 years of age.

**408.2 Water Consumption.** Showerheads shall meet the maximum flow rate of 1.8 gallons (6.81 L) per minute measured at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA Water-Sense Specification for Showerheads.

EXCEPTION: Emergency use showers shall be exempt from the maximum water usage rates.

**408.2.1 Multiple Showerheads Serving One Shower.** When a shower is served by more than one showerhead, including handheld showerheads, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons (6.81 L) per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

**408.4 Waste Outlet.** Showers shall have a waste outlet and fixture tailpiece not less than two (2) inches (50 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in Section ((701.1)) 701.2 for drainage piping. Strainers serving shower drains shall have a waterway at least equivalent to the area of the tailpiece.

EXCEPTION: In a residential dwelling unit where a 2 inch waste is not readily available and approval of the AHJ has been granted, the waste outlet, fixture tailpiece, trap and trap arm may be 1-1/2 inch when an existing tub is being replaced by a shower sized per Section ((408.6(2))) 408.2. This exception only applies where one shower head rated at ((2-5)) 1.8 gpm is installed.

**408.6 Shower Compartments.** Shower compartments, regardless of shape, shall have a minimum finished interior of nine hundred (900) square inches (0.58 m<sup>2</sup>) and shall also be capable of encompassing a thirty (30) inch (762 mm) circle. The minimum required area and dimensions shall be measured at a height equal to the top of the threshold and at a point tangent to its centerline. The area and dimensions shall be maintained to a point of not less than seventy (70) inches (1,778 mm) above the shower drain outlet with no protrusions other than the fixture valve or valves, shower head, soap dishes, shelves, and safety grab bars or rails. Fold-down seats in accessible shower stalls shall be permitted to protrude into the thirty (30) inch (762 mm) circle.

EXCEPTIONS: 1. Showers that are designed to comply with ICC/ANSI A117.1.  
2. The minimum required area and dimension shall not apply for a shower receptor having overall dimensions of not less than thirty (30) inches (762 mm) in width and sixty (60) inches (1,524 mm) in length.

**411.2 Water Consumption.** The effective flush volume of all water closets shall not exceed 1.28 gallons (4.8 L) per flush when tested in accordance with ASME A112.19.2/CSA B45.1.

EXCEPTIONS: 1. Water closets located in day care centers, intended for use by young children may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.  
2. Water closets with bed pan washers may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.  
3. Blow out bowls, as defined in ANSI/ASME A112.19.2M, Section 5.1.2.3 may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.

~~((411.2.1 Dual Flush Water Closets. Dual flush water closets shall comply with ASME A112.19.14. The effective flush volume for dual flush~~

~~water closets shall be defined as the composite, average flush volume of two reduced flushes and one full flush.))~~

**411.2.2 Performance.** Water closets installed shall meet or exceed the minimum performance criteria developed for certification of high-efficiency toilets under the WaterSense program sponsored by the U.S. Environmental Protection Agency (EPA).

**411.2.3 Flushometer Valve Activated Water Closets.** Flushometer valve activated water closets shall have a maximum flush volume of 1.28 gallons (4.8 Lpf) of water per flush in accordance with ASME A112.19.2/CSA B45.1.

**412.1 Application.** Urinals shall comply with ASME A112.19.2/CSA B45.1, ASME A112.19.19, or CSA B45.5/IAPMO Z124. Wall-mounted urinals shall have an average water consumption not to exceed 0.125 gallons (0.47 L) per flush. Other urinals shall have an average water consumption not to exceed 0.5 gallons (1.89 L) per flush.

**414.3 Drainage Connection.** Domestic dishwashing machines shall discharge indirectly through an air gap fitting in accordance with Section 807.3 into a waste receptor, a wye branch fitting on the tailpiece of a kitchen sink, or dishwasher connection of a food waste disposer. Commercial dishwashing machines shall discharge indirectly through an air gap.

**415.2 Drinking Fountain Alternatives.** This section is not adopted. See Building Code chapter 29.

**418.3 Location of Floor Drains.** Floor drains shall be installed in the following areas:

1. Toilet rooms containing two (2) or more water closets or a combination of one (1) water closet and one (1) urinal, except in a dwelling unit. The floor shall slope toward the floor drains.

2. Laundry rooms in commercial buildings and common laundry facilities in multifamily dwelling buildings.

## 420.0 Sinks

~~((420.1 Application. Sinks shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124. Moveable sink systems shall comply with ASME A112.19.12.))~~

**420.2 Water Consumption.** Sink faucets shall have a maximum flow rate of not more than 2.2 gpm at 60 psi (8.3 L/m at 414 kPa) in accordance with ASME A112.18.1/CSA B125.1.

EXCEPTION: Clinical sinks, laundry trays, service sinks.

**420.2.1 Kitchen Faucets.** Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons (6.81 L) per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons (8.3 L) per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons (6.81 L) per minute at 60 psi.

EXCEPTION: Where faucets meeting the maximum flow rate of 1.8 gpm (6.81 L) are unavailable, aerators or other means may be used to achieve reduction.

**420.3 Prerinse Spray Valve.** Commercial food service prerinse spray valves shall have a maximum flow rate of 1.6 gallons per minute (gpm) at 60 pounds-force per square inch (psi) (6.0 L/m at 414 kPa) in accordance with ASME A112.18.1/CSA B125.1 and shall be equipped with an integral automatic shutoff.

**422.0 Minimum Number of Required Fixtures.** For minimum number of plumbing fixtures required, see Building Code Chapter 29 and Table 2902.1.

**423.0 Landscape Irrigation.**

**423.1 Spray Sprinkler Body.** Spray sprinkler bodies must include an integral pressure regulator and must meet the water efficiency and performance criteria and other requirements of environmental protection agency water sense program product specification for spray sprinkler bodies.

EXCEPTION: Spray sprinkler bodies specifically excluded from the scope of the environmental protection agency water sense program product specification for spray sprinkler bodies.

Sections 422.1 through 422.5 and Table 422.1 are not adopted.

[Statutory Authority: RCW 19.27.035 and 19.27.074. WSR 21-01-125, § 51-56-0400, filed 12/15/20, effective 1/15/21. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-02-072, § 51-56-0400, filed 12/26/19, effective 7/1/20; WSR 17-10-074, § 51-56-0400, filed 5/3/17, effective 6/3/17; WSR 16-02-044, § 51-56-0400, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-0400, filed 2/1/13, effective 7/1/13; WSR 10-03-101, § 51-56-0400, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-0400, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-0400, filed 12/17/03, effective 7/1/04; WSR 02-01-114, § 51-56-0400, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 21-01-125, filed 12/15/20, effective 1/15/21)

**WAC 51-56-0500 Chapter 5—Water heaters.**

**501.1 Applicability.** The regulations of this chapter shall govern the construction, location, and installation of fuel burning and other types of water heaters heating potable water. The minimum capacity for water heaters shall be in accordance with the first hour rating listed in Table 501.1(2). See the Mechanical Code for combustion air and installation of all vents and their connectors. No water heater shall be hereinafter installed that does not comply with the manufacturer's installation instructions and the type and model of each size thereof approved by the authority having jurisdiction. A list of accepted water heater appliance standards is referenced in Table 501(2). Listed appliances shall be installed in accordance with the manufacturer's installation instructions. Unlisted water heaters shall be permitted in accordance with Section 504.3.2.

TABLE 501.1(2)<sup>1,3</sup>

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
	1	2	3	2	3	4	5	3	4	5	6
Number of Bedrooms											

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
	First Hour Rating <sup>2</sup> , Gallons	38	49	49	49	62	62	74	62	74	74

Notes:

<sup>1</sup>The first hour rating is found on the "Energy Guide" label.

<sup>2</sup>Nonstorage and solar water heaters shall be sized to meet the appropriate first hour rating as shown in the table, and shall be capable of delivering hot water at the maximum system demand flow, as calculated in Section 610.0 or Appendix A, as applicable.

<sup>3</sup>For replacement water heaters, see Section 102.4.

**501.1.2 Consumer Electric Storage Water Heater Requirements.** Consumer electric storage water heaters must have a modular demand response communications port compliant with the March 2018 version of the ANSI/CTA-2045-A communication interface standard, or equivalent and the March 2018 version of the ANSI/CTA-2045-A application layer requirements. The interface standard and application layer requirements required in this subsection are the versions established on March 16, 2018.

EXCEPTIONS:

1. Water heaters manufactured prior to January 1, 2021.

2. Electric storage water heaters other than heat pump type water heaters manufactured prior to January 1, 2022.

**501.1.3 Mini-tank Electric Water Heaters.** The standby energy consumption of hot water dispensers and mini-tank electric water heaters manufactured on or after January 1, 2010, shall be not greater than 35 watts. Mini-tank electric water heaters shall be tested in accordance with the method specified in the California Code of 39 Regulations, Title 20, section 1604 in effect as of July 26, 2009.

**504.1 Location.** Water heater installation in bedrooms and bathrooms shall comply with one of the following:

(1) Fuel-burning water heaters may be installed in a closet located in the bedroom or bathroom provided the closet is equipped with a listed, gasketed door assembly and a listed self-closing device. The self-closing door assembly shall meet the requirements of Section ((505.1.1)) 504.1.1. The door assembly shall be installed with a threshold and bottom door seal and shall meet the requirements of Section ((505.1.2)) 504.1.2. All combustion air for such installations shall be obtained from the outdoors in accordance with the International Mechanical Code. The closet shall be for the exclusive use of the water heater.

(2) Water heater shall be of the direct vent type.

**505.2 Safety Devices.** All storage-type water heaters deriving heat from fuels or types of energy other than gas, shall be provided with, in addition to the primary temperature controls, an over-temperature safety protection device constructed, listed, and installed in accordance with nationally recognized applicable standards for such devices and a combination temperature and pressure relief valve.

**506.0 Combustion Air.** For issues relating to combustion air, see the Mechanical Code.

Sections 506.1 through 506.9 are not adopted.

Sections 507.6 through 507.9 are not adopted.

**507.2 Seismic Provisions.** Water heaters shall be anchored or strapped to resist horizontal displacement due to earthquake motion. Strappings shall be at points within the upper one-third and lower one-third of its vertical dimensions. At the lower point, a distance of not less

than four (4) inches (102 mm) shall be maintained from the controls to the strapping.

**507.13 Installation in Garages.** Appliances in garages and in adjacent spaces that open to the garage and are not part of the living space of a dwelling unit shall be installed so that burners, burner-ignition devices and ignition sources are located not less than eighteen (18) inches above the floor unless listed as flammable vapor ignition resistant.

**507.16 Venting of Flue Gases - Delete entire section.**

Sections 507.18 through 507.22 are not adopted.

**509.0 Venting of Equipment.** Delete entire section.

**510.0 Sizing of Category I Venting Systems.** Delete entire section.

~~((511.0 Direct Vent Equipment. Delete entire section.))~~

[Statutory Authority: RCW 19.27.035 and 19.27.074. WSR 21-01-125, § 51-56-0500, filed 12/15/20, effective 1/15/21. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-02-072, § 51-56-0500, filed 12/26/19, effective 7/1/20; WSR 17-10-074, § 51-56-0500, filed 5/3/17, effective 6/3/17; WSR 16-02-044, § 51-56-0500, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-0500, filed 2/1/13, effective 7/1/13; WSR 11-05-037, § 51-56-0500, filed 2/8/11, effective 7/1/13; WSR 10-03-101, § 51-56-0500, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-0500, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-0500, filed 12/17/03, effective 7/1/04; WSR 02-01-114, § 51-56-0500, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 20-02-072, filed 12/26/19, effective 7/1/20)

**WAC 51-56-0600 Chapter 6—Water supply and distribution.**

**601.1 Applicability.** This chapter shall govern the materials, design and installation of *water supply systems*, including backflow prevention devices, assemblies and methods used for backflow prevention.

**603.1 General.** Cross-connection control shall be provided in accordance with the provisions of this chapter. Devices or assemblies for protection of the public water system must be models approved by the department of health under WAC 246-290-490. The authority having jurisdiction shall coordinate with the local water purveyor where applicable in all matters concerning cross-connection control within the property lines of the premises.

No person shall install any water operated equipment or mechanism, or use any water treating chemical or substance, if it is found that such equipment, mechanism, chemical or substance may cause pollution or contamination of the domestic water supply. Such equipment or mechanism may be permitted only when equipped with an approved backflow prevention device or assembly.

**603.2 Approval of Devices or Assemblies.** Before any device or assembly is installed for the prevention of backflow, it shall have first been approved by the authority having jurisdiction. Devices or assemblies shall be tested for conformity with recognized standards or other standards acceptable to the authority having jurisdiction. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in Section 603.5.1 through 603.5.21.

All devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested in accordance with Section 603.4.2 and WAC 246-290-490. If found to be defective or inoperative, the device or assembly shall be replaced or repaired. No device or assembly shall be removed from use or relocated or other device or assembly substituted, without the approval of the authority having jurisdiction.

Testing shall be performed by a Washington state department of health certified backflow assembly tester.

**TABLE 603.2  
Backflow Prevention Devices, Assemblies and Methods  
The following line is deleted from the table:**

Device, Assembly or Method	Applicable Standards	Pollution (Low Hazard)		Contamination (High Hazard)		Installation
		Back Siphonage	Back Pressure	Back Siphonage	Back Pressure	
Backflow preventer for carbonated beverage dispensers (two independent check valves with a vent to the atmosphere.)	ASSE 1022	X				Installation includes carbonated beverage machines or dispensers. These devices operate under intermittent or continuous pressure conditions.

**603.4.2 Testing.** For devices and assemblies other than those regulated by the Washington department of health in conjunction with the local water purveyor for the protection of public water systems, the authority having jurisdiction shall ensure that the premise owner or responsible person shall have the backflow prevention assembly tested by a Washington state department of health certified backflow assembly tester:

- (1) At the time of installation, repair or relocation; and
- (2) At least on an annual schedule thereafter, unless more frequent testing is required by the authority having jurisdiction.

~~((603.4.9 Prohibited Location. Backflow prevention devices with atmospheric vents or ports shall not be installed in pits, underground or in submerged locations. Backflow preventers shall not be located in any area containing fumes or aerosols that are toxic, poisonous, infectious, or corrosive.))~~

**603.5.6 Protection from Lawn Sprinklers and Irrigation Systems.** Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following:

- (1) Atmospheric vacuum breaker (AVB).
- (2) Pressure vacuum breaker backflow prevention assembly (PVB).

- (3) Spill-resistant pressure vacuum breaker (SVB).
- (4) Reduced pressure principle backflow prevention assembly (RP).
- (5) A double check valve backflow prevention assembly (DC) may be

allowed when approved by the water purveyor and the authority having jurisdiction.

**603.5.10 Steam or Hot Water Boilers.** Potable water connections to steam or hot water boilers shall be protected by an air gap or a reduced pressure principle backflow preventer.

**603.5.12 Beverage Dispensers.** Potable water supply to carbonators shall be protected by a listed reduced pressure principle backflow preventer as approved by the authority having jurisdiction for the specific use. The backflow preventer shall comply with Section 603.4.3. The piping downstream of the backflow preventer shall not be of copper, copper alloy, or other material that is affected by carbon dioxide.

~~((603.5.14 Protection from Fire Systems. Except as provided under Sections 603.5.14.1 and 603.5.14.2, potable water supplies to fire protection systems that are normally under pressure, including but not limited to standpipes and automatic sprinkler systems, except in one or two family or townhouse residential flow-through or combination sprinkler systems piped in materials approved for potable water distribution systems, shall be protected from back pressure and back-siphonage by one of the following testable assemblies:~~

- ~~1. Double check valve backflow prevention assembly (DC).~~
- ~~2. Double check detector fire protection backflow prevention assembly.~~
- ~~3. Reduced pressure principle backflow prevention assembly (RP).~~
- ~~4. Reduced pressure detector fire protection backflow prevention assembly.~~

~~Potable water supplies to fire protection systems that are not normally under pressure shall be protected from backflow and shall meet the requirements of the appropriate standard(s) referenced in Table 1401.1.)~~

**604.14 Plastic Pipe Termination.** Plastic water service piping may terminate within a building, provided the connection to the potable water distribution system shall be made as near as is practical to the point of entry and shall be accessible. Barbed insert fittings with hose clamps are prohibited as a transition fitting within the building.

~~((606.5 Control Valve. A control valve shall be installed immediately ahead of each water-supplied appliance and immediately ahead of each slip joint or appliance supply.~~

~~Parallel water distribution systems shall provide a control valve either immediately ahead of each fixture being supplied or installed at the manifold, and shall be identified with the fixture being supplied. Where parallel water distribution system manifolds are located in attics, crawl spaces, or other locations not accessible, a separate shutoff valve shall be required immediately ahead of each individual fixture or appliance served.~~

**608.3 Expansion Tanks, and Combination Temperature and Pressure-Relief Valves.** A water system provided with a check valve, backflow preventer, or other normally closed device that prevents dissipation of building pressure back into the water main, independent of the type of water used, shall be provided with an approved, listed, and adequately

~~sized expansion tank or other approved device having a similar function to control thermal expansion. Such expansion tank or other approved device shall be installed on the building side of the check valve, backflow preventer, or other device and shall be sized and installed in accordance with the manufacturer's installation instructions.~~

EXCEPTION: ~~Instantaneous hot water systems installed in accordance with the manufacturer's installation instructions.)~~

**608.5 Discharge Piping.** The discharge piping serving a temperature relief valve, pressure relief valve or combination of both shall have no valves, obstructions or means of isolation and be provided with the following:

(1) ~~(Equal to)~~ Not less than the size of the valve outlet and shall discharge full size to the flood level of the area receiving the discharge and pointing down.

(2) Materials shall be rated at not less than the operating temperature of the system and approved for such use or shall comply with ASME A112.4.1. Materials shall be straight, rigid lengths only, without coils or flexes.

(3) Discharge pipe shall discharge independently by gravity through an air gap into the drainage system or outside of the building with the end of the pipe not exceeding 2 feet (610 mm) and not less than 6 inches (152 mm) above the ground pointing downwards.

(4) Discharge in such a manner that does not cause personal injury or structural damage.

(5) No part of such discharge pipe shall be trapped or subject to freezing.

(6) The terminal end of the pipe shall not be threaded.

(7) Discharge from a relief valve into a water heater pan shall be prohibited.

(8) The discharge termination point shall be readily observable.

EXCEPTION: Where no drainage was provided, replacement water heating equipment shall only be required to provide a drain pointing downward from the relief valve to extend between two (2) feet (610 mm) and six (6) inches (152 mm) from the floor. No additional floor drain need be provided.

~~(609.9 Disinfection of Potable Water System. New or repaired potable water systems shall be disinfected prior to use where required by the authority having jurisdiction. The method to be followed shall be that prescribed by the health authority or, in case no method is prescribed by it, the following:~~

~~(1) The pipe system shall be flushed with clean, potable water until potable water appears at the points of outlet.~~

~~(2) The system or parts thereof shall be filled with a water-chlorine solution containing not less than 50 parts per million of chlorine, and the system or part thereof shall be valved off and allowed to stand for twenty-four hours; or, the system or part thereof shall be filled with a water-chlorine solution containing not less than 200 parts per million of chlorine and allowed to stand for three hours.~~

~~(3) Following the allowed standing time, the system shall be flushed with clean, potable water until the chlorine residual in the water coming from the system does not exceed the chlorine residual in the flushing water.~~

~~(4) The procedure shall be repeated when a standard bacteriological test for drinking water, performed by a laboratory certified for drinking water in Washington state, shows unsatisfactory results indicating that contamination persists in the system.)~~



**609.11 Insulation of Potable Water Piping.** Domestic water piping within commercial buildings shall be insulated in accordance with Section C403.2.8 and Table C403.2.8 or Section C404.6 of the Washington State Energy Code, as applicable.

**610.4 Sizing Water Supply and Distribution Systems.** Systems within the range of Table 610.4 may be sized from that table or by the method set forth in Section 610.5.

Listed parallel water distribution systems shall be installed in accordance with their listing.

**611.1 Application.** Drinking water treatment units shall comply with NSF 42 or NSF 53. Water softeners shall comply with NSF 44. Ultraviolet water treatment systems shall comply with NSF 55. Reverse osmosis drinking water treatment systems shall comply with NSF 58. Drinking water distillation systems shall comply with NSF 62.

The owner of a building that serves potable water to twenty-five or more people at least sixty or more days per year and that installs drinking water treatment units including, but not limited to, the treatment units in Section 611.1, may be regulated (as a Group A public water system) by the Washington state department of health under chapter 246-290 WAC. See Washington state department of health publication 331-488 for guidance.

**612.1 General.** Where residential fire sprinkler systems are installed, they shall be installed in accordance with the International Building Code or International Residential Code.

Sections 612.2 through 612.7.2 are not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-02-072, § 51-56-0600, filed 12/26/19, effective 7/1/20; WSR 17-10-074, § 51-56-0600, filed 5/3/17, effective 6/3/17; WSR 16-02-044, § 51-56-0600, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-23-094, § 51-56-0600, filed 11/20/13, effective 4/1/14. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-0600, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031, 19.27.035, 19.27.074, and chapters 19.27 and 34.05 RCW. WSR 12-07-018, § 51-56-0600, filed 3/12/12, effective 4/12/12. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 10-03-101, § 51-56-0600, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-0600, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-0600, filed 12/17/03, effective 7/1/04; WSR 02-01-114, § 51-56-0600, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 17-10-074, filed 5/3/17, effective 6/3/17)

**WAC 51-56-0700 Chapter 7—Sanitary drainage.**

**701.2 Drainage Piping.** Materials for drainage piping shall be in accordance with one of the referenced standards in Table 701.1 except that:

1. No galvanized wrought-iron or galvanized steel pipe shall be used underground and shall be kept not less than 6 inches (152 mm) above ground.

2. ABS and PVC DWV piping installations shall be installed in accordance with applicable standards in Table 1701.1. Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a maximum flame-spread index of 25 and a maximum smoke developed index of 50, when tested in accordance with ASTM E-84 and UL 723.

3. No vitrified clay pipe or fittings shall be used above ground or where pressurized by a pump or ejector. They shall be kept not less than 12 inches (305 mm) below ground.

4. Copper tube for drainage and vent piping shall have a weight of not less than that of copper drainage tube type DWV.

5. Stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) above ground.

6. Cast-iron soil pipe and fittings shall be listed and tested in accordance with standards referenced in Table 1701.1. Such pipe and fittings shall be marked with country of origin and identification of the original manufacturer in addition to markings required by referenced standards.

**(Table 703.2**

**MAXIMUM UNIT LOADING AND MAXIMUM LENGTH OF DRAINAGE AND VENT PIPING**

Notes:

- ~~1. Excluding trap arm.~~
- ~~2. Except sinks, urinals, and dishwashers — Exceeding 1 fixture unit.~~
- ~~3. Except six-unit traps or water closets.~~
- ~~4. Only four water closets or six-unit traps allowed on a vertical pipe or stack; and not to exceed three water closets or six-unit traps on a horizontal branch or drain.~~

EXCEPTION: In a single family dwelling addition or alteration where a 4 inch horizontal waste is not readily available four water closets not to exceed 1.6 gpf each may be allowed on a 3 inch horizontal waste when approved by the AHJ.

~~5. Based on one-fourth inch per foot (20.8 mm/m) slope. For one-eighths of an inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8.~~

~~6. The diameter of an individual vent shall be not less than one and one-fourth inches (32 mm) nor less than one-half the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Table 702.1 and Table 702.2(b). Not to exceed one-third of the total permitted length of a vent shall be permitted to be installed in a horizontal position. Where vents are increased one pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table is in accordance with the requirements of Section 901.2.)~~

**704.3 Commercial Sinks.** Except where specifically required to be connected indirectly to the drainage system, or when first approved by the authority having jurisdiction, all plumbing fixtures, drains, appurtenances, and appliances shall be directly connected to the drainage system of the building or premises.

**707.4 Location.** Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal, and each run of piping, that is more than 100 feet (30,480 mm) in total developed length, shall be provided with a cleanout for each 100 feet (30,480 mm), or fraction thereof, in

length of such piping. An additional cleanout *shall* be provided in a drainage line for each aggregate horizontal change of direction exceeding 135 degrees (2.36 rad).

EXCEPTIONS:

1. Cleanouts *shall* be permitted to be omitted on a horizontal *drain* line less than 5 feet (1,524 mm) in length unless such line is serving sinks or urinals.
2. Cleanouts *shall* be permitted to be omitted on a horizontal drainage *pipe* installed on a *slope* of 72 degrees (1.26 rad) or less from the vertical angle (one-fifth bend).
3. Except for the *building drain*, its *horizontal branches*, and urinals, a cleanout *shall* not be required on a *pipe* or piping that is above the floor level of the lowest floor of the *building*.
4. An *approved* type of two-way cleanout fitting, installed inside the *building* wall near the connection between the *building drain* and the *building sewer* or installed outside of a *building* at the lower end of a *building drain* and extended to *grade*, *shall* be permitted to be substituted for an upper terminal cleanout.

**707.9 Clearance.** Each cleanout in piping 2 inches (50 mm) or less in size *shall* be so installed that there is a clearance of not less than 12 inches (457 mm) in front of the cleanout. Cleanouts in piping exceeding 2 inches (50 mm) *shall* have a clearance of not less than 18 inches (610 mm) in front of the cleanout. Cleanouts in under-floor piping *shall* be extended to or above the finished floor or *shall* be extended outside the *building* where there is less than 18 inches (457 mm) vertical overall, allowing for obstructions such as ducts, beams, and piping, and 30 inches of (762 mm) horizontal clearance from the means of access to such cleanout. No under-floor cleanout *shall* be located exceeding 20 feet (1,524 mm) from an access door, trap door, or crawl hole.

#### CHAPTER 7, PART II—BUILDING SEWERS

**Part II Building Sewers.** Delete all of Part II (Sections 713 through 723, and Tables 717.1 and 721.1).

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 17-10-074, § 51-56-0700, filed 5/3/17, effective 6/3/17; WSR 16-02-044, § 51-56-0700, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-0700, filed 2/1/13, effective 7/1/13; WSR 10-03-101, § 51-56-0700, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-0700, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031, 19.27.074. WSR 02-01-114, § 51-56-0700, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 20-02-072, filed 12/26/19, effective 7/1/20)

#### WAC 51-56-0900 Chapter 9—Vents.

((~~908.2.4 Water Closet. This section is not adopted.~~))

**911.1 Circuit Vent Permitted.** A maximum of eight fixtures connected to a horizontal branch drain shall be permitted to be circuit vented. Each fixture drain shall connect horizontally to the horizontal branch being circuit vented. The horizontal branch drain shall be classified as a vent from the most downstream fixture drain connection to the most upstream fixture drain connection to the horizontal branch. Given its grease-producing potential, restaurant kitchen equipment shall not be connected to a circuit vented system. Each trap arm shall connect horizontal to the horizontal branch being circuit vented in accordance with Table 1002.2.

**EXCEPTION:** Back-outlet and wall-hung water closets shall be permitted to be circuit vented provided that no floor-outlet fixtures are connected to the same horizontal branch.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-02-072, § 51-56-0900, filed 12/26/19, effective 7/1/20; WSR 16-02-044, § 51-56-0900, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-0900, filed 2/1/13, effective 7/1/13; WSR 10-03-101, § 51-56-0900, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-0900, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031, 19.27.074. WSR 02-01-114, § 51-56-0900, filed 12/18/01, effective 7/1/02.]

AMENDATORY SECTION (Amending WSR 16-02-044, filed 12/30/15, effective 7/1/16)

**WAC 51-56-1100 Chapter 11—Storm drainage.**

**1101.4 Material Uses.** Pipe, tube, and fittings conveying rainwater shall be of such materials and design as to perform their intended function to the satisfaction of the authority having jurisdiction. Conductors within a vent or shaft shall be of cast iron, galvanized steel, wrought iron, copper, copper alloy, lead, Scheduled 40 ASB DWV, Scheduled 40 PVC DWV, stainless steel 304 or 316L (stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than six (6) inches (152 mm) aboveground), or other approved materials, and changes in direction shall conform to the requirements of Section 706.0. ABS and PVC DWV piping installations shall be installed in accordance with IS 5 and IS 9. Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a maximum flame-spread index of 25 and a maximum smoke-developed index of 50, when tested in accordance with ASTM E-84 and UL 723.

**1101.12.2 Secondary Drainage.** Secondary (emergency) roof drainage shall be provided by one of the methods specified in Section 1101.12.2.1 or Section 1101.12.2.2.

**1101.12.2.1 Roof Scuppers or Open Side.** Secondary roof drainage shall be provided by an open-sided roof or scuppers where the roof perimeter construction extends above the roof in such a manner that water will be entrapped. An open-sided roof or scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.12.1. Scupper openings shall be not less than four (4) inches (102 mm) high and have a width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1103.1, based on double the rainfall rate for the local area.

**EXCEPTION:** Scupper openings shall be permitted to be sized for the normal rainfall rate where the structural design of the roof includes a ponding instability analysis in accordance with ASCE 7 for the additional ponding load resulting from twice the normal rainfall rate or a 15-minute duration/100-year return period storm. The analysis shall assume the primary drain system is blocked.

**1101.12.2.2 Secondary Roof Drain.** Secondary roof drains shall be provided. The secondary roof drains shall be located not less than two (2) inches (51 mm) above the roof surface. The maximum height of the roof drains shall be a height to prevent the depth of ponding water

from exceeding that for which the roof was designed as determined by Section 1101.12.1. The secondary roof drains shall connect to a piping system in accordance with Section 1101.12.2.2.1 or Section 1101.12.2.2.2.

**1101.12.2.2.1 Separate Piping System.** The secondary roof drainage system shall be a separate system of piping, independent of the primary roof drainage system. The discharge shall be above grade, in a location observable by the building occupants or maintenance personnel. Secondary roof drain systems shall be sized in accordance with Section 1101.12.1 based on double the rainfall rate for the local area.

**EXCEPTION:** The secondary drainage system shall be permitted to be sized for the normal rainfall rate where the structural design of the roof includes a ponding instability analysis in accordance with ASCE 7 for the additional ponding load resulting from twice the normal rainfall rate or a 15-minute duration/100-year return period storm. The analysis shall assume the primary drain system is blocked.

**1101.12.2.2.2 Combined System.** The secondary roof drains shall connect to the vertical piping of the primary storm drainage conductor downstream of the last horizontal offset located below the roof. The primary storm drainage system shall connect to the building storm water that connects to an underground public storm sewer. The combined secondary and primary roof drain systems shall be sized in accordance with Section 1103.0 based on double the rainfall rate for the local area.

**1101.13 Cleanouts.** Cleanouts for building storm drains shall comply with the requirements of this section.

**1101.13.1 Locations.** Rain leaders and conductors connected to a building storm sewer shall have a cleanout installed at the base of the outside leader or outside conductor before it connects to the horizontal drain. Cleanouts shall be placed inside the building near the connection between the building drain and the building sewer or installed outside the building at the lower end of the building drain and extended to grade.

**1101.13.2 Cleaning.** Each cleanout shall be installed so that it opens to allow cleaning in the direction of flow of the soil or waste or at right angles thereto, and except in the case of wye branch and end-of-line cleanouts, shall be installed vertically above the flow line of the pipe.

**1101.13.3 Access.** Cleanouts installed under concrete or asphalt paving shall be made accessible by yard boxes, or extending flush with paving with approved materials and be adequately protected.

**1101.13.4 Manholes.** Approved manholes may be installed in lieu of cleanouts when first approved by the authority having jurisdiction. The maximum distance between manholes shall not exceed three hundred (300) feet (91.4 m).

The inlet and outlet connections shall be made by the use of a flexible compression joint no closer than twelve (12) inches (305 mm) to, and not farther than three (3) feet (914 mm) from the manhole. No flexible compression joints shall be embedded in the manhole base.

### **1103.0 Size of Leaders, Conductors, and Storm Drains.**

**1103.1 Vertical Conductors and Leaders.** Vertical conductors and leaders shall be sized by the maximum projected roof area and Table 1103.1. Vertical conductors and leaders for secondary roof drains shall be sized based on double the rainfall rate for the local area.

EXCEPTION: Vertical conductors and leaders for secondary drainage systems shall be permitted to be sized for the normal rainfall rate where the structural design of the roof includes a ponding instability analysis in accordance with ASCE 7 for the additional ponding load resulting from twice the normal rainfall rate or a 15-minute duration/100-year return period storm. The analysis shall assume the primary drain system is blocked.

**1103.2 Size of Horizontal Storm Drains and Sewers.** The size of building storm drains, or building storm sewers or their horizontal branches shall be based on the maximum projected roof or paved area to be handled and Table 1103.2. Building storm drains, building storm sewers, or their horizontal branches receiving drainage from secondary roof drain systems shall be sized based on double the rainfall rate for the local area.

EXCEPTION: Building storm drains, building storm sewers, or their horizontal branches receiving drainage from secondary drainage systems shall be permitted to be sized for the normal rainfall rate where the structural design of the roof includes a ponding instability analysis in accordance with ASCE 7 for the additional ponding load resulting from twice the normal rainfall rate or a 15-minute duration/100-year return period storm. The analysis shall assume the primary drain system is blocked.

**1103.3 Size of Roof Gutters.** The size of semi-circular gutters shall be based on the maximum projected roof area and Table 1103.3.

**1103.4 Side Walls Draining onto a Roof.** Where vertical walls project above a roof to permit storm water to drain into the roof area below, the adjacent roof area shall be permitted to be computed from Table 1103.1 as follows:

(1) (No change to Items (1) through (6))

Secondary drainage systems for the adjacent roof area shall be sized based on double the rainfall rate for the local area.

EXCEPTION: Secondary drainage systems for the adjacent roof area shall be permitted to be sized for the normal rainfall rate where the structural design of the roof includes a ponding instability analysis in accordance with ASCE 7 for the additional ponding load resulting from twice the normal rainfall rate or a 15-minute duration/100-year return period storm. The analysis shall assume the primary drain system is blocked.

**1105.0 Controlled-Flow Roof Drainage.** This section is not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-02-044, § 51-56-1100, filed 12/30/15, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-054, § 51-56-1100, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.190, 19.27.020 and chapters 19.27 and 34.05 RCW. WSR 07-01-094, § 51-56-1100, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-110, § 51-56-1100, filed 12/17/03, effective 7/1/04.]

**WSR 23-02-058**  
**PERMANENT RULES**  
**BUILDING CODE COUNCIL**

[Filed January 3, 2023, 1:49 p.m., effective July 1, 2023]

Effective Date of Rule: July 1, 2023.

Purpose: The purpose of this permanent rule making is to adopt the 2021 International Residential Code, published by the International Code Council, with state amendments to incorporate proposed changes as adopted by the Washington state building code council on November 18, 2022. The rules provide increased clarity and life safety measures for building construction in Washington state. The implementation date is July 1, 2023.

Citation of Rules Affected by this Order: New 12; and amending 31.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074.

Adopted under notice filed as WSR 22-17-148 on August 23, 2022.

Changes Other than Editing from Proposed to Adopted Version:

WAC	Section	Change	Rationale/Discussion
51-51-0102	R102.7.1	Modifies the language in Section 102.7.1: • Changes the title to read: "Additions, alterations, change of use, repairs or relocations." • Corrects the referenced chapter to Chapter 45. • Replaces the last sentence; the last sentence now reads: "Where additions, alterations, or changes of use to an existing structure result in a use or occupancy, height, or means of egress outside the scope of this code, the building shall comply with the International Existing Building Code."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
51-51-0202	R202 LANDING PLATFORM	Replaces the term "sleeping loft" with "loft" in the definition of LANDING PLATFORM.	The correction is necessary due to the new proposal in Section R333 "Lofts." The term "SLEEPING LOFT" is no longer used.
	R202 LOFT	Replaces the reference to Section R326 with a reference to Section R333.	The correction is necessary to align with the new numbering in Chapter 3.
51-51-0301	R301.2.2.10	Replaces the reference to Section R507.1 with a reference to Section R507.2.	The correction is necessary to correct an oversight and to align with the numbering in Chapter 5.
	Table R301.5	Corrects the uniform load for handrails to 200 psf and deletes 200 from the "Concentrated Load" column.	Modification is necessary to correct an oversight. The uniform load for handrails is 200 psf, as shown in the 2021 IBC.

WAC	Section	Change	Rationale/Discussion
51-51-0302	R302.2.2	Replaces the reference to Section R703.3 with a reference to Section R703.2.2 in Items 1 and 2.	Modification is necessary to align the references with the renumbering in the 2021 IBC.
	R302.3	Correct the reference to "Section R302.3.1 or R302.3.3" with a reference to Sections "R302.3.1 through R302.3.5."	Modification is necessary to correct an oversight (the use of "or" instead of "through") and to add new sections R302.3.4 and R302.3.5.
	R302.3.1	Replaces the reference to Section R703.3 with a reference to Section R703.2.2 in Items 1 and 2.	Modification is necessary to align the references with the renumbering in the 2021 IBC.
	R302.3.5	Modifies language in Section 302.3.5: <ul style="list-style-type: none"> <li>Removes the words "or areas" from the section title.</li> <li>Add the phrase "from each individual dwelling unit in accordance with" and removes "by" from the first sentence.</li> <li>Replaces "in a" with "between the" and adds "and the dwelling unit" in the second sentence.</li> <li>Deletes the last sentence.</li> </ul>	Language is added to clarify that the shared accessory room must be separated from each individual dwelling unit that shares the room. It is the opinion of the proponent that the last sentence isn't needed and is confusing.
	R302.3.5.1	Modifies language in Section 302.3.5.1: <ul style="list-style-type: none"> <li>Removes the word "common" in the second sentence.</li> <li>Adds "a fire door assembly with a" in the second sentence.</li> <li>Replaces "rated doors" with "protection rating" in the second sentence.</li> </ul>	Pursuant to the proponent of this proposal, simple language has been chosen and used in order to make the code more user friendly.
	R302.3.5.2	Adds new Section: 302.3.5.2 "Duct penetration."	This section is added to address penetration issues that arise when interpreting accessory rooms that are not part of the habitable space.
	R302.3.5.3	Adds new Section: 302.3.5.3 "Other penetrations."	This section is added to address penetration issues that arise when interpreting accessory rooms that are not part of the habitable space.
	Table R302.3.5	Modifies language within Table R302.3.5: In column 1, row 3, the words "and wall" are removed. The entirety of row 4 is removed.	The last row of Table R302.3.5 is being eliminated because the information, originally taken from the garage separation provisions, isn't relevant where the shared accessory room is between the two units which are themselves within the two-family dwelling.
51-51-0303	R303.4	Changes reference to Section "M1507" with reference to Section "M1505."	This change corrects an error in the section reference.
	R303.10.3	Correct four references as follows: <ul style="list-style-type: none"> <li>RCW 70.94.011 with 70A.15.1005.</li> <li>RCW 70.94.450 with 70A.15.3500.</li> <li>RCW 70.94.453 with 70A.15.3510.</li> <li>RCW 70.94.457 with 70A.15.3530.</li> </ul>	This change corrects an error in the section references.
51-51-0326	R326.1 R326.4	Relocates the exception shown in Section 326.4 (in the CR-102) to Section 326.1.	Editorial correction, the exception was inadvertently misplaced.
51-51-0327	R327.1	Corrects the reference to 2018 International Swimming Pool and Spa Code with a reference to 2021 International Swimming Pool and Spa Code.	This modification corrects an oversight.
51-51-0328	R328.12.1	Replaces the references to Section R329.6 with references to Section R328.12.	Editorial correction.



WAC	Section	Change	Rationale/Discussion
51-51-0333	R333.1	Correct three references as follows: • R326.1 with R333.1. • R326.5 with R333.5. • R326 with R333.	Editorial correction; corrects an error in the section references.
	R333.2	Correct three references as follows: • R326.3 with R333.3. • R326.5 with R333.5.	Editorial correction; corrects an error in the section references.
	R333.4	Removes redundant language "Section P2904 through" from exception.	Editorial correction; corrects grammar error and clarifies the intent of the exception.
	R333.5	Replaces the reference to Section R326.5.1 with reference to Section R333.5.1.	Editorial correction; corrects an error in the section references.
51-51-0334	R334.1	Changes Section "R330.1" to "R334.1."	This change corrects an error in the section numbering.
51-51-0408	R408.3	Removes reference to Section "R408.1."	Section 408.1 is not relevant to section 408.3 when considering required amount of ventilation openings.
51-51-0703	R703.1.1	Moves sentence "The exterior wall envelope design shall be considered to resist wind driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope; joints at the perimeter of opening penetration; or intersections of terminations with dissimilar materials." from [previous] location after exception 2.4 to after exception 3.	This edit corrects the placement of the sentence, as it is relevant to the section and is not part of exception 2.4 only.
51-51-1503	M1503.3	Changes section reference from "M1505.4.4(1)" to "M1505.4.4.1."	This change corrects an error in the section reference.
	M1503.5	Changes section reference from "M1505.4.4" to "M1505.4.4.1."	This change corrects an error in the section reference.
51-51-1505	M1505.4.1	Removes the word "with" and changes the word "per" to "shall meet the requirements of" within the second sentence. In the rest of the section, the word "per" is replaced with more concise code language when referencing other code sections.	These edits clarify the intent of the code language and increase the enforceability of the language.
	Table M1505.4.3.2	Corrects the table number from M1505.4.3(3) to M1505.4.3.2.	Editorial correction.
	M1505.4.1.2	Corrects the reference to Table M1505.4.3(3) with a reference to Table M1505.4.3.2.	Editorial correction; corrects an error in the table reference.
	M1505.4.1.6	Corrects the reference to Section M1505.4.4 with a reference to Section M1505.4.4.1.	Editorial correction.
	M1505.4.4.3.1	Adds the word "Section" before the reference to M1505.4.4.3. Also adds the word "Table" before the reference to M1505.4.4.3.	This change clarifies whether the reference is being made to a section or a table within the code language.
Modifies language in Section 1505.4.4.3.1: In method two of compliance verification. Removes "Certified Home Ventilating Products Directory" and adds "AHAM-Certified Range Hood Directory."		The change of directory allows for ease of use when locating products commonly used. The new table has more listings than the previous.	
51-51-4400	Chapter 44	AHAM: Adds "Certified Range Hood Directory" and reference to Section 1505.4.4.3.1.	This change updates the reference of an older table to a newer more expansive table.
		Replaces the reference to Section M1505.4.4.3.4 with a reference to Section M1505.4.4.2.	Editorial correction.

WAC	Section	Change	Rationale/Discussion
		ASHRAE: Deletes the reference to Section M1505.4.4.3.3.	Editorial correction; eliminates an incorrect reference.
		ASTM: Corrects two references: Table [M]1505.4.4.3.2 is replaced with Table M1505.4.4.3; Section N1505.4.4.3.2 is replaced with M1505.	
		HVI: <ul style="list-style-type: none"> <li>Replaces the reference to M1505.4.4.2 with a reference to M1505.4.4.3.1.</li> <li>Add HVI Publication 915 (2016 with 2020 update).</li> <li>Add HVI Publication 916 (2015 with 2020 Update).</li> <li>Add HVI Publication 920 (2020).</li> </ul>	Editorial corrections.
51-51-4501	4501.1	Replaces the language in Section 4501.1; modified language reads as follows: "Repairs, alterations, additions, and relocation of existing buildings and structures shall comply with the provisions of this code for new construction, except as modified by this chapter. Structural elements and systems shall comply with Section R102.7.1 and the provisions of this chapter."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
51-51-4502	4502.1	Modifies language in Section 4502.1: Adds the phrase "or structure" to the first sentence.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4502.2.2	Modifies language in Section 4502.2.2: Adds the phrase "unless an evaluation demonstrates compliance of the existing bracing and anchorage" to the end of the second sentence.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4502.3	Modifies language in Section 4502.3: Removes the word "detector" and changes the words "where required by" to "in accordance with."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4502.4	Modifies language in Section 4502.4: Changes the words "where required by" to "in accordance with."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4502.5.1	Modifies language in Section 4502.5.1: Changes the words "Chapter 11" to "the Washington State Energy Code – Residential."	Provides the correct reference to the Washington state energy code.
	4502.5.3	Modifies the language of exception to 4502.5.3: Adds the words "only the" and changes the words "replacement is of glazing only" to "glazing is being replaced."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.

WAC	Section	Change	Rationale/Discussion
	4502.5.4	Modifies language in Section 45.2.5.4 [4502.4]: Removes the words "installed in buildings meeting the scope of this code" from the first sentence. Also changes the word "occupancy" to "use" in condition two.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
51-51-4503	4503.1	Replaces Section R4503.1 "Materials" with Section R4503.1 "General."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4503.2	Adds Section 4503.2 "Materials."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4503.2.1	Retitles and rewrites Section 4503.2.1. The section title is changed to "New and Replacement Materials."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4503.2.2	Adds Section 4503.2.2: "Existing Materials."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4503.3	Renumbers Section R4503.2 Water Closets to Section R4503.3, and replaces the reference to Section P2903.2 with a reference to Uniform Plumbing Code Section 411.	Editorial corrections intended to correct an error in the section numbering, and to provide a correct reference to the plumbing code adopted in Washington state.
	4503.3	Removes Section 4503.3 Electrical.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4503.5	Adds Section "4403.5 Demolition and Replacement"	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
51-51-4504	4504.1	Replaces Section 4504.1 "Alterations to an Existing Building" with Section 4504.1 "General."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.4	Modifies Section 4504.4 by adding two new sentences.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.

WAC	Section	Change	Rationale/Discussion
	4504.4.1	Retitles Section 4504.4.1; the new title reads as follows: Decreased structural capacity.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.2	Retitles Section 4504.4.1; the new title reads as follows: Increased structural loads.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5	Removes Section 4504.5 "Electrical equipment and wiring."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5.1	Removes Section 4504.5.1 "Materials and Methods."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5.2	Removes Section 4504.5.2 "Electrical service."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5.3	Removes Section 4504.5.3 "Additional electrical requirements."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5.3.1	Removes Section 4504.5.3.1 "Enclosed areas."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5.3.2	Removes Section 4504.5.3.2 "Kitchen and laundry areas."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5.3.3	Removes Section 4504.5.3.3 "Ground fault circuit interruption."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.5.3.4	Removes Section 4504.5.3.4 "Lighting outlets."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.

WAC	Section	Change	Rationale/Discussion
	4504.5.3.5	Removes Section 4504.5.3.5 "Clearance."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.7	Adds Language to Section 4504.7: "Stairs, handrails and guards shall comply with this section."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.8.1	Removes Section 4504.8.1 "Stairways."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4504.7.6	Modifies language of 4504.7.6: Changes the word "If" to "Where."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
51-51-4505	4505.1	Modifies the language of Section 4505.1. Deletes the first and the last sentence and adds the phrase "for new construction" to the end of the second sentence.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4505.2	Modifies the language of Section 4505.2: Changes the title of section from "Horizontal attached addition" to "Structure for Horizontal additions." In the first sentence, changes the words "new construction" to "addition." The exception is modified as well. The word "additional" is deleted and the word "may" is changed to read "of the addition shall be permitted."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4505.3	Retitles Section 4505.3; the new title reads as follows: Structure for vertical additions. Adds a new exception.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
	4505.4 4505.5	Removes Sections 4505.4 and 4505.5.	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.
51-51-4506	4506.1	Modifies language of Section 4506.1: The last sentence is replaced with a new sentence, which reads as follows: "Any repair, alteration or change of use undertaken within the relocated structure shall comply with the requirements of this code applicable to the work being performed."	This change reflects changes proposed in the 2024 International Residential Code: RB7-22, R8-22, RB162-22, RB163-22, RB206-22, and RB297-22.

A final cost-benefit analysis is available by contacting Dustin Curb, 1500 Jefferson Street S.E., Olympia, WA 98501, phone 360-972-4158, email dustin.curb@des.wa.gov, website www.sbccc.wa.gov.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 12, Amended 31, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: November 18, 2022.

Tony Doan  
Chair

## OTS-4043.5

### Chapter 51-51 WAC

#### STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((2018)) 2021 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-003 International Residential Code.** The ((2018)) 2021 edition of the *International Residential Code* as published by the International Code Council is hereby adopted by reference with the following additions, deletions, and exceptions: Provided that chapters 11 and 25 through 43 of this code are not adopted. Energy Code is regulated by chapter 51-11R WAC; Plumbing Code is regulated by chapter 51-56 WAC; Electrical Code is regulated by chapter 296-46B WAC or Electrical Code as adopted by the local jurisdiction. Appendix F, Radon Control Methods, Appendix Q, Tiny Homes, and Appendix U, Dwelling Unit Fire Sprinkler Systems, are included in adoption of the International Residential Code.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-003, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-003, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-003, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-003, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-003, filed 12/19/06, ef-

fective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-109, § 51-51-003, filed 12/17/03, effective 7/1/04.]

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

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

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-11-066, § 51-51-008, filed 5/14/21, effective 6/14/21; WSR 20-03-023, § 51-51-008, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-008, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-008, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-008, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-008, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-109, § 51-51-008, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-01010 Section R101—Scope and general requirements.**

**R101.2 Scope.** The provisions of the *International Residential Code for One- and Two-Family Dwellings* shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings, adult family homes, and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade plane in height.

EXCEPTIONS:

1. Live/work units located in townhouses and complying with the requirements of Section ((419) 508.5 of the *International Building Code* shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings*. ((Fire suppression)) An automatic sprinkler system required by Section ((419.5) 508.5.7 of the *International Building Code* where constructed under the *International Residential Code for One- and Two-Family Dwellings* shall conform to Appendix U.
2. Owner-occupied lodging houses with one or two guestrooms shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings*.
3. Owner-occupied lodging homes with three to five guestrooms shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings* where equipped with ((a)) an automatic fire sprinkler system in accordance with Appendix U.
4. A care facility with five or fewer persons receiving custodial care within a dwelling unit shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings* where equipped with an automatic fire sprinkler system in accordance with Appendix U.
5. A care facility with five or fewer persons receiving medical care within a dwelling unit shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings* where equipped with an automatic fire sprinkler system in accordance with Appendix U.
6. A care facility with five or fewer persons receiving care that are within a single-family dwelling shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings* where equipped with an automatic fire sprinkler system in accordance with Appendix U.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-01010, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-01010, filed 1/11/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-0102 Section R102—Applicability.**

**R102.5 Appendices.** Provisions in the appendices shall not apply unless specifically referenced in the adopting ordinance. An appendix adopted by a local jurisdiction shall not be effective unless approved by the state building code council pursuant to RCW 19.27.060 (1) (a).

EXCEPTIONS: 1. The state building code council has determined that a local ordinance providing specifications for light straw-clay or strawbale construction, or requiring a solar-ready zone, or requiring fire sprinklers in accordance with Appendix R, S, ~~(U)~~ or V of this chapter may be adopted by any local government upon notification of the council.  
2. Appendix F, Radon Control Methods, ~~(and)~~ Appendix Q, Tiny Homes, and Appendix U, Dwelling Unit Fire Sprinkler Systems, are included in adoption of the International Residential Code.

**R102.7.1 Additions, alterations ~~((or))~~, change of use, repairs, or relocations.** Additions, alterations ~~((or))~~, repairs ~~((to any structure))~~, or relocations shall be permitted to conform to the requirements of the provisions of Chapter 45 or shall conform to the requirements for ~~((a))~~ new structure without requiring the existing structure to comply with the requirements of this code, unless otherwise stated. Additions, alterations ~~((or))~~, repairs, and relocations shall not cause an existing structure to become ~~((unsafe or adversely affect the performance of the building))~~ less compliant with the provisions of this code than the existing building or structure was prior to the addition, alteration, repair, or relocation. Where additions, alterations, or changes of use to an existing structure result in a use or occupancy, height, or means of egress outside the scope of this code, the building shall comply with the International Existing Building Code.

EXCEPTIONS: 1. Additions with less than 500 square feet of conditioned floor area are exempt from the requirements for Whole House Ventilation Systems, Section M1505.4.  
2. Additions or alterations to existing buildings which do not require the construction of foundations, crawlspaces, slabs or basements shall not be required to meet the requirements for radon protection in Section R332.1 and Appendix F.

**R102.7.2 Moved buildings.** Buildings or structures moved into or within a jurisdiction shall comply with the provisions of this code, the *International Building Code* (chapter 51-50 WAC), the *International Mechanical Code* (chapter 51-52 WAC), the *International Fire Code* (chapter 51-54A WAC), the *Uniform Plumbing Code and Standards* (chapter 51-56 WAC), and the *Washington State Energy Code* (chapter 51-11R WAC) for new buildings or structures.

EXCEPTION: Group R-3 buildings or structures are not required to comply if:  
1. The original occupancy classification is not changed; and  
2. The original building is not substantially remodeled or rehabilitated. For the purposes of this section a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-0102, filed 10/13/20, effective 11/13/20; WSR 16-03-025, § 51-51-0102, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0102, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0102, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0102, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-109, § 51-51-0102, filed 12/17/03, effective 7/1/04.]



AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0106 ((Section 106—Construction documents.)) Re-served.**

~~((R106.1 Submittal documents. Submittal documents consisting of construction documents, and other data shall be submitted in two or more sets, or in a digital format where allowed by the building official, with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.~~

EXCEPTION: The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with this code.)

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0106, filed 1/6/20, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 21-12-102, filed 6/2/21, effective 7/3/21)

**WAC 51-51-0202 Section R202—Definitions.**

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

~~((BALANCED WHOLE HOUSE VENTILATION. Balanced whole house ventilation is defined as any combination of concurrently operating residential unit mechanical exhaust and mechanical supply whereby the total mechanical exhaust airflow rate is within 10 percent or 5 cfm, whichever is greater, of the total mechanical supply airflow rate. Intermittent dryer exhaust, intermittent range hood exhaust, and intermittent toilet room exhaust airflow rates above the residential dwelling or sleeping unit minimum ventilation rate are exempt from the balanced airflow calculation.~~

~~BATTERY SYSTEM, STATIONARY STORAGE. This definition is not adopted.~~

~~BUILDING, EXISTING. A building or structure erected prior to the adoption of this code, or one that has passed a final inspection.))~~

**BUILDING.** Any one- or two-family dwelling or townhouse, or portion thereof used or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, or any accessory structure.

**BUILDING, EXISTING.** A building or structure erected prior to the adoption of this code, or one that has passed a final inspection.

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

**CHILD DAY CARE,** shall, for the purposes of these regulations, mean the care of children during any period of a 24 hour day.

**CONDITIONED SPACE.** An area, room or space that is enclosed within the building thermal envelope and that is directly or 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.

**DISTRIBUTED WHOLE HOUSE VENTILATION.** A whole house ventilation system shall be considered distributed when it supplies outdoor air directly (not transfer air) to each dwelling or sleeping unit habitable space (living room, den, office, interior adjoining spaces or bedroom), and exhausts air from all kitchens and bathrooms directly outside.

**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. Dwelling units may also include the following uses:

1. Adult family homes, foster family care homes and family day care homes licensed by the Washington state department of social and health services.
2. Offices, mercantile, food preparation for off-site consumption, personal care salons or similar uses which are conducted primarily by the occupants of the dwelling unit and are secondary to the use of the unit for dwelling purposes, and which do not exceed 500 square feet (46.4 m<sup>2</sup>).

**EGRESS ROOF ACCESS WINDOW.** A skylight or roof window designed and installed to satisfy the *Emergency Escape and Rescue Opening* requirements of Section R310.2.

~~((ENERGY STORAGE SYSTEMS (ESS). One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.))~~

**ENCLOSED KITCHEN.** A kitchen whose permanent openings to interior adjacent spaces do not exceed a total of 60 square feet (6 m<sup>2</sup>).

**FIRE SEPARATION DISTANCE.** The distance measured from the foundation wall or face of the wall framing, whichever is closer, to one of the following:

1. To the closest interior lot line; or
2. To the centerline of a street, an alley or public way; or
3. To an imaginary line between two buildings on the lot.

The distance shall be measured at a right angle from the wall.

**FLOOR AREA.** The area within the inside perimeter of exterior walls of the building. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above.

**LANDING PLATFORM.** A landing provided as the top step of a stairway accessing a ~~((Sleeping))~~ Loft.

**LOCAL EXHAUST.** An exhaust system that uses one or more fans to exhaust air from a specific room or rooms within a residential dwelling or sleeping unit.

~~((LOT. A measured portion or parcel of land considered as a unit having fixed boundaries.))~~

**LOFT.** A space on an intermediate level or levels between the floor and ceiling of a dwelling or sleeping unit, open on one or more sides to the room or space in which the loft is located, and in accordance with Section R333.

**LOT LINE.** The line which bounds a plot of ground described as a lot in the title to the property.

~~((MIXED VENTILATION ZONE. This definition is not adopted.))~~

**SALT WATER COASTAL AREA.** Those areas designated as salt water coastal areas by the local jurisdiction.

~~((SLEEPING LOFT. A sleeping space on a floor level located more than 30 inches (726 mm) above the main floor and open to the main floor on one or more sides with a ceiling height of less than 6 feet 8 inches (2032 mm).))~~

**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.

~~((TOWNHOUSE. A building that contains three or more attached townhouse units.))~~

**TOWNHOUSE UNIT.** A single-family dwelling unit in a townhouse that extends from foundation to roof and that has a yard or public way on not less than two sides that extends at least 50 percent of the length of each of these two sides.

~~((WHOLE HOUSE VENTILATION SYSTEM. A mechanical ventilation system, including fans, controls, and ducts, which replaces, by direct means, air from the habitable rooms with outdoor air.))~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-12-102, § 51-51-0202, filed 6/2/21, effective 7/3/21; WSR 20-21-041, § 51-51-0202, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-0202, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0202, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0202, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0202, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 09-04-023, § 51-51-0202, filed 1/27/09, effective 7/1/09; WSR 08-01-102, § 51-51-0202, filed 12/18/07, effective 4/1/08. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0202, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-109, § 51-51-0202, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0301 Section R301—Design criteria.**

**R301.2 Climatic and geographic design criteria.** Buildings shall be constructed in accordance with the provisions of this code as limited by the provisions of this section. Additional criteria shall be established by the local jurisdiction and set forth in Table R301.2(1). The local jurisdiction shall designate the salt water coastal areas within their jurisdiction.

**R301.2.2.10 Anchorage of water heaters.** In Seismic Design Categories  $D_0$ ,  $D_1$  and  $D_2$ , and in townhouses in Seismic Design Category C, water heaters and thermal storage units shall be anchored against movement and overturning in accordance with Section M1307.2 or the Uniform Plumbing Code Section 507.2.

**R301.5 Live load.** The minimum uniformly distributed live load shall be as provided in Table R301.5.

TABLE R301.5  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS  
(in pounds per square foot)

Use	<b><u>((Live))</u></b> <b><u>Uniform Load</u></b> <b><u>(psf)</u></b>	<b><u>Concentrated</u></b> <b><u>Load (lb)</u></b>
Uninhabitable attics without storage <sup>b</sup>	10	=
Uninhabitable attics with limited storage <sup>b, g</sup>	20	=
Habitable attics and attics served with fixed stairs	30	=
Balconies (exterior) and decks <sup>e</sup>	60 <sup>((i))j</sup>	=
Fire escapes	40	=
Guards <del>((and handrails<sup>d</sup>))</del>	<del>((200<sup>h</sup>))</del>	<u>200<sup>h,i</sup></u>
Guard in-fill components <sup>f</sup>	<del>((50<sup>h</sup>))</del>	<u>50<sup>h</sup></u>
<u>Handrail<sup>d</sup></u>	<u>200<sup>h</sup></u>	=
Passenger vehicle garages <sup>a</sup>	50 <sup>a</sup>	<u>2,000<sup>h</sup></u>
<del>((Rooms))</del> <u>Areas</u> other than sleeping <del>((rooms))</del> <u>areas</u>	40	=
Sleeping <del>((rooms))</del> <u>areas</u>	30	=
Stairs	40 <sup>c</sup>	<u>300<sup>c</sup></u>

For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm, 1 pound = 4.45 N

- Elevated garage floors shall be capable of supporting the uniformly distributed live load or a 2,000-pound concentrated load applied ((over a 20 square inch area)) on an area of 4-1/2 inches by 4-1/2 inches, whichever produces the greater stresses.
- Uninhabitable attics without storage are those where the clear height between joists and rafters is not more than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.
- Individual stair treads shall be ~~((designed for))~~ capable of supporting the uniformly distributed live load or a 300-pound concentrated load ((acting over)) applied on an area of ((4 square inches)) 2 inches by 2 inches, whichever produces the greater stresses.

- d. A single concentrated load applied in any direction at any point along the top. For a guard not required to serve as a handrail, the load need not be applied to the top element of the guard in a direction parallel to such element.
- e. See Section R507.1 for decks attached to exterior walls.
- f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.
- g. Uninhabitable attics with limited storage are those where the clear height between joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. The live load need only be applied to those portions of the joists or truss bottom chords where all of the following conditions are met:
  - g.1. The attic area is accessed from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is not less than 30 inches.
  - g.2. The slopes of the joists or truss bottom chords are not greater than 2 inches vertical to 12 units horizontal.
  - g.3. Required insulation depth is less than the joist or truss bottom chord member depth. The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.
- h. Glazing used in handrail assemblies and guards shall be designed with a ((safety)) load adjustment factor of 4. The ((safety)) load adjustment factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.
- i. Where the top of a guard system is not required to serve as a handrail, the single concentrated load shall be applied at any point along the top, in the vertical downward direction and in the horizontal direction away from the walking surface. Where the top of a guard is also serving as the handrail, a single concentrated load shall be applied in any direction at any point along the top. Concentrated loads shall not be applied concurrently.
- j. Where structural tables in Section R507 only specify snow loads, the values corresponding to 70 psf snow loads shall be used.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0301, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0301, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0301, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0301, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-102, § 51-51-0301, filed 12/18/07, effective 4/1/08.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0302 Section R302—Fire-resistant construction.**

~~((R302.2.1 Double walls. When used, each townhouse unit shall be separated from other townhouse units by two 1-hour fire-resistance-rated wall assemblies tested in accordance with ASTM E119, UL 263 or Section 703.3 of the International Building Code.))~~

**R302.2.2 Common walls.** Common walls separating townhouse units shall be assigned a fire resistance rating in accordance with Item 1 or 2 and shall be rated for fire exposure from both sides. Common walls shall extend to and be tight against the exterior sheathing of the exterior walls, or the inside face of exterior walls without stud cavi-

ties, and the underside of the roof sheathing. The common wall shared by two *townhouse units* shall be constructed without plumbing or mechanical equipment, ducts or vents, other than water-filled fire sprinkler piping in the cavity of the common wall. (~~The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing.~~) Electrical installations shall be in accordance with chapter 296-46B WAC, Electrical safety standards, administration, and installation. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.

1. Where (~~a fire~~) an automatic sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section (~~703.3~~) 703.2.2 of the *International Building Code*.

2. Where (~~a fire~~) an automatic sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section (~~703.3~~) 703.2.2 of the *International Building Code*.

EXCEPTION: Common walls are permitted to extend to and be tight against the interior side of the exterior walls (~~where voids in the exterior wall at the end of the common wall are fireblocked~~) if the cavity between the end of the common wall and the exterior sheathing is filled with a minimum of 2-inch nominal thickness wood studs.

**R302.2.3 Continuity.** The fire-resistance-rated wall or assembly separating *townhouse units* shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures.

Where a story extends beyond the exterior wall of a story below:

1. The fire-resistance-rated wall or assembly shall extend to the outside edge of the upper story (see Figure R302.2(1)); or

2. The underside of the exposed floor-ceiling assembly shall be protected as required for projections in Section R302 (see Figure R302.2(2)).

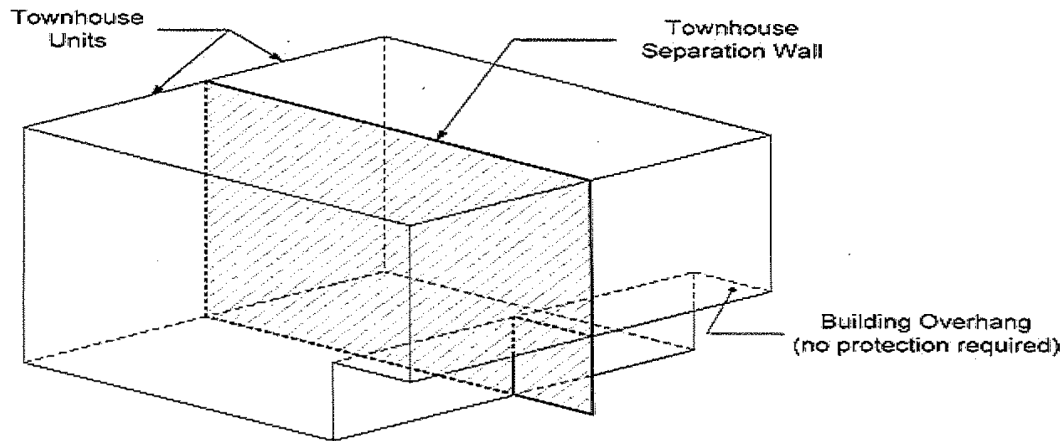


FIGURE R302.2(1)  
EXTENDED TOWNHOUSE SEPARATION WALL

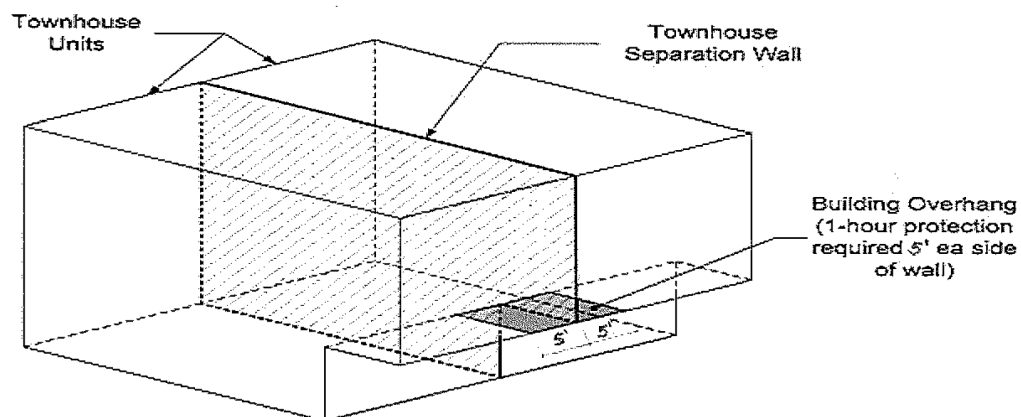


FIGURE R302.2(2)  
TOWNHOUSE SEPARATION OVERHANG PROTECTION

**R302.2.4 Parapets for townhouses.** Parapets constructed in accordance with Section R302.2.5 shall be constructed for *townhouses* as an extension of exterior walls or common walls separating *townhouse units* in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof surfaces.

2. Where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is not more than 30 inches (762 mm) above the lower roof, the parapet shall extend not less than 30 inches (762 mm) above the lower roof surface.

EXCEPTION: A parapet is not required in the preceding two cases where the roof covering complies with a minimum Class C rating as tested in accordance with ASTM E108 or UL 790 and the roof decking or sheathing is of noncombustible materials or fire retardant-treated wood for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of 5/8-inch (15.9 mm) Type X gypsum board is installed directly beneath the roof decking or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof are not within 4 feet (1219 mm) of the common walls. Fire retardant-treated wood shall meet the requirements of Sections R802.1.5 and R803.2.1.2.

3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is more than 30 inches (762 mm) above the lower roof. The common wall construction from the lower roof to the underside of the higher roof deck shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides.

**TABLE R302.1(1)**  
**EXTERIOR WALLS**

No Change to the Table

- a The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
- b The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where ventilation openings are not installed in the rake overhang or in walls that are common to attic areas.

**TABLE R302.1(2)**  
**EXTERIOR WALLS - DWELLINGS WITH FIRE SPRINKLERS**

No Change to the Table

- a For residential subdivisions where all dwellings are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the fire separation distance for exterior walls not fire-resistance-rated and for fire-resistance-rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.
- b The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
- c The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where ventilation openings are not installed in the rake overhang or in walls that are common to attic areas.

**R302.3 Two-family dwellings.** Wall and floor/ceiling assemblies separating *dwelling units* in two-family dwellings shall be constructed in accordance with Section R302.3.1 (~~or R302.3.3~~) through R302.3.5. One accessory dwelling unit constructed within an existing *dwelling unit* need not be considered a separated dwelling unit in a two-family dwelling where all required smoke alarms, in the accessory dwelling unit and the primary dwelling unit, are interconnected in such a manner that the actuation of one alarm will activate all alarms in both the primary dwelling unit and the accessory dwelling unit.

**R302.3.1 Separation.** *Dwelling units* in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E119, UL 263 or Section (~~703.3~~) 703.2.2 of the *International Building Code*.

EXCEPTIONS: 1. A fire-resistance rating of 1/2 hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13D.  
2. Where an accessory dwelling unit is added within an existing single-family residence to create a two-family dwelling, fire rated separation between the accessory dwelling unit and the primary dwelling unit is not required when all required smoke alarms are interconnected in such a manner that the actuation of one alarm will activate all alarms in both the primary dwelling unit and the accessory dwelling unit.

**R302.3.2 Continuity.** Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the *exterior wall*, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

EXCEPTION: Wall assemblies need not extend through attic spaces where the ceiling is protected by not less than 5/8-inch (15.9 mm) Type X gypsum board, an attic draft stop constructed as specified in Section R302.12.1 is provided above and along the wall assembly separating the dwellings and the structural framing supporting the ceiling is protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent.

**R302.3.3 Supporting construction.** Where floor/ceiling assemblies are required to be fire-resistance rated by Section R302.3, the supporting



construction of such assemblies shall have an equal or greater fire-resistance rating.

~~(R302.4.1 Through penetrations. Through penetrations of fire-resistance-rated wall or floor assemblies shall comply with Section R302.4.1.1 or R302.4.1.2.~~

EXCEPTION: Where the penetrating items are steel, ferrous or copper pipes, tubes or conduits, or fire sprinkler piping, the annular space shall be protected as follows:  
 1. In concrete or masonry wall or floor assemblies, concrete, grout or mortar shall be permitted where installed to the full thickness of the wall or floor assembly or the thickness required to maintain the fire-resistance rating, provided that both of the following are complied with:  
 1.1. The nominal diameter of the penetrating item is not more than 6 inches (152 mm).  
 1.2. The area of the opening through the wall does not exceed 144 square inches (92900 mm<sup>2</sup>).  
 2. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E119 or UL 263 time temperature fire conditions under a positive pressure differential of not less than 0.01 inch of water (3 Pa) at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.)

**R302.3.4. Openings protection between two-family dwellings.** Openings in the common fire-resistance-rated wall assembly located between units of a two-family dwelling shall be equipped with not less than a 45-minute fire-rated door assembly equipped with a self-closing or automatic-closing device.

EXCEPTION: A 20-minute fire-rated door assembly is permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904 or 13D.

**R302.3.5 Shared accessory rooms.** Shared accessory rooms shall be separated from each individual dwelling unit in accordance with Table R302.3.5. Openings between the shared accessory room and the dwelling unit shall comply with Section R302.3.5.1. Attachment of gypsum board shall comply with Table R702.3.5.

**R302.3.5.1 Opening protection.** Openings from a shared accessory room or area directly into a room used for sleeping purposes shall not be permitted. Other openings between the shared accessory room or area shall be equipped with solid wood doors not less than 1 3/8 inches in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches thick, or a fire door assembly with a 20-minute fire-protection rating, equipped with a self-closing or automatic-closing device.

**R302.3.5.2 Duct penetration.** Ducts penetrating the walls or ceilings separating the dwelling from the shared accessory room shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved material and shall not have openings into the shared accessory room.

**R302.3.5.3 Other penetrations.** Penetrations through the walls, ceiling, and floor level separation required in Section R302.3.5 shall be protected as required by Section R302.11, Item 4.

**TABLE R302.3.5  
 DWELLING-SHARED ACCESSORY ROOM SEPARATION**

<b>SEPARATION</b>	<b>MATERIAL</b>
<u>From the dwelling units and attics.</u>	<u>Not less than 1/2-inch gypsum board or equivalent applied to the accessory room side wall.</u>
<u>From habitable rooms above or below the shared accessory room.</u>	<u>Not less than 5/8-inch Type X gypsum board or equivalent.</u>
<u>Structures supporting floor/ceiling assemblies used for separation required by this section.</u>	<u>Not less than 1/2-inch gypsum board or equivalent.</u>

**R302.13 Fire protection of floors.** Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a 1/2-inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

EXCEPTIONS:

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Appendix U, NFPA 13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances.
3. Portions of floor assemblies shall be permitted to be unprotected when complying with the following:
  - 3.1. The aggregate area of the unprotected portions shall not exceed 80 square feet per story.
  - 3.2. Fire blocking in accordance with Section R302.11.1 is installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
4. Wood floor assemblies using dimensional lumber or *structural composite lumber* with a cross sectional area equal to or greater than 2-inch by 10-inch nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0302, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0302, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-088, § 51-51-0302, filed 12/1/14, effective 5/1/15. Statutory Authority: Chapters 19.27A and 34.05 RCW. WSR 13-23-084, § 51-51-0302, filed 11/19/13, effective 4/1/14. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0302, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0302, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 09-04-023, § 51-51-0302, filed 1/27/09, effective 7/1/09; WSR 08-01-102, § 51-51-0302, filed 12/18/07, effective 4/1/08.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0303 Section R303—Light, ventilation and heating.**

**R303.1 Natural light.** All habitable rooms shall have an aggregate glazing area of not less than 8 percent of the floor area of such rooms.

EXCEPTION: The glazed areas need not be installed in rooms where artificial light is provided capable of producing an average illumination of 6 footcandles (65 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

**R303.2 Adjoining rooms.** For the purpose of determining light requirements, any room shall be considered as a portion of an adjoining room when at least one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room but not less than 25 square feet (2.3 m<sup>2</sup>).

EXCEPTION: Openings required for light shall be permitted to open into a sunroom with thermal isolation or a patio cover, provided there is an openable area between the adjoining room and the sunroom or a patio cover of not less than one-tenth of the floor area of the interior room but not less than 20 square feet (2 m<sup>2</sup>).

**R303.3 Bathrooms.** This section is not adopted.

**R303.4 Minimum ventilation performance.** Dwelling units shall be equipped with local exhaust and whole house ventilation systems designed and installed as specified in Section ((M1507)) M1505.

EXCEPTION: Additions with less than 500 square feet of conditioned floor area are exempt from the requirements in this Code for Whole House Ventilation Systems.

~~(R303.5 Opening location. Outdoor intake and exhaust openings shall be located in accordance with Sections R303.5.1 and R303.5.2.)~~

**R303.5.1 Intake openings.** Mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet (3048 mm) from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks, except as otherwise specified in this code.

For the purpose of this section, the exhaust from *dwelling unit* toilet rooms, bathrooms and kitchens shall not be considered as hazardous or noxious.

EXCEPTIONS:

1. The 10-foot (3048 mm) separation is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.
2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.
3. Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.

**R303.5.2 Exhaust openings.** Exhaust air shall not be directed onto walkways. All exhaust ducts shall terminate outside the building. Terminal elements shall have at least the equivalent net free area of the duct work.

**R303.5.2.1 Exhaust ducts.** Exhaust ducts shall be equipped with back-draft dampers. All exhaust ducts in unconditioned spaces shall be insulated to a minimum of R-4.

**R303.7 Interior stairway illumination.** Interior stairways shall be provided with an artificial light source to illuminate the landings and treads. Stairway illumination shall receive primary power from the building wiring. The light source shall be capable of illuminating treads and landings to levels not less than 1 foot-candle (11 lux) measured at the center of treads and landings. There shall be a wall switch at each floor level to control the light source where the stairway has six or more risers.

EXCEPTION: A switch is not required where remote, central or automatic control of lighting is provided.

**R303.8 Exterior stairway illumination.** Exterior stairways shall be provided with an artificial light source located at the top landing of the stairway. Stairway illumination shall receive primary power from the building wiring. Exterior stairways providing access to a basement from the outdoor grade level shall be provided with an artificial light source located at the bottom landing of the stairway.

**R303.9 Required glazed openings.** Required glazed openings shall open directly onto a street or public alley, or a yard or court located on the same lot as the building.

EXCEPTIONS:

1. Required glazed openings that face into a roofed porch where the porch abuts a street, yard or court are permitted where the longer side of the porch is not less than 65 percent unobstructed and the ceiling height is not less than 7 feet (2134 mm).
2. Eave projections shall not be considered as obstructing the clear open space of a yard or court.
3. Required glazed openings that face into the area under a deck, balcony, bay or floor cantilever are permitted where an unobstructed pathway of not less than 36 inches (914 mm) in height, 36 inches (914 mm) in width, and no greater than 60 inches (1524 mm) in length is provided and opens to a yard or court. The pathway shall be measured from the exterior face of the glazed opening, or if the glazed opening is in a window well, at the window well wall furthest from the exterior face of the glazed opening.

**R303.10 Required heating.** When the winter design temperature in Table R301.2(1) is below 60°F (16°C), every *dwelling unit* shall be provided with heating facilities capable of maintaining a minimum room temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all habitable rooms at design temperature. The installation of one or more portable heaters shall not be used to achieve compliance with this section.

EXCEPTION: Unheated recreational tents or yurts not exceeding 500 square feet provided it is not occupied as a permanent dwelling.

**R303.10.1 Definitions.** For the purposes of this section only, the following definitions apply.

**DESIGNATED AREAS** are those areas designated by a county to be an urban growth area in chapter 36.70A RCW and those areas designated by the U.S. Environmental Protection Agency as being in nonattainment for particulate matter.

**SUBSTANTIALLY REMODELED** means any alteration or restoration of a building exceeding 60 percent of the appraised value of such building within a 12 month period. For the purpose of this section, the appraised value is the estimated cost to replace the building and structure in kind, based on current replacement costs.

**R303.10.2 Primary heating source.** Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

**R303.10.3 Solid fuel burning devices.** No new or used solid fuel burning device shall be installed in new or existing buildings unless such device is U.S. Environmental Protection Agency certified or exempt from certification by the United States Environmental Protection Agency and conforms with RCW ((~~70.94.011, 70.94.450, 70.94.453, and 70.94.457~~)) 70A.15.1005, 70A.15.3500, 70A.15.3510, and 70A.15.3530.

EXCEPTIONS:      1. Wood cook stoves.  
                    2. Antique wood heaters manufactured prior to 1940.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0303, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0303, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0303, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0303, filed 1/20/10, effective 7/1/10; WSR 04-01-109, § 51-51-0303, filed 12/17/03, effective 7/1/04.]

## NEW SECTION

### **WAC 51-51-0309 Section R309—Garages and carports.**

#### **R309.6 Electric vehicle charging.**

**R309.6.1 Application.** The provisions of this section shall apply to the construction of new dwelling units per Section R101.2 with attached private garages or attached private carports.

EXCEPTION:      Where there is no public utility or commercial power supply.

**R309.6.2 Dedicated circuit for electric vehicle charging.** A minimum of one 40-ampere dedicated 208/240-volt branch circuit shall be installed in the electrical panel for each dwelling unit.

The branch circuit shall terminate at a junction box, receptacle outlet, or electric vehicle charging equipment.

[ ]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-03100 Section 310—Emergency escape and rescue openings.**

**R310.1 Emergency escape and rescue opening required.** Basements, habitable attics and every sleeping room shall have not less than one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, an emergency escape and rescue opening shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court providing an unobstructed path with a width of not less than 36 inches (914 mm) that opens to a public way.

EXCEPTIONS:

1. Storm shelters and basements used only to house mechanical equipment not exceeding a total floor area of 200 square feet (18.58 m).
2. Where the *dwelling unit* or *townhouse unit* is equipped with an automatic sprinkler system installed in accordance with Section P2904, sleeping rooms in basements shall not be required to have emergency escape and rescue openings provided that the basement has one of the following:
  - 2.1. One means of egress complying with Section R311 and one emergency escape and rescue opening.
  - 2.2. Two means of egress complying with Section R311.
3. A yard shall not be required to open directly into a public way where the yard opens to an unobstructed path from the yard to the public way. Such path shall have a width of not less than 36 inches (914 mm). The following shall not be considered obstructions:
  - 3.1. Gates with operational constraints and opening control devices without the use of keys, tools, or special knowledge.
  - 3.2. Window wells equipped with a removable cover complying with Section R310.4.4.

~~((R310.1.1 Operational constraints and opening control devices. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools, or special knowledge. Window opening control devices on windows serving as a required emergency escape and rescue opening shall be not more than 70 inches (177.8 cm) above the finished floor and shall comply with ASTM F2090.))~~

**R310.2.4 Emergency escape and rescue openings under decks ((and)), porches, and cantilevers.** Emergency escape and rescue openings installed under decks ((and)), porches, and cantilevers shall be fully operable and provided with an unobstructed pathway of not less than 36 inches (914 mm) in height, 36 inches (914 mm) in width, and no greater than 60 inches (1524 mm) in length that opens to a yard or court. The pathway shall be measured from the exterior face of the glazed opening, or if the glazed opening is in a window well, at the window well wall furthest from the exterior face of the glazed opening.

**R310.5 Replacement windows for emergency escape and rescue openings.**  
This section is not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-03100, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-03100, filed 1/6/20, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-03111 Section R311—Means of egress.**

**R311.4 Vertical egress.** Egress from habitable levels including habitable attics and basements not provided with an egress door in accordance with Section R311.2 shall be by ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

EXCEPTION: ((Stairs)) Stairways, alternating tread devices, ship's ladders, or ladders within an individual dwelling unit or sleeping unit used for access to areas of 200 square feet (18.6 m<sup>2</sup>) or less, ((and not containing the primary bathroom or kitchen)) are exempt from the requirements of Sections R311.4 and R311.7, where such devices do not provide exclusive access to a kitchen or bathroom. Such areas shall not be located more than 10 feet (3048 mm) above the finished floor of the space below.

~~((R311.7.3 Vertical rise. A flight of stairs shall not have a vertical rise larger than 12 feet 7 inches (3835 mm) between floor levels or landings.))~~

**R311.7.11 Alternating tread devices.** Alternating tread devices shall not be used as an element of a means of egress. Alternating tread devices shall be permitted provided that a required means of egress stairway or ramp serves the same space at each adjoining level or where a means of egress is not required. The clear width at and below the handrails shall be not less than 20 inches (508 mm).

EXCEPTION: Not adopted.

**R311.7.12 Ship's ladders.** Ship's ladders shall not be used as an element of a means of egress. Ship's ladders shall be permitted provided that a required means of egress stairway or ramp serves the same space at each adjoining level or where a means of egress is not required. The clear width at and below the handrails shall be not less than 20 inches.

EXCEPTION: Not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0311, filed 1/6/20, effective 7/1/20; WSR 10-03-098, § 51-51-0311, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0311, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-109, § 51-51-0311, filed 12/17/03, effective 7/1/04.]

## NEW SECTION

### **WAC 51-51-0312 Section R312—Guards and window fall protection.**

**R312.1.1 Where required.** *Guards* shall be provided for those portions of open-sided walking surfaces, including mezzanines, *lofts* in accordance with Section R333, stairs, ramps, and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or *grade* below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a *guard*.

**R312.1.2 Height.** Required *guards* at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the *nosings*.

EXCEPTIONS:

- Guards* on the open sides of stairs shall have a height of not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings*.
- Where the top of the *guard* serves as a handrail on the open sides of stairs, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the *nosings*.
- In areas with ceiling heights of 7 feet (2134 mm) or less in *lofts* constructed in accordance with Section R333, *guards* shall not be less than 36 inches (914 mm) in height or one-half of the clear height from the *loft* floor to the *loft* ceiling, whichever is less.

[ ]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0313 Section R313—Automatic fire sprinkler systems.**

**R313.1 Townhouse automatic fire sprinkler systems.** An automatic residential fire sprinkler system shall be installed in a townhouse unit.

EXCEPTIONS: 1. An automatic residential fire sprinkler system shall not be required where additions or alterations are made to an existing *townhouse unit* that does not have an automatic residential fire sprinkler system installed.  
2. *Townhouse* buildings containing no more than four *townhouse units*.

**R313.1.1 Design and installation.** Automatic residential fire sprinkler systems for a townhouse unit shall be designed and installed in accordance with Section P2904 or NFPA 13D.

**R313.2 One- and two-family dwellings automatic (~~fire~~) sprinkler systems.** This section is not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0313, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0313, filed 1/11/16, effective 7/1/16. Statutory Authority: Chapter 19.27 RCW. WSR 10-18-036, § 51-51-0313, filed 8/25/10, effective 9/25/10. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0313, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0313, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-109, § 51-51-0313, filed 12/17/03, effective 7/1/04.]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-0314 Section R314—Smoke alarms and heat detection.**

**R314.1 General.** Smoke alarms, heat detectors, and heat alarms shall comply with NFPA 72 and this section.

**R314.1.1 Listings.** Smoke alarms shall be listed in accordance with UL 217. Heat detectors and heat alarms shall be listed for the intended application. Combination smoke and carbon monoxide alarms shall be listed in accordance with UL 217 and UL 2034.

**R314.2 Where required.** Smoke alarms, heat detectors, and heat alarms shall be provided in accordance with this section.

**R314.2.1 New construction.** Smoke alarms shall be provided in *dwelling units*. A heat detector or heat alarm shall be provided in new attached garages.

**R314.2.2 Alterations, repairs and additions.** Where *alterations, repairs* or *additions* requiring a permit occur, or where one or more sleeping rooms are added or created in existing dwellings, or where an accessory dwelling unit is created within an existing *dwelling unit*, each *dwelling unit* shall be equipped with smoke alarms as required for new dwellings.

EXCEPTIONS: 1. Work involving the exterior surfaces of *dwellings*, such as the replacement of roofing or siding, the *addition* or replacement of windows or doors, or the addition of a porch or deck are exempt from the requirements of this section.  
2. Installation, *alteration* or repairs of plumbing, electrical or mechanical systems are exempt from the requirements of this section.

**R314.2.3 New attached garages.** A heat detector or heat alarm rated for the ambient outdoor temperatures and humidity shall be installed in new garages that are attached to or located under new and existing dwellings. Heat detectors and heat alarms shall be installed in a central location and in accordance with the manufacturer's instructions.

EXCEPTION: Heat detectors and heat alarms shall not be required in dwellings without commercial power.

**R314.3 Location.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room (~~(or sleeping loft)~~).
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section R314.3.
5. In napping areas in a family home child care.
6. In the hallway and in the room open to the hallway in dwelling units where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches (610 mm) or more.
7. Within the room to which a loft is open, in the immediate vicinity of the loft.

**R314.4 Interconnection.** Where more than one smoke alarm is required to be installed within an individual *dwelling unit* in accordance with Section R314.2, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual *dwelling unit*. Where an accessory *dwelling unit* is created within an existing *dwelling unit* all required smoke alarms, in the accessory *dwelling unit* and the primary *dwelling unit*, shall be interconnected in such a manner that the actuation of one alarm will activate all alarms in both the primary *dwelling unit* and the accessory *dwelling unit*. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

EXCEPTION: Smoke alarms and alarms installed to satisfy Section R314.4.1 shall not be required to be interconnected to existing smoke alarms where such existing smoke alarms are not interconnected or where such new smoke alarm or alarm is not capable of being interconnected to the existing smoke alarms.

**R314.4.1 Heat detection interconnection.** Heat detectors and heat alarms shall be connected to an alarm or a smoke alarm that is installed in the *dwelling*. Alarms and smoke alarms that are installed for this purpose shall be located in a hallway, room, or other location that will provide occupant notification.

**R314.6 Power source.** Smoke alarms, heat alarms, and heat detectors shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.



- EXCEPTIONS:
1. Smoke alarms shall be permitted to be battery operated where installed in buildings without commercial power.
  2. Smoke alarms installed in accordance with Section R314.2.2 shall be permitted to be battery powered.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-0314, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-0314, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0314, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0314, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0314, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0326 Section R326—Habitable attic.**

**R326.1 General.** *Habitable attics* shall comply with Sections R326 through R326.4.

EXCEPTION: Lofts in dwelling units and sleeping units shall be permitted to comply with Section R333, subject to the limitations in Section R333.1.

~~(**R326.2 Minimum dimensions.** A *habitable attic* shall have a minimum floor area in accordance with Section R304 and a ceiling height in accordance with Section R305.~~

~~**R326.3 Story above grade plane.** A *habitable attic* shall be considered a story above grade plane.~~

EXCEPTION: A *habitable attic* shall not be considered a story above grade plane provided that the *habitable attic* meets all the following requirements:

1. The aggregate area of the *habitable attic* is not greater than one-half of the floor area of the story below.
2. The *habitable attic* is located within a dwelling unit equipped with a fire sprinkler system in accordance with Section P2904 or NFPA 13D.
3. The occupiable space is enclosed by the roof assembly above, knee walls (if applicable) on the sides and the floor-ceiling assembly below.
4. The floor of the *habitable attic* shall not extend beyond the exterior walls of the story below.

~~**R326.4 Means of egress.** The means of egress for *habitable attics* shall comply with the applicable provisions of Section R311.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0326, filed 1/6/20, effective 7/1/20. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0326, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0326, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0327 ((Section R327—Sleeping lofts.)) Section R327—Swimming pools, spas, and hot tubs.**

~~(**R327.1 General.** *Sleeping lofts* shall comply with Sections R327 through R327.5.~~

~~**R327.2 Sleeping loft area and dimensions.** *Sleeping lofts shall meet the minimum area and dimension requirements of Sections R327.2.1 through R327.2.3.*~~

~~**R327.2.1 Area.** *Sleeping lofts shall have a floor area of not less than 35 square feet (3.25 m<sup>2</sup>) and less than 70 square feet (6.5 m<sup>2</sup>).*~~

~~**R327.2.2 Minimum horizontal dimensions.** *Sleeping lofts shall be not less than 5 feet (1524 mm) in any horizontal dimension.*~~

~~**R327.2.3 Height effect on sleeping loft area.** *Portions of a sleeping loft with a sloped ceiling measuring less than 3 feet (914 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required area for the loft but shall contribute to the maximum allowable area.*~~

~~EXCEPTION: Under gable roofs with a minimum slope of 6 units vertical in 12 units horizontal (50 percent slope), portions of a *sleeping loft* with a sloped ceiling measuring less than 16 inches (406 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required area for the *sleeping loft* but shall contribute to the maximum allowable area.~~

~~**R327.3 Sleeping loft access and egress.** *The access to and primary egress from sleeping lofts shall be of any type described in Sections R327.3.1 through R327.3.5 and shall meet the sleeping loft where the sleeping loft's ceiling height is not less than 3 feet (914 mm) along the entire width of the access and egress component.*~~

~~**R327.3.1 Stairways.** *Stairways accessing sleeping lofts shall comply with Sections R327.3.1.1 through R327.3.1.7.*~~

~~**R327.3.1.1 Headroom.** *The headroom above the sleeping loft access and egress shall be not less than 6 feet 2 inches (1880 mm), as measured vertically, from a sloped line connecting the tread, landing, or landing platform nosing's in the center of their width, and vertically from the landing or landing platform along the center of its width.*~~

~~**R327.3.1.2 Width.** *Stairways accessing a sleeping loft shall not be less than 17 inches (432 mm) in clear width at or above the handrail. The width below the handrail shall be not less than 20 inches (508 mm).*~~

~~**R327.3.1.3 Treads and risers.** *Risers for stairs accessing a sleeping loft shall be not less than 7 inches (178 mm) and not more than 12 inches (305 mm) in height. Tread depth and riser height shall be calculated in accordance with one of the following formulas:*~~

~~1. *Under gable roofs with a minimum slope of 6 units vertical in 12 units horizontal (50 percent slope), portions of a sleeping loft with a sloped ceiling measuring less than 16 inches (406 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required area for the sleeping loft but shall contribute to the maximum allowable area.*~~

~~2. *The tread depth shall be 20 inches (508 mm) minus four-thirds of the riser height.*~~

~~**R327.3.1.4 Landings.** *Intermediate landings and landings at the bottom of stairways shall comply with Section R311.7.6, except that the depth in the direction of travel shall be not less than 24 inches (508 mm).*~~

~~**R327.3.1.5 Landing platforms.** *The top tread and riser of stairways accessing sleeping lofts shall be constructed as a landing platform where the loft ceiling height is less than 6 feet 2 inches (1880 mm) where the stairway meets the sleeping loft. The landing platform shall be not less than 18 inches (508 mm) in width and in depth measured horizontally from and perpendicular to the nosing of the landing plat-*~~

form. The landing platform riser height to the edge of the *sleeping loft* floor, shall not be greater than 18 inches (406 to 457 mm) in height.

**~~R327.3.1.6 Handrails.~~** Handrails shall comply with Section R311.7.8.

**~~R327.3.1.7 Stairway guards.~~** Guards at open sides of stairways, landings, and landing platforms shall comply with Section R312.1.

**~~R327.3.2 Ladders.~~** Ladders accessing *sleeping lofts* shall comply with Sections R326.3.2.1 and R326.3.2.2.

**~~R327.3.2.1 Size and capacity.~~** Ladders accessing *sleeping lofts* shall have a rung width of not less than 12 inches (305 mm), and 10 inch (254 mm) to 14 inch (356 mm) spacing between rungs. Ladders shall be capable of supporting a 300 pound (136 kg) load on any rung. Rung spacing shall be uniform within 3/8 inch (9.5 mm).

**~~R327.3.2.2 Incline.~~** Ladders shall be installed at 70 to 80 degrees from horizontal.

**~~R327.3.3 Alternating tread devices.~~** Alternating tread devices accessing *sleeping lofts* shall comply with Sections R311.7.11.1 and R311.7.11.2. The clear width at and below the handrails shall be not less than 20 inches (508 mm).

**~~R327.3.4 Ships ladders.~~** Ships ladders accessing *sleeping lofts* shall comply with Sections R311.7.12.1 and R311.7.12.2. The clear width at and below handrails shall be not less than 20 inches (508 mm).

**~~R327.4 Sleeping loft guards.~~** *Sleeping loft* guards shall be located along the open side(s) of *sleeping lofts*. *Sleeping loft* guards shall be not less than 36 inches (914 mm) in height or one-half of the clear height to the ceiling, whichever is less. *Sleeping loft* guards shall comply with Section R312.1.3 and Table R301.5 for their components.

**~~R327.5 Emergency escape and rescue openings.~~** An egress roof access window shall be installed in each *sleeping loft* and shall be deemed to meet the requirements of Section R310 where installed such that the bottom of the opening is not more than 44 inches (1118 mm) above the *sleeping loft* floor, provided the egress roof access window complies with the minimum opening area requirements of Section R310.2.1.)

**R327.1 General.** The design and construction of swimming pools, spas, and other aquatic recreation facilities shall comply with the 2021 International Swimming Pool and Spa Code, if the facility is one of the following:

1. For the sole use of residents and invited guests at a single-family dwelling;
2. For the sole use of residents and invited guests of a duplex owned by the residents; or
3. Operated exclusively for physical therapy or rehabilitation and under the supervision of a licensed medical practitioner.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0327, filed 1/6/20, effective 7/1/20. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0327, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0328** (~~(Section R328—Swimming pools, spas, and hot tubs.)~~) **Section R328—Energy storage systems.**

~~(**R328.1 General.** The design and construction of swimming pools, spas, and other aquatic recreation facilities shall comply with the 2018 International Swimming Pool and Spa Code, if the facility is one of the following:~~

- ~~1. For the sole use of residents and invited guests at a single-family dwelling;~~
- ~~2. For the sole use of residents and invited guests of a duplex owned by the residents; or~~
- ~~3. Operated exclusively for physical therapy or rehabilitation and under the supervision of a licensed medical practitioner.)~~

**R328.2 Equipment listings.** ESS shall be *listed* and *labeled* for residential use in accordance with UL 9540.

EXCEPTIONS:

1. Where approved, repurposed unlisted battery systems from electric vehicles are allowed to be installed outdoors or in detached sheds located not less than 5 feet (1524 mm) from exterior walls, property lines, and public ways.
2. Battery systems that are an integral part of an electric vehicle are allowed provided that the installation complies with Section 625.48 of NFPA 70.
3. Battery systems less than 1 kWh (3.6 megajoules).

**R328.12 Commissioning.** ESS shall be commissioned as follows:

1. Verify that the system is installed in accordance with the approved plans and manufacturer's instructions and is operating properly.
2. Provide a copy of the manufacturer's installation, operation, maintenance, and decommissioning instructions provided with the listed system.
3. Provide a label on the installed system containing the contact information for the qualified maintenance and service providers.

**R328.12.1 Installation prior to closing.** Where the system is installed in a one- or two-family dwelling or townhouse unit that is owned by the builder and has yet to be sold, commissioning shall be conducted as outlined in Section R328.12, and the builder shall then transfer the required information in Section R328.12 to the homeowner when the property is transferred to the owner at the closing.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0328, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0328, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0328, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0329** (~~(Section R329—Energy storage systems.)~~) **Reserved.**

~~(**R329.1 General.** Energy storage systems (ESS) shall comply with the provisions of this section.~~

**R329.2 Equipment listings.** ~~ESS shall be listed and labeled for residential use in accordance with UL 9540.~~

## EXCEPTIONS:

1. Where approved, repurposed unlisted battery systems from electric vehicles are allowed to be installed outdoors or in detached sheds located not less than 5 feet (1524 mm) from exterior walls, property lines and public ways.
2. Battery systems that are an integral part of an electric vehicle are allowed provided that the installation complies with Section 625.48 of NFPA 70.
3. Battery systems less than 1 kWh (3.6 megajoules).

**R329.3 Installation.** ~~ESS shall be installed in accordance with the manufacturer's instructions and their listing, if applicable, and shall not be installed within the habitable space of a dwelling unit.~~

**R329.4 Electrical installation.** ~~ESS shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction.~~

**R329.5 Ventilation.** ~~Indoor installations of ESS that include batteries that produce hydrogen or other flammable gases during charging shall be provided with ventilation in accordance with Section M1307.4.~~

**R329.6 Commissioning.** ~~ESS shall be commissioned as follows:~~

1. ~~Verify that the system is installed in accordance with the approved plans and manufacturer's instructions and is operating properly.~~

2. ~~Provide a copy of the manufacturer's installation, operation, maintenance, and decommissioning instructions provided with the listed system.~~

3. ~~Provide a label on the installed system containing the contact information for the qualified maintenance and service providers.~~

**R329.6.1 Installation prior to closing.** ~~Where the system is installed in a one- or two-family dwelling or townhouse unit that is owned by the builder and has yet to be sold, commissioning shall be conducted as outlined in Section R329.6, and the builder shall then transfer the required information in Section R329.6 to the homeowner when the property is transferred to the owner at the closing.~~

**R329.7 Protection from impact.** ~~ESS installed in a location subject to vehicle damage shall be protected by approved barriers.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0329, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0329, filed 1/11/16, effective 7/1/16.]

NEW SECTION**WAC 51-51-0333 Section R333—Lofts.**

**R333.1 General.** Where provided in dwelling units or sleeping units, lofts shall comply with this code as modified by Sections R333.1 through R333.5. Lofts constructed in compliance with this section shall be considered a portion of the story below. Such lofts shall not contribute to the number of stories as regulated by this code.

## EXCEPTION:

- Lofts need not comply with Section R333 where they meet any of the following conditions:
1. The loft has a maximum depth of less than 3 feet (914 mm).
  2. The loft has a floor area of less than 35 square feet (3.3 m<sup>2</sup>).
  3. The loft is not provided with a permanent means of egress.

**R333.2 Loft limitations.** Lofts shall comply with the following conditions:

1. The loft floor area shall be less than 70 square feet (6.5 m<sup>2</sup>).
2. The loft ceiling height shall not exceed 7 feet (2134 mm) for more than one half of the loft floor area.

The provisions of Sections R333.3 through R333.5 shall not apply to lofts that do not comply with Items 1 and 2 of this section.

**R333.3 Loft ceiling height.** The ceiling height below a loft shall not be less than 7 feet (2134 mm). The ceiling height above the finished floor of the loft shall not be less than 3 feet (914 mm). Portions of the loft with a sloped ceiling measuring less than 3 feet (914 mm) from the finished floor to the finished ceiling shall not contribute to the loft floor area.

**R333.4 Loft area.** The aggregate area of all lofts and mezzanines within a room shall comply with Section R325.3.

EXCEPTION: The area of a single loft located within a dwelling unit or sleeping unit equipped with an automatic sprinkler system in accordance with Section P2904 shall not be greater than two-thirds of the area of the room in which it is located, provided that no other lofts or mezzanines are open to the room in which the loft is located.

**R333.5 Permanent egress for lofts.** Where a permanent means of egress is provided for lofts, the means of egress shall comply with Section R311 as modified by Section R333.5.1.

**R333.5.1 Ceiling height at loft means of egress.** A minimum ceiling height of 3 feet shall be provided for the entire width of the means of egress from the loft.

[]

#### NEW SECTION

#### **WAC 51-51-0334 Section R334—Stationary fuel cell power systems.**

**R334.1 General.** Stationary fuel cell power systems in new and existing buildings and structures shall comply with Section 1206 of the *International Fire Code*.

[]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

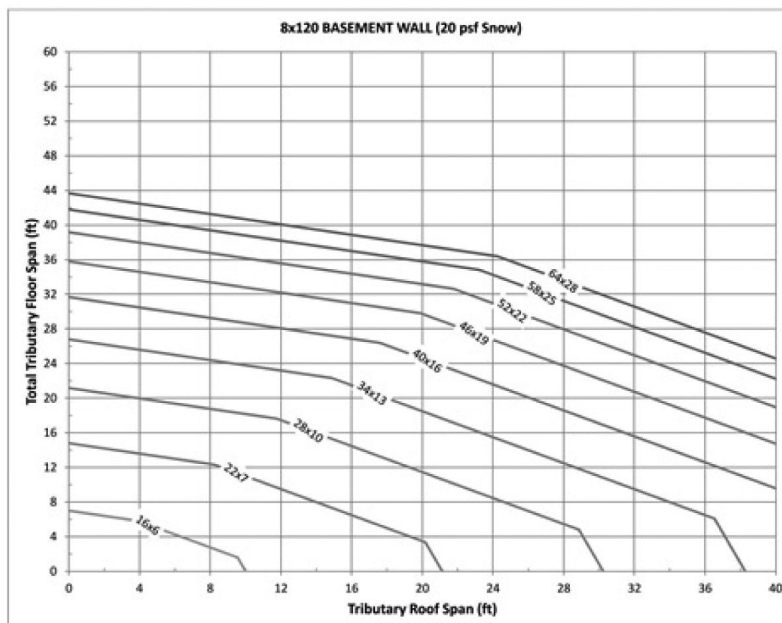
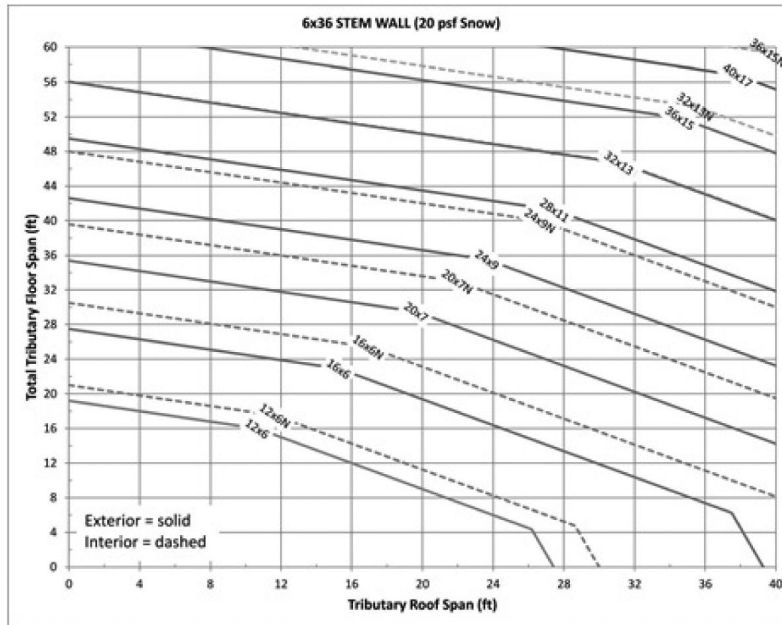
#### **WAC 51-51-0403 Section R403—Footings.**

**R403.1.1 Minimum size.** The minimum width, W, and thickness, T, for concrete footings shall be in accordance with Tables R403.1(1) through R403.1(3) and Figure R403.1(1) or R403.1.3, as applicable, but not less than 12 inches (305 mm) in width and 6 inches (152 mm) in depth. The footing width shall be based on the load-bearing value of the soil in accordance with Table R401.4.1. Footing projections, P, shall be not less than 2 inches (51 mm) and shall not exceed the thickness of the footing. Footing thickness and projection for fireplaces shall be

in accordance with Section R1001. The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table R401.4.1. Footings for wood foundations shall be in accordance with the details set forth in Section R403.2, and Figures R403.1(2) and R403.1(3). Footings for precast foundation shall be in accordance with the details set forth in Section R403.4, Table R403.4, and Figures R403.4(1) and R403.4(2).

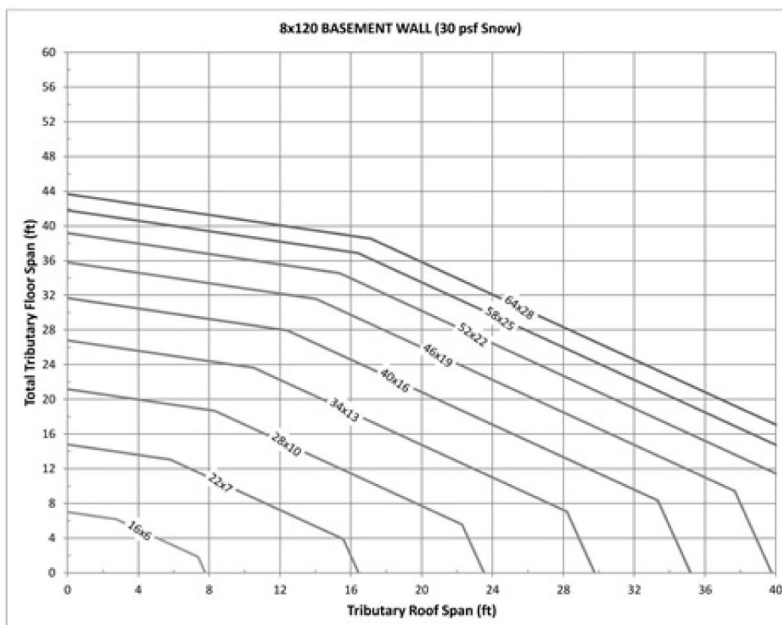
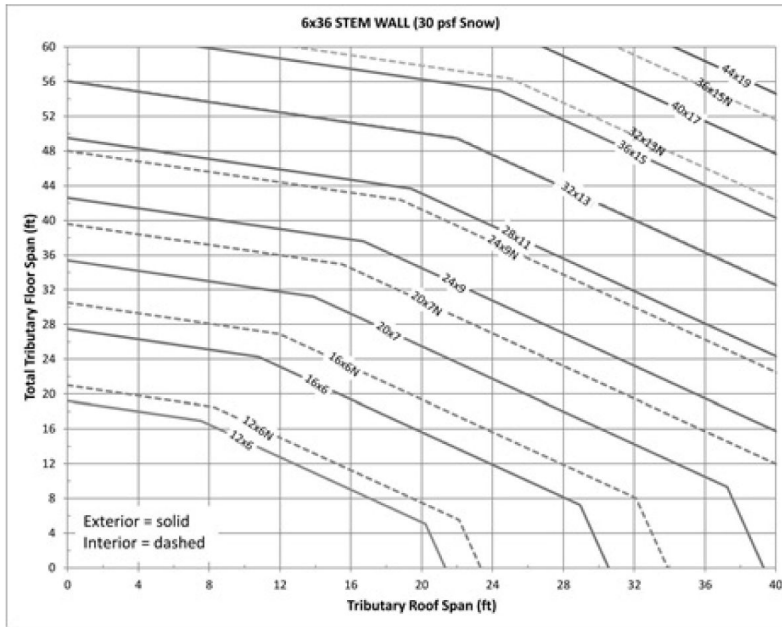
EXCEPTION: Light-frame construction shall be permitted to have minimum footing size in accordance with Figures R403.1.1(1) through R403.1.1(4) in lieu of that determined by Table R403.1(1).

Figure R403.1.1(1)  
Alternative Minimum Footing Size for Light-Frame Construction  
a, b, c, d, e, f, g, h, i  
20 PSF Snow Load



- Notes:
- a The minimum footing size is based on the following assumptions: Material weights per Section R301.2.2.2.1 and soil density = 120 pcf. Wood framed walls = 10 foot; crawlspace stem wall = 6 inches × 36 inches; basement wall = 8 inches × 120 inches. Total load (TL) equal to the maximum of three load combinations: LC1=D+L, LC2=D+S and LC3=D+0.75(L+S), where D=dead load, L=live load, S=snow load. TL=max(LC1, LC2, LC3).
  - b Use tributary span of floor and roof. Figure may be used to size exterior and interior footings.
  - c Add 4 feet to tributary floor span for each wood framed wall above first level (i.e., 4' for 2-story, 8' for 3-story).
  - d Multiply floor span by 1.25 for interior footings supporting continuous joists.
  - e Multiply footing width by (1500 psf/capacity) for soil capacity other than 1500 psf. See Section R403.1.1 for thickness.
  - f Dashed line may be used for interior footing size only.
  - g Use footing size indicated on line above the span combination used.
  - h For span combinations above the upper line, a design professional is required.
  - i Interpolation between footing sizes is allowed. Extrapolation is not allowed.

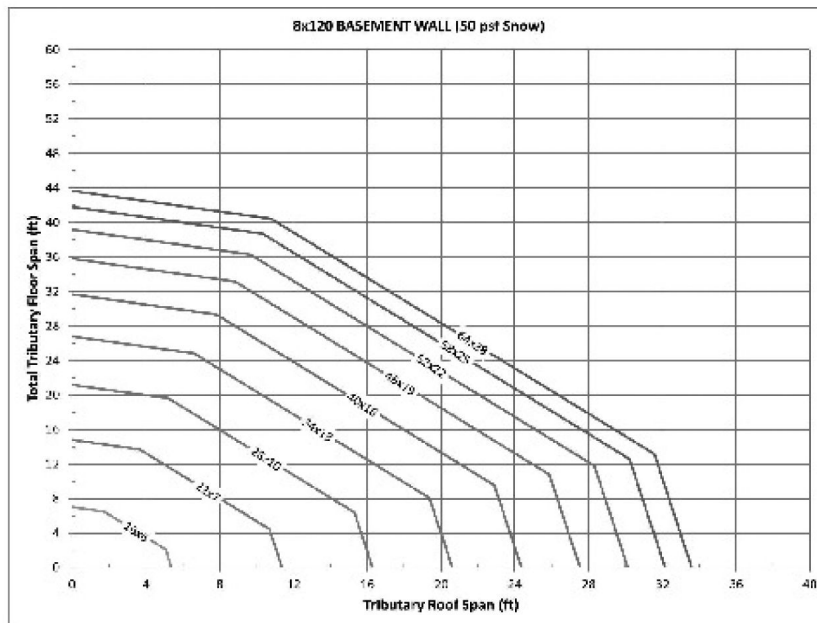
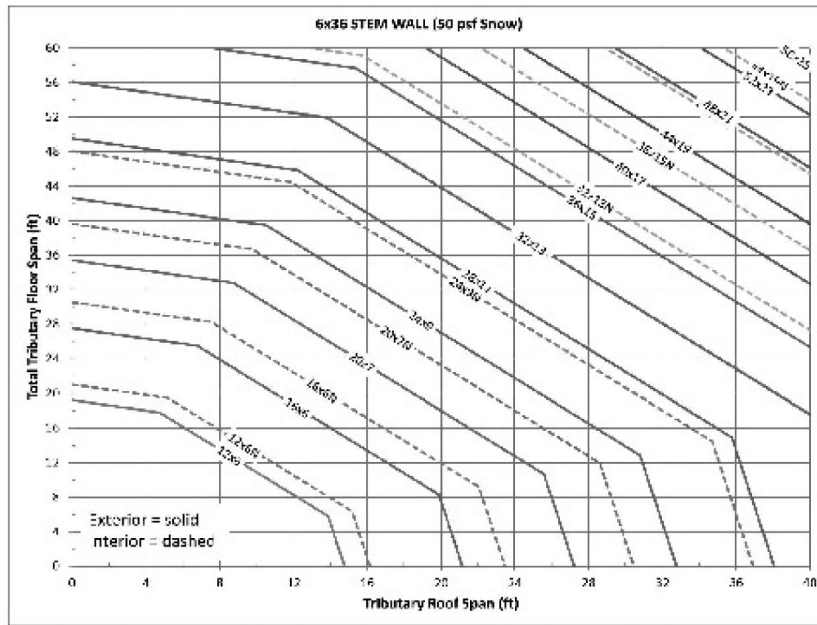
Figure R403.1.1(2)  
 Alternative Minimum Footing Size for Light-Frame Construction  
 a, b, c, d, e, f, g, h, i  
 30 PSF Snow Load





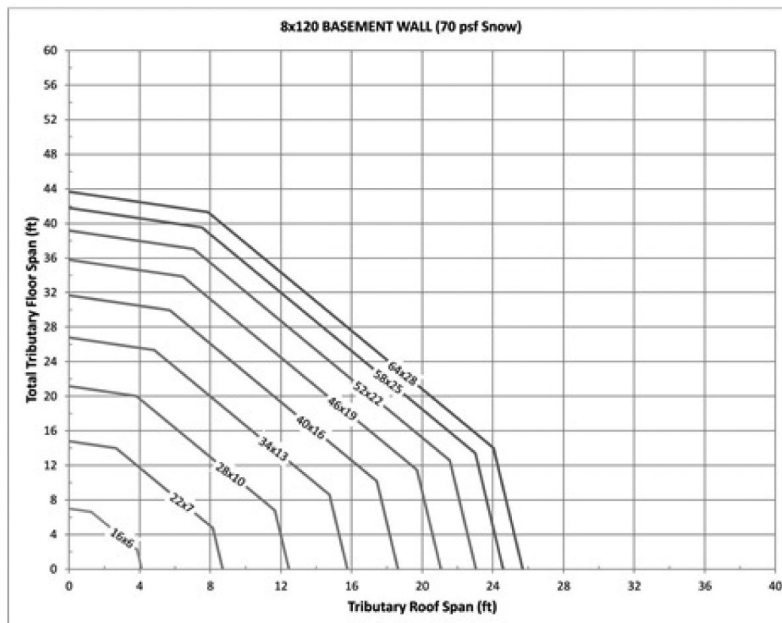
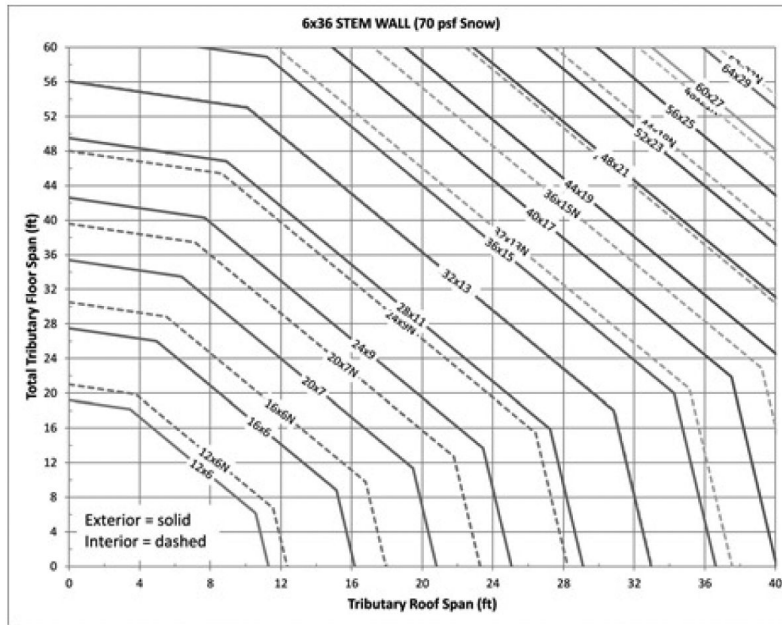
- Notes:
- a The minimum footing size is based on the following assumptions: Material weights per Section R301.2.2.1 and soil density = 120 pcf. Wood framed walls = 10 foot; crawlspace stem wall = 6 inches × 36 inches; basement wall = 8 inches × 120 inches. Total load (TL) equal to the maximum of three load combinations: LC1=D+L, LC2=D+S and LC3=D+0.75(L+S), where D=dead load, L=live load, S=snow load. TL=max(LC1, LC2, LC3).
  - b Use tributary span of floor and roof. Figure may be used to size exterior and interior footings.
  - c Add 4 feet to tributary floor span for each wood framed wall above first level (i.e., 4' for 2-story, 8' for 3-story).
  - d Multiply floor span by 1.25 for interior footings supporting continuous joists.
  - e Multiply footing width by (1500 psf/capacity) for soil capacity other than 1500 psf. See Section R403.1.1 for thickness.
  - f Dashed line may be used for interior footing size only.
  - g Use footing size indicated on line above the span combination used.
  - h For span combinations above the upper line, a design professional is required.
  - i Interpolation between footing sizes is allowed. Extrapolation is not allowed.

Figure R403.1.1(3)  
 Alternative Minimum Footing Size for Light-Frame Construction  
 a, b, c, d, e, f, g, h, i  
 50 PSF Snow Load



- Notes:
- a The minimum footing size is based on the following assumptions: Material weights per Section R301.2.2.2.1 and soil density = 120 pcf. Wood framed walls = 10 foot; crawlspace stem wall = 6 inches × 36 inches; basement wall = 8 inches × 120 inches. Total load (TL) equal to the maximum of three load combinations: LC1=D+L, LC2=D+S and LC3=D+0.75(L+S), where D=dead load, L=live load, S=snow load. TL=max(LC1, LC2, LC3).
  - b Use tributary span of floor and roof. Figure may be used to size exterior and interior footings.
  - c Add 4 feet to tributary floor span for each wood framed wall above first level (i.e., 4' for 2-story, 8' for 3-story).
  - d Multiply floor span by 1.25 for interior footings supporting continuous joists.
  - e Multiply footing width by (1500 psf/capacity) for soil capacity other than 1500 psf. See Section R403.1.1 for thickness.
  - f Dashed line may be used for interior footing size only.
  - g Use footing size indicated on line above the span combination used.
  - h For span combinations above the upper line, a design professional is required.
  - i Interpolation between footing sizes is allowed. Extrapolation is not allowed.

Figure R403.1.1(4)  
 Alternative Minimum Footing Size for Light-Frame Construction  
 a, b, c, d, e, f, g, h, i  
 70 PSF Snow Load



- Notes:
- a The minimum footing size is based on the following assumptions: Material weights per Section R301.2.2.2.1 and soil density = 120 pcf. Wood framed walls = 10 foot; crawlspace stem wall = 6 inches × 36 inches; basement wall = 8 inches × 120 inches. Total load (TL) equal to the maximum of three load combinations: LC1=D+L, LC2=D+S and LC3=D+0.75(L+S), where D=dead load, L=live load, S=snow load. TL=max(LC1, LC2, LC3).
  - b Use tributary span of floor and roof. Figure may be used to size exterior and interior footings.
  - c Add 4 feet to tributary floor span for each wood framed wall above first level (i.e., 4' for 2-story, 8' for 3-story).
  - d Multiply floor span by 1.25 for interior footings supporting continuous joists.
  - e Multiply footing width by (1500 psf/capacity) for soil capacity other than 1500 psf. See Section R403.1.1 for thickness.
  - f Dashed line may be used for interior footing size only.
  - g Use footing size indicated on line above the span combination used.
  - h For span combinations above the upper line, a design professional is required.
  - i Interpolation between footing sizes is allowed. Extrapolation is not allowed.

~~(R403.1.6 Foundation anchorage. Wood sill plates and wood walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section.~~

~~Cold-formed steel framing shall be anchored directly to the foundation or fastened to wood sill plates in accordance with Section R505.3.1 or R603.3.1, as applicable. Wood sill plates supporting cold-formed steel framing shall be anchored to the foundation in accordance with this section.~~

~~Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of braced wall panels at building interiors on monolithic slabs and all wood sill plates shall be anchored to the foundation with minimum 1/2-inch diameter (12.7 mm) anchor bolts spaced not greater than 6 feet (1829 mm) on center or approved anchors or anchor straps spaced as required to provide equivalent anchorage to 1/2-inch diameter (12.7 mm) anchor bolts. Bolts shall extend not less than 7 inches (178 mm) into concrete or grouted cells of concrete masonry units. The bolts shall be located in the middle third of the width of the plate. A nut and washer shall be tightened on each anchor bolt. There shall be not fewer than two bolts per plate section with one bolt located not more than 12 inches (305 mm) or less than seven bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundation that are not part of a braced wall panel shall be positively anchored with approved fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R317 and R318. Anchor bolts shall be permitted to be located while concrete is still plastic and before it has set. Where anchor bolts resist placement or the consolidation of concrete around anchor bolts is impeded, the concrete shall be vibrated to ensure full contact between the anchor bolts and concrete.~~

- EXCEPTIONS:
1. Walls 24 inches (610 mm) total length or shorter connecting offset braced wall panels shall be anchored to the foundation with not fewer than one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).
  2. Connection of walls 12 inches (305 mm) total length or shorter connecting offset braced wall panels to the foundation without anchor bolts shall be permitted. The wall shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).

~~**R404.1.3.3.6 Form materials and form ties.** Forms shall be made of wood, steel, aluminum, plastic, a composite of cement and foam insulation, a composite of cement and wood chips, or other approved material suitable for supporting and containing concrete. Forms shall be positioned and secured before placing concrete and shall provide sufficient strength to contain concrete during the concrete placement operation. Form ties shall be steel, solid plastic, foam plastic, a composite of cement and wood chips, a composite of cement and foam plastic, or other suitable material capable of resisting the forces created by fluid pressure of fresh concrete.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0403, filed 1/6/20, effective 7/1/20. Statutory Authority: RCW

19.27.031, 19.27.074 and chapter 19.27 RCW. WSR 19-03-036, § 51-51-0403, filed 1/7/19, effective 7/1/19. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-025, § 51-51-0403, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0403, filed 2/1/13, effective 7/1/13. Statutory Authority: Chapter 19.27 RCW. WSR 10-24-061, § 51-51-0403, filed 11/29/10, effective 7/1/11. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0403, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-103, § 51-51-0403, filed 12/18/07, effective 4/1/08. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0403, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-0404** (~~(Section R404—Foundation and retaining walls.)~~)  
**Reserved.**

~~((R404.1.3.3.6 Form materials and form ties. Forms shall be made of wood, steel, aluminum, plastic, a composite of cement and foam insulation, a composite of cement and wood chips, or other approved material suitable for supporting and containing concrete. Forms shall be positioned and secured before placing concrete and shall provide sufficient strength to contain concrete during the concrete placement operation.~~

~~Form ties shall be steel, solid plastic, foam plastic, a composite of cement and wood chips, a composite of cement and foam plastic, or other suitable material capable of resisting the forces created by fluid pressure of fresh concrete.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-0404, filed 10/13/20, effective 11/13/20; WSR 16-03-025, § 51-51-0404, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0404, filed 2/1/13, effective 7/1/13. Statutory Authority: Chapter 19.27 RCW. WSR 10-24-061, § 51-51-0404, filed 11/29/10, effective 7/1/11. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0404, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-102, § 51-51-0404, filed 12/18/07, effective 4/1/08. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0404, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 14-24-055, filed 11/25/14, effective 5/1/15)

**WAC 51-51-0408** **Section R408—Under-floor space.**

**R408.1 Ventilation.** The under-floor space between the bottom of the floor joists and the earth under any building (except space occupied by a basement) shall have ventilation openings through foundation

walls or exterior walls. A ground cover of six mil (0.006 inch thick) black polyethylene or approved equal shall be laid over the ground within crawl spaces. The ground cover shall be overlapped six inches minimum at the joints and shall extend to the foundation wall.

EXCEPTION: The ground cover may be omitted in crawl spaces if the crawl space has a concrete slab floor with a minimum thickness of two inches.

**R408.2 Openings for under-floor ventilation.** The minimum net area of ventilation openings shall not be less than 1 square foot (0.0929 m<sup>2</sup>) for each 300 square feet (28 m<sup>2</sup>) of under-floor area. Required openings shall be evenly placed to provide cross ventilation of the space except one side of the building shall be permitted to have no ventilation openings. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed 1/4 inch (6.4 mm), and operational louvers are permitted:

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grill or grating.
4. Extruded load-bearing brick vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension being 1/8 inch (3.2 mm).

EXCEPTION: The total area of ventilation openings shall be permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is covered with an approved Class I vapor retarder material and the required openings are placed to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited. If the installed ventilation is less than 1/300, or if operable louvers are installed, a radon vent shall be installed to originate from a point between the ground cover and soil. The radon vent shall be installed in accordance with the requirements of Appendix F (Radon) of this code.

**R408.3 Unvented crawl space.** Ventilation openings in under-floor spaces specified in Section (~~s R408.1 and~~) R408.2 shall not be required where:

1. Exposed earth is covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall; and a radon system shall be installed that meets the requirements of Appendix F (Radon) of this code.
2. Continuously operated mechanical exhaust ventilation is provided at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m<sup>2</sup>) of crawlspace floor area. Exhaust ventilation shall terminate to the exterior.

EXCEPTION: Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.

**R408.8 Under-floor vapor retarder.** This section is not adopted.

[Statutory Authority: RCW 19.27.074, 19.27.020, and 19.27.031. WSR 14-24-055, § 51-51-0408, filed 11/25/14, effective 5/1/15. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0408, filed 2/1/13, effective 7/1/13. Statutory Authority: Chapter 19.27 RCW. WSR 10-18-036, § 51-51-0408, filed 8/25/10, effective 9/25/10. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0408, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-0408, filed 12/19/06, effective 7/1/07.]

AMENDATORY SECTION (Amending WSR 21-16-006, filed 7/22/21, effective 8/22/21)

**WAC 51-51-0507 Section R507—Decks.**

~~(( **R507.1 Decks.** Wood-framed decks shall be in accordance with this section. Decks shall be designed for the live load required in Section R301.5 or the ground snow load indicated in Table R301.2(1), whichever is greater. For decks using materials and conditions not prescribed in this section, refer to Section R301.))~~

**TABLE R507.3.1  
MINIMUM FOOTING SIZE FOR DECKS**

LIVE OR GROUND SNOW LOAD (b) (psf)	TRIBUTARY AREA <sup>c</sup> (sq.ft.)	((SOIL-BEARING CAPACITY)) LOAD-BEARING VALUE OF SOILS <sup>acd</sup>								
		1500 psf			2000 psf			≥ 3000 psf		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)
60 Live or 70 Ground Snow Load	5	7	8	6	7	8	6	7	8	6
	20	12	14	6	11	13	6	9	10	6
	40	18	20	6	15	17	6	12	14	6
	60	21	24	8	19	21	6	15	17	6
	80	25	28	9	21	24	8	18	20	6
	100	28	31	11	24	27	9	20	22	7
	120	30	34	12	26	30	10	21	24	8
	140	33	37	13	28	32	11	23	26	9
	160	35	40	15	30	34	12	25	28	9

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m<sup>2</sup>, 1 pound per square foot = 0.0479 kPa.

- a. Interpolation permitted, extrapolation not permitted.
- b. Reserved.
- c. Footing dimensions shall allow complete bearing of the post.
- d. If the support is a brick or CMU pier, the footing shall have a minimum 2-inch projection on all sides.
- e. Area, in square feet, of deck surface supported by post and footings.
- f. Minimum thickness shall only apply to plain concrete footings.

**R507.4 Deck posts.** For single-level decks, wood post size shall be in accordance with Table R507.4.

**TABLE R507.4  
DECK POST HEIGHT**

LOADS <sup>b</sup> (psf)	POST SPECIES <sup>c</sup>	POST SIZE <sup>d</sup>	MAXIMUM DECK POST HEIGHT <sup>a</sup> (feet-inches)							
			Tributary Area <sup>g,h</sup> (sq. ft.)							
			20	40	60	80	100	120	140	160
60 Live Load, ≤60 Ground Snow Load	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>	4 x 4	14-0	10-10	8-7	7-0	5-8	4-1	NP	NP
		4 x 6	14-0	13-10	11-1	9-5	8-2	7-3	6-4	5-4
		6 x 6	14-0	14-0	14-0	14-0	14-0	13-3	10-9	6-11
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	4 x 4	14-0	10-3	7-0	NP	NP	NP	NP	NP
		4 x 6	14-0	13-6	10-6	8-4	5-10	NP	NP	NP
		6 x 6	14-0	14-0	14-0	14-0	11-11	NP	NP	NP
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0

LOADS <sup>b</sup> (psf)	POST SPECIES <sup>c</sup>	POST SIZE <sup>d</sup>	MAXIMUM DECK POST HEIGHT <sup>a</sup> (feet-inches)							
			Tributary Area <sup>g,h</sup> (sq. ft.)							
			20	40	60	80	100	120	140	160
70 Ground Snow Load	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>	4 x 4	14-0	10-1	7-11	6-6	5-3	3-7	NP	NP
		4 x 6	14-0	12-10	10-3	8-9	7-7	6-8	5-10	4-11
		6 x 6	14-0	14-0	14-0	14-0	14-0	12-2	9-9	5-9
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	4 x 4	14-0	9-5	6-5	NP	NP	NP	NP	NP
		4 x 6	14-0	12-6	9-8	7-7	5-3	NP	NP	NP
		6 x 6	14-0	14-0	14-0	14-0	10-8	NP	NP	NP
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m<sup>2</sup>, 1 pound per square foot = 0.0479 kPa, NP = Not permitted.

- a. Measured from the underside of the beam to top of footing or pier.
- b. 10 psf dead load. Snow load not assumed to be concurrent with live load.
- c. No. 2 grade, wet service factor included.
- d. Notched deck posts shall be sized to accommodate beam size per in accordance with Section R507.5.2.
- e. Includes incising factor.
- f. Incising factor not included.
- g. Area, in square feet, of deck surface supported by post and footing.
- h. Interpolation permitted. Extrapolation not permitted.

**R507.5 Deck beams.** Maximum allowable spans for wood deck beams, as shown in Figure R507.5, shall be in accordance with Table R507.5. Beam plies shall be fastened with two rows of 10d (3-inch x 0.128-inch) nails minimum at 16 inches (406 mm) on center along each edge. Beams shall be permitted to cantilever at each end up to one-fourth of the allowable beam span. Deck beams of other materials shall be permitted where designed in accordance with accepted engineering practices.

Tables R507.5(1) through R507.5(4) are not adopted.

**TABLE R507.5**  
**MAXIMUM DECK BEAM SPAN - 60 PSF LIVE LOAD or**  
**70 PSF GROUND SNOW LOAD<sup>c</sup>**

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	EFFECTIVE DECK JOIST SPAN LENGTH <sup>a,i</sup> (feet)						
		6	8	10	12	14	16	18
		MAXIMUM DECK BEAM SPAN LENGTH <sup>a,b,f</sup> (feet-inches)						
Douglas fir-larch <sup>g</sup> , Hem-fir <sup>g</sup> , Spruce-pine-fir <sup>g</sup>	1-2x6	3-5	2-10	2-5	2-2	2-0	1-10	1-9
	1-2x8	4-7	3-8	3-2	2-10	2-7	2-5	2-4
	1-2x10	5-8	4-9	4-1	3-8	3-4	3-1	2-11
	1-2x12	6-7	5-8	5-0	4-6	4-1	3-10	3-7
	2-2x6	5-2	4-6	4-0	3-5	3-1	2-10	2-7
	2-2x8	6-11	6-0	5-3	4-7	4-1	3-8	3-5
	2-2x10	8-5	7-4	6-6	5-10	5-2	4-9	4-5
	2-2x12	9-10	8-6	7-7	6-11	6-4	5-9	5-4
	3-2x6	6-6	5-7	5-0	4-7	4-2	3-9	3-5
	3-2x8	8-8	7-6	6-8	6-1	5-6	5-0	4-7
	3-2x10	10-7	9-2	8-2	7-6	6-11	6-4	5-10
	3-2x12	12-4	10-8	9-7	8-9	8-1	7-7	7-1

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	EFFECTIVE DECK JOIST SPAN LENGTH <sup>a,i</sup> (feet)						
		6	8	10	12	14	16	18
		MAXIMUM DECK BEAM SPAN LENGTH <sup>a,b,f</sup> (feet-inches)						
Redwood <sup>h</sup> , Western Cedars <sup>h</sup> , Ponderosa Pine <sup>h</sup> , Red Pine <sup>h</sup>	1-2×6	3-6	2-11	2-6	2-3	2-0	1-11	1-9
	1-2×8	4-6	3-10	3-3	2-11	2-8	2-6	2-4
	1-2×10	5-6	4-9	4-2	3-9	3-5	3-2	3-0
	1-2×12	6-4	5-6	4-11	4-6	4-2	3-11	3-8
	2-2×6	5-3	4-7	4-1	3-6	3-2	2-11	2-8
	2-2×8	6-8	5-9	5-2	4-8	4-2	3-10	3-6
	2-2×10	8-2	7-1	6-4	5-9	5-4	4-10	4-6
	2-2×12	9-5	8-2	7-4	6-8	6-2	5-9	5-5
	3-2×6	6-4	5-8	5-1	4-8	4-3	3-10	3-6
	3-2×8	8-4	7-3	6-5	5-11	5-5	5-1	4-8
	3-2×10	10-2	8-10	7-11	7-2	6-8	6-3	5-11
3-2×12	11-10	10-3	9-2	8-4	7-9	7-3	6-10	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

- a. Interpolation allowed. Extrapolation is not allowed.
- b. Beams supporting a single span of joists with or without cantilever.
- c. Dead load = 10 psf, L/Δ = 360 at mainspan, L/Δ = 180 at cantilever. Snow load not assumed to be concurrent with live load.
- d. No. 2 grade, wet service factor included.
- e. Beam depth shall be equal to or greater than the depth of intersecting joist for a flush beam connection.
- f. Beam cantilevers are limited to the adjacent beam's span divided by 4.
- g. Includes incising factor.
- h. Incising factor not included.
- i. Deck joist span as shown in Figure R507.5.
- j. For calculation of effective joist span, the actual joist span length shall be multiplied by the joist span factor in accordance with Table R507.5(5).

**R507.6 Deck joists.** Maximum allowable spans for wood deck joists, as shown in Figure R507.6, shall be in accordance with Table R507.6. The maximum joist spacing shall be limited by the decking materials in accordance with Table R507.7.

TABLE R507.6  
MAXIMUM DECK JOIST SPANS

LOAD <sup>a</sup> (psf)	JOIST SPECIES <sup>b</sup>	JOIST SIZE	ALLOWABLE JOIST SPAN <sup>b,c</sup> (feet-inches)			MAXIMUM CANTILEVER <sup>f,g</sup> (feet-inches)							
			Joist Spacing (inches)			Adjacent Joist Back Span <sup>g</sup> (feet)							
			12	16	24	4	6	8	10	12	14	16	18
60 Live Load or 70 Ground Snow Load	Douglas fir-larch <sup>e</sup> , Hem-fir <sup>e</sup> , Spruce-pine-fir <sup>e</sup>	2×6	7-11	7-1	5-9	1-0	1-6	NP	NP	NP	NP	NP	NP
		2×8	10-5	9-5	7-8	1-0	1-6	2-0	2-1	NP	NP	NP	NP
		2×10	13-3	11-6	9-5	1-0	1-6	2-0	2-6	2-8	NP	NP	NP
		2×12	15-5	13-4	10-11	1-0	1-6	2-0	2-6	3-0	3-3	NP	NP
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	2×6	7-4	6-8	5-10	1-0	1-4	NP	NP	NP	NP	NP	NP
		2×8	9-8	8-10	7-4	1-0	1-6	1-11	NP	NP	NP	NP	NP
		2×10	12-4	11-0	9-0	1-0	1-6	2-0	2-6	2-6	NP	NP	NP
		2×12	14-9	12-9	10-5	1-0	1-6	2-0	2-6	3-0	3-0	NP	NP

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg, NP = Not permitted.

- a. Dead load = 10 psf dead load. Snow load not assumed to be concurrent with live load.
- b. No. 2 grade, wet service factor included.
- c. L/Δ = 360 at main span.
- d. L/Δ = 180 at cantilever with 220-pound point load applied to end.
- e. Includes incising factor.
- f. Incising factor not included.
- g. Interpolation permitted. Extrapolation not permitted.

**R507.9.1.2 Band joist details.** Band joists supporting a ledger shall be a minimum 2-inch-nominal (51 mm), solid-sawn, spruce-pine-fir or better lumber or minimum 1-inch (25 mm) nominal engineered wood rim boards in accordance with Section R502.1.7. Band joists shall bear



fully on the primary structure capable of supporting all required loads.

**TABLE R507.9.1.3(1)  
DECK LEDGER CONNECTION TO BAND JOIST**

LOAD <sup>c</sup> (psf)	JOIST SPAN <sup>a</sup> (feet)	On-CENTER SPACING OF FASTENERS <sup>b</sup> (inches)		
		1/2-inch diameter lag screw with 1/2-inch maximum sheathing <sup>d,e</sup>	1/2-inch diameter bolt with 1/2-inch maximum sheathing <sup>e</sup>	1/2-inch diameter bolt with 1-inch maximum sheathing <sup>f</sup>
60 Live Load or 70 Ground Snow Load	6	22	36	35
	8	16	31	26
	10	13	25	21
	12	11	20	17
	14	9	17	15
	16	8	15	13
	18	7	13	11

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

- a. Interpolation permitted. Extrapolation is not permitted.
- b. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.
- c. Dead load = 10 psf. Snow load shall not be assumed to act concurrently with live load.
- d. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- e. Sheathing shall be wood structural panel or solid sawn lumber.
- f. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to 1/2-inch thickness of stacked washers shall be permitted to substitute for up to 1/2 inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

**R507.9.2 Deck lateral load connections.** Lateral loads shall be transferred to the ground or to a structure capable of transmitting them to the ground. Where the lateral load connection is provided in accordance with Figure R507.9.2(1), hold-down tension devices shall be installed in not less than two locations per deck, within 24 inches of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1500 pounds (6672 N). Where the lateral load connections are provided in accordance with Figure R507.9.2(2), the hold-down tension devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds (3336 N).

EXCEPTION: Decks not more than 30 inches above grade at any point may be unattached.

**TABLE R507.9.1  
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS**

MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS				
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger <sup>a</sup>	2 inches <sup>d</sup>	3/4 inch	2 inches <sup>b</sup>	1 5/8 inches <sup>b</sup>
Band joist <sup>c</sup>	3/4 inch	2 inches <sup>e</sup>	2 inches <sup>b</sup>	1 5/8 inches <sup>b</sup>

For SI: 1 inch = 25.4 mm.

- a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1(1).
- b. Maximum 5 inches.
- c. For engineered rim joists, the manufacturer's recommendations shall govern.
- d. The minimum distance from bottom row of lag screws to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).
- e. The 2 inches may be reduced to 3/4 inch when the band joist is directly supported by a mudsill, a header or by double top wall plates.

TABLE R507.9.3(1)  
DECK LEGER CONNECTION TO BAND JOIST

LOAD <sup>c</sup> (psf)	JOIST SPAN <sup>a</sup> (feet)	1/2-inch diameter leg screw with 1/2-inch maximum sheathing <sup>d,e</sup>	1/2-inch diameter bolt with 1/2-inch maximum sheathing <sup>e</sup>	1/2-inch diameter bolt with 1-inch maximum sheathing <sup>f</sup>
		ON-CENTER SPACING OF FASTENERS <sup>b</sup> (inches)		
60 Ground Snow Load	6	25	36	36
	8	18	35	30
	10	15	28	24
	12	12	23	20
	14	10	20	17
	16	9	17	15
	18	8	15	13
70 Ground Snow Load	6	22	36	35
	8	16	31	26
	10	13	25	21
	12	11	20	17
	14	9	17	15
	16	8	15	13
	18	7	13	11

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

- a. Interpolation permitted. Extrapolation not permitted.
- b. Legers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.
- c. Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.
- d. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- e. Sheathing shall be wood structural panel or solid sawn lumber.
- f. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to 1/2 inch thickness of stacked washers shall be permitted to substitute for up to 1/2 inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-16-006, § 51-51-0507, filed 7/22/21, effective 8/22/21; WSR 20-21-041, § 51-51-0507, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-0507, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0507, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0507, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-03-023, filed 1/6/20, effective 7/1/20)

**WAC 51-51-0608 ((Section 608 Exterior concrete wall construction.)) Reserved.**

~~((R608.1 General. Exterior concrete walls shall be designed and constructed in accordance with the provisions of this section or in accordance with the provisions of PCA 100, ACI 318, or ACI 332. Where PCA 100, ACI 318, or ACI 332, or the provisions of this section are used to design concrete walls, project drawings, typical details and~~

~~specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the jurisdiction having authority.~~

~~**R608.5.1 Concrete and materials for concrete.** Materials used in concrete, and the concrete itself, shall conform to requirements of this section, PCA 100, ACI 318, or ACI 332.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-03-023, § 51-51-0608, filed 1/6/20, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-0703 Section R703—Exterior covering.**

**R703.1.1 Water resistance.** The exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer as required by Section R703.2 and a means of draining water that enters the assembly to the exterior. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section R702.7 of this code.

**EXCEPTIONS:**

1. A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapter 6 and flashed according to Section R703.4 or R703.8.
2. Compliance with the requirements for a means of drainage, and the requirements of Sections R703.2 and R703.4, shall not be required for an exterior wall envelope that has been demonstrated to resist wind-driven rain through testing of the exterior wall envelope, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
  - 2.1. Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.
  - 2.2. Exterior wall envelope test assemblies shall be at least 4 feet (1219 mm) by 8 feet (2438 mm) in size.
  - 2.3. Exterior wall assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (299Pa).
  - 2.4. Exterior wall envelope assemblies shall be subjected to a minimum test exposure duration of 2 hours.

~~((The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope; joints at the perimeter of opening penetration; or intersections of terminations with dissimilar materials.))~~
3. The requirement for a means of drainage shall not be construed to mean an air space cavity under the exterior cladding for an exterior wall clad with panel or lapped siding made of plywood, engineered wood, hardboard, or fiber cement. A water-resistive barrier as required by Section R703.2 will be required on exterior walls.

~~((**R703.2 Water-resistive barrier.** Not fewer than one layer of water-resistive barrier shall be applied over studs or sheathing with flashing as indicated in Section R703.4, in such a manner as to provide a continuous water resistive barrier behind the exterior wall veneer. Water-resistive barrier materials shall comply with one of the following:~~

- ~~1. No. 15 felt complying with ASTM D226, Type 1.~~
- ~~2. ASTM E2556, Type 1 or 2.~~
- ~~3. ASTM E331 in accordance with Section R703.1.1; or~~
- ~~4. Other approved materials in accordance with the manufacturer's installation instructions.~~

~~**R703.4 Flashing.** Approved corrosion-resistant flashing shall be applied shingle-fashion in a manner to prevent entry of water into the wall cavity or penetration of water to the building structure framing components. Self-adhered membranes used as flashing shall comply with AAMA 711. Fluid-applied membranes used as flashing in exterior walls shall comply with AAMA 714. The flashing shall extend to the surface of the exterior wall finish. Approved corrosion-resistant flashing shall be installed at all of the following locations:~~

~~1. Exterior window and door openings. Flashing at exterior window and door openings shall extend to the surface of the exterior wall finish or to the water resistive barrier complying with Section 703.2 for subsequent drainage. Mechanically attached flexible flashings shall comply with AAMA 712.~~

~~2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.~~

~~3. Under and at the ends of masonry, wood or metal copings and sills.~~

~~4. Continuously above all projecting wood trim.~~

~~5. Where exterior porches, decks or stairs attach to a wall or floor assembly of wood frame construction.~~

~~6. At wall and roof intersections.~~

~~7. At built-in gutters.))~~

The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope; joints at the perimeter of opening penetration; or intersections of terminations with dissimilar materials.

**R703.10.2 Lap siding.** Fiber-cement lap siding having a maximum width of 12 inches (305 mm) shall comply with the requirements of ASTM C 1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2. Lap siding shall be lapped a minimum of 1 1/4 inches (32 mm) and lap siding shall be installed in accordance with the manufacturer's installation instructions or shall be designed to comply with Section R703.1. Lap siding courses shall be installed with the fastener heads exposed or concealed, in accordance with Table R703.3(1) or approved manufacturer's instructions.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-0703, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-0703, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0703, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0703, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-0703, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-102, § 51-51-0703, filed 12/18/07, effective 4/1/08.]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-1503 Section M1503—Domestic cooking exhaust equipment.**

**M1503.2.1 Open-top broiler exhaust.** Domestic open-top broiler units shall be provided with a metal exhaust hood, having a minimum thickness of 0.0157 inch (0.3950 mm) (No. 28 gage). Such hoods shall be installed with a clearance of not less than 1/4 inch (6.4 mm) between the hood and the underside of combustible material or cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and the combustible material or cabinets.

The hood width shall not be less than the width of the broiler unit and shall extend over the entire unit.

EXCEPTIONS: 1. Broiler units that incorporate an integral exhaust system, and that are listed and labeled for use without an exhaust hood, shall not be required to have an exhaust hood.  
2. Broiler units permanently installed outside the building envelope and having the cooking surface at least 5 feet below a 1-hour fire resistance rated ceiling shall not be required to have an exhaust hood.

**M1503.3 Exhaust discharge.** Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct shall have a smooth interior surface, shall be airtight, shall be equipped with a back-draft damper and shall be independent of all other exhaust systems. Ducts serving domestic cooking exhaust equipment shall not terminate in an attic or crawl space or areas inside the building.

EXCEPTION: Where installed in accordance with the manufacturer's instructions, and where continuous local exhaust is provided in an enclosed kitchen in accordance with Table M1505.4.4.1, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

**M1503.5 Kitchen exhaust rates.** Where domestic kitchen cooking appliances are provided with exhaust equipment, the fans shall be sized in accordance with Section M1505.4.4.1.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-1503, filed 10/13/20, effective 11/13/20.]

AMENDATORY SECTION (Amending WSR 20-12-027, filed 5/27/20, effective 7/1/20)

**WAC 51-51-1505 Section M1505—Mechanical ventilation.**

**M1505.1 General.** Where local exhaust or whole-house mechanical ventilation is provided, the ventilation system shall be designed in accordance with this section.

EXCEPTION: Alternate balanced whole-house ventilation systems and local exhaust systems designed and commissioned in accordance with ASHRAE 62.2 are permitted.

**M1505.4 Whole-house mechanical ventilation system.** Each dwelling unit shall be equipped with a ventilation system. The whole-house mechanical ventilation systems shall be designed in accordance with Sections M1505.4.1 through M1505.4.4.

**M1505.4.1 System design.** The whole house ventilation system shall consist of one or more supply fans, one or more exhaust fans, or an ERV/HRV with integral fans, associated ducts and controls. Whole-house mechanical ventilation system (~~with~~) supply and exhaust fans (~~per~~) shall meet the requirements of Sections M1505.4.1.2, M1505.4.1.3, M1505.4.1.4, and M1505.4.1.5. Local exhaust fans are permitted to serve as part of the whole house ventilation system when provided with the proper controls (~~per~~) in accordance with Section M1505.4.2. The systems shall be designed and installed to exhaust and/or supply the minimum outdoor airflow rates (~~per~~) required by Section M1505.4.3 as modified by whole house ventilation system coefficients in Section M1505.4.3.1 where applicable. The whole house ventilation system shall operate continuously at the minimum ventilation rate (~~determined per~~) required by Section M1505.4.2 unless configured with intermittent off controls per Section M1505.4.3.2.

**M1505.4.1.1 Whole house system component requirements.** Whole house ventilation supply and exhaust fans specified in this section shall have a minimum efficacy as prescribed in the Washington State Energy Code. Design and installation of the system or equipment shall be car-

ried out in accordance with manufacturers' installation instructions. Whole house ventilation fans shall be rated for sound at no less than the minimum airflow rate required by Section M1505.4.3.1. Ventilation fans shall be rated for sound at a maximum of 1.0 sone. This sound rating shall be at a minimum of 0.1 in. w.c. (25 Pa) static pressure in accordance with HVI procedures specified in Sections M1505.4.1.2 and M1505.4.1.3.

EXCEPTION: HVAC air handlers, ERV/HRV units, and remote mounted fans need not meet the sound requirements. To be considered for this exception, a remote mounted fan must be mounted outside the habitable spaces, bathrooms, toilets, and hallways, and there must be at least 4 ft ((+)) 1.3 m) of ductwork between the fan and the intake grille.

The whole house supply fan shall provide ducted outdoor ventilation air to each habitable space within the residential unit.

EXCEPTION: Interior joining spaces provided with a 30 cfm whole house transfer fan or a permanent opening with an area of not less than 8 percent of the floor area of the interior adjoining space but not less than 25 square feet do not require ducted outdoor ventilation air to be supplied directly to the space. Whole house transfer fans shall meet the sone rating of Section M1505.4.1.1 and shall have whole house ventilation controls that comply with Section M1505.4.2.

**M1505.4.1.2 Exhaust fans.** Exhaust fans required shall be ducted directly to the outside. Exhaust air outlets shall be designed to limit the pressure difference to the outside and equipped with backdraft dampers or motorized dampers in accordance with the Washington State Energy Code. Exhaust fans shall be tested and rated in accordance with the airflow and sound rating procedures of the Home Ventilating Institute (HVI 915, HVI Loudness Testing and Rating Procedure, HVI 916, HVI Airflow Test Procedure, and HVI 920, HVI Product Performance Certification Procedure, as applicable). Exhaust fans required in this section may be used to provide local ventilation. Bathroom exhaust fans that are designed for intermittent exhaust airflow rates higher than the continuous exhaust airflow rates in Table ((M1505.4.3(3))) M1505.4.3.2 shall be provided with occupancy sensors or humidity sensors to automatically override the fan to the high speed airflow rate. The exhaust fans shall be tested and the testing results shall be submitted and posted in accordance with Section M1505.4.1.6.

**M1505.4.1.3 Supply fans.** Supply fans used in meeting the requirements of this section shall supply outdoor air from intake openings in accordance with IMC Sections 401.4 and 401.5. When designed for intermittent off operation, supply systems shall be equipped with motorized dampers in accordance with the Washington State Energy Code. Supply fans shall be tested and rated in accordance with the airflow and sound rating procedures of the Home Ventilating Institute (HVI 915, HVI Loudness Testing and Rating Procedure, HVI 916, HVI Airflow Test Procedure, and HVI 920, HVI Product Performance Certification Procedure, as applicable). Where outdoor air is provided by supply fan systems the outdoor air shall be filtered. The filter shall be accessible for regular maintenance and replacement. The filter shall have a Minimum Efficiency Rating Value (MERV) of at least 8.

**M1505.4.1.4 Balanced whole house ventilation system.** A balanced whole house ventilation system shall include both supply and exhaust fans. The supply and exhaust fans shall have airflow that is within 10 percent of each other. The tested and balanced total mechanical exhaust airflow rate is within 10 percent or 5 cfm, whichever is greater, of the total mechanical supply airflow rate. The flow rate test results shall be submitted and posted in accordance with Section M1505.4.1.7. The exhaust fan shall meet the requirements of Section M1505.4.1.2. The supply fan shall meet the requirements of Section M1505.4.1.3. Balanced ventilation systems with both supply and exhaust fans in a packaged product, such as an ERV/HRV shall meet the requirements of

HVI 920, as applicable. (~~Intermittent dryer exhaust, intermittent range hood exhaust, and intermittent toilet room exhaust airflow rates above the residential dwelling or sleeping unit minimum ventilation rate~~) Local exhaust systems that are not a component of the whole-house mechanical ventilation system are exempt from the balanced airflow calculation.

**M1505.4.1.5 Furnace integrated supply.** Systems using space heating and/or cooling air handler fans for outdoor air supply distribution are not permitted.

EXCEPTION: Air handler fans shall have multispeed or variable speed supply airflow control capability with a low speed operation not greater than 25 percent of the rated supply airflow capacity during ventilation only operation. Outdoor air intake openings must meet the provisions of Sections R303.5 and R303.6 and must include a motorized damper that is activated by the whole house ventilation system controller. The motorized damper must be controlled to maintain the outdoor airflow intake airflow within 10 percent of the whole house mechanical exhaust airflow rate. The flow rate for the outdoor air intake must be tested and verified at the minimum ventilation fan speed and the maximum heating or cooling fan speed. The results of the test shall be submitted and posted in accordance with Section M1505.4.1.7.

**M1505.4.1.6 Testing.** Whole-house mechanical ventilation systems shall be tested, balanced and verified to provide a flow rate not less than the minimum required by Sections M1505.4.3 and (~~M1505.4.4~~) M1505.4.4.1. Testing shall be performed according to the ventilation equipment manufacturer's instructions, or by using a flow hood, flow grid, or other airflow measuring device at the mechanical ventilation fan's inlet terminals, outlet terminals or grilles or in the connected ventilation ducts. Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official and be posted in the dwelling unit per Section M1505.4.1.7.

**M1505.4.1.7 Certificate.** A permanent certificate shall be completed by the mechanical contractor, test and balance contractor or other approved party and posted on a wall in the space where the furnace is located, a utility room, or an approved location inside the building. When located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels. The certificate shall list the flow rate determined from the delivered airflow of the whole-house mechanical ventilation system as installed and the type of mechanical whole house ventilation system used to comply with Section M1505.4.3.1.

**M1505.4.2 System controls.** The whole-house mechanical ventilation system shall be provided with controls that comply with the following:

1. The whole house ventilation system shall be controlled with manual switches, timers or other means that provide for automatic operation of the ventilation system that are readily accessible by the occupant;

2. Whole-house mechanical ventilation system shall be provided with controls that enable manual override off of the system by the occupant during periods of poor outdoor air quality. Controls shall include permanent text or a symbol indicating their function. Recommended control permanent labeling to include text similar to the following: "Leave on unless outdoor air quality is very poor." Manual controls shall be readily accessible by the occupant;

3. Whole house ventilation systems shall be configured to operate continuously except where intermittent off controls and sizing are provided per Section M1505.4.3.2.

**M1505.4.3 Mechanical ventilation rate.** The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate as determined in accordance with Table M1505.4.3(1) or Equation 15-1.

**Equation 15-1**

Ventilation rate in cubic feet per minute = (0.01 × total square foot area of house) + [7.5 × (number of bedrooms + 1)] but not less than 30 cfm for each dwelling unit

**Table M1505.4.3(1)  
Whole-House Mechanical Ventilation Airflow Rate**

Dwelling Unit Floor Area (square feet)	Number of Bedrooms				
	0 - 1	2	3	4	5 or more
	Airflow in cfm				
< 500	30	30	35	45	50
501 - 1,000	30	35	40	50	55
1,001 - 1,500	30	40	45	55	60
1,501 - 2,000	35	45	50	60	65
2,001 - 2,500	40	50	55	65	70
2,501 - 3,000	45	55	60	70	75
3,001 - 3,500	50	60	65	75	80
3,501 - 4,000	55	65	70	80	85
4,001 - 4,500	60	70	75	85	90
4,501 - 5,000	65	75	80	90	95

**M1505.4.3.1 Ventilation quality adjustment.** The minimum whole house ventilation rate from Section 1505.4.3 shall be adjusted by the system coefficient in Table M1505.4.3(2) based on the system type not meeting the definition of a *balanced whole house ventilation* system and/or not meeting the definition of a *distributed whole house ventilation* system.

$$Q_v = Q_r * C_{system}$$

**(Equation 15-2)**

Where:

- Q<sub>v</sub> = Quality-adjusted ventilation airflow rate in cubic feet per minute (cfm).
- Q<sub>r</sub> = Ventilation airflow rate, cubic feet per minute (cfm) from 15-1 or Table M1505.4.3(1).
- C<sub>system</sub> = System coefficient from Table 1505.4.3(2).

**Table M1505.4.3(2)  
System Coefficient (C<sub>system</sub>)**

System Type	Distributed	Not Distributed
Balanced	1.0	1.25
Not balanced	1.25	1.5

**M1505.4.3.2 Intermittent off operation.** Whole-house mechanical ventilation systems shall be provided with advanced controls that are configured to operate the system with intermittent off operation shall



operate for a least two hours in each four-hour segment. The whole house ventilation airflow rate determined in accordance with Section M1505.4.3 as corrected by Section M1505.4.3.1 is multiplied by the factor determined in accordance with Table ((M1505.4.3(3))) M1505.4.3.2.

**Table ((M1505.4.3(3))) M1505.4.3.2  
Intermittent Off Whole House-Mechanical Ventilation Rate Factors<sup>a,b</sup>**

Run-time % in Each 4-hour Segment	50%	66%	75%	100%
Factor <sup>a</sup>	2	1.5	1.3	1.0

a. For ventilation system run-time values between those given, the factors are permitted to be determined by interpolation.

b. Extrapolation beyond the table is prohibited.

**M1505.4.4 Local exhaust rates.** Local exhaust systems shall be designed to have the capacity to exhaust the minimum airflow rate determined in accordance with Table ((M1505.4.4(1))) M1505.4.4.1. If the local exhaust fan is included in the whole house ventilation system, in accordance with Section 1505.4.1, then the exhaust fan shall be controlled to operate as specified in Section M1505.4.2.

**M1505.4.4.1 Local exhaust.** Bathrooms, toilet rooms, and kitchens shall include a local exhaust system. Such local exhaust systems shall have the capacity to exhaust the minimum airflow rate in accordance with Table ((M1505.4.4(1))) M1505.4.4.1. Fans required by this section shall be provided with controls that enable manual override or automatic occupancy sensor, humidity sensor, timer controls, or pollutant sensor controls. An "on/off" switch shall meet this requirement for manual controls. Manual fan controls shall be readily accessible in the room served by the fan.

**Table ((M1505.4.4(1))) M1505.4.4.1  
Minimum Local Exhaust Rates**

Area to Be Exhausted	Exhaust Rates	
	Intermittent	Continuous
((Kitchens	100-cfm	30-cfm))
<u>Open Kitchens</u>	<u>In accordance with Section M1505.4.4.3</u>	<u>Not Permitted</u>
<u>Enclosed Kitchens</u>	<u>In accordance with Section M1505.4.4.3</u>	<u>5 ACH based on kitchen volume</u>
Bathrooms - Toilet rooms	50 cfm	20 cfm

**M1505.4.4.2 Local exhaust fans.** Exhaust fans shall meet the following criteria:

1. Exhaust fans shall be tested and rated in accordance with the airflow and sound rating procedures of the Home Ventilating Institute (HVI 915, HVI Loudness Testing and Rating Procedure, HVI 916, HVI Air-

flow Test Procedure, and HVI 920, HVI Product Performance Certification Procedure).

(EXCEPTION: Where a range hood or down draft exhaust fan is used for local exhaust for a kitchen, the device is not required to be rated per these standards.)

2. Fan airflow rating and duct system shall be designed and installed to deliver at least the exhaust airflow required by Table ((M1505.4.4(1-)) M1505.4.4.1. The airflows required refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measurement device. Local exhaust systems shall be tested, balanced, and verified to provide a flow rate not less than the minimum required by this section.

3. Design and installation of the system or equipment shall be carried out in accordance with manufacturers' installation instructions.

4. ((Fan airflow rating and duct system shall be designed and installed to deliver at least the exhaust airflow required by Table M1505.4.4(1-).)) Intermittent local exhaust systems serving kitchens shall be rated for sound at a maximum of 3 sones at one or more airflow settings not less than 100 cfm at a static pressure not less than that determined at working speed as specified in HVI 916 Section 7.2.

5. Continuous local exhaust systems serving kitchens shall be rated for sound at a maximum of 1 sones at one or more airflow settings not less than 100 cfm at a static pressure not less than that determined at working speed as specified in HVI 916 Section 7.2.

EXCEPTIONS: 1. The installed airflow is not required to be field-verified where an exhaust airflow rating at a pressure of 0.25 in. w.g. ((may-be)) is used, provided the duct sizing meets the prescriptive requirements of Table ((M1505.4.4(2)) M1505.4.4.2.  
 2. ((Where a range hood or down draft exhaust fan is used to satisfy the local ventilation requirements for kitchens, the range hood or down draft exhaust shall not be less than 100 cfm at 0.10 in. w.g.)) Remote mounted fans need not meet sound requirements. To be considered for this exception, a remote mounted fan shall be mounted outside the kitchen, and there shall be at least 4 feet (1 m) of ductwork between the fan and the intake grille.

**Table ((M1505.4.4(2)) M1505.4.4.2  
 Prescriptive Exhaust Duct Sizing**

Fan Tested cfm at 0.25 inches w.g.	Minimum Flex Diameter	Maximum Length in Feet	Minimum Smooth Diameter	Maximum Length in Feet	Maximum Elbows <sup>a</sup>
50	4 inches	25	4 inches	70	3
50	5 inches	90	5 inches	100	3
50	6 inches	No Limit	6 inches	No Limit	3
80	4 inches <sup>b</sup>	NA	4 inches	20	3
80	5 inches	15	5 inches	100	3
80	6 inches	90	6 inches	No Limit	3
100	5 inches <sup>b</sup>	NA	5 inches	50	3
100	6 inches	45	6 inches	No Limit	3
125	6 inches	15	6 inches	No Limit	3
125	7 inches	70	7 inches	No Limit	3

a. For each additional elbow, subtract 10 feet from length.

b. Flex ducts of this diameter are not permitted with fans of this size.

**M1505.4.4.3 Local intermittent kitchen exhaust system.** Kitchen range hoods for domestic cooking appliances shall meet or exceed either the minimum airflow or the minimum capture efficiency in accordance with Table M1505.4.4.3. Capture efficiency ratings shall be determined in accordance with ASTM E3087.

EXCEPTION: Other intermittent kitchen exhaust fans, including downdraft, shall meet or exceed 300 cfm airflow.

**Table M1505.4.4.3**  
**Kitchen Range Hood Airflow Rates**  
**(cfm) and ASTM E3087 Capture Efficiency (CE) Ratings According to**  
**Kitchen Range Fuel Type**

<b><u>Hood Over Electric Range</u></b>	<b><u>Hood Over Combustion Range</u></b>
60% CE or 160 cfm	80% CE or 250 cfm

**M1505.4.4.3.1 Field verification and diagnostic testing for local intermittent kitchen exhaust system.** The local exhaust system for kitchens shall be installed to comply with local mechanical exhaust requirements specified in Section M1505.4.4.3 and shall be field verified in accordance with the procedures below to confirm the model is rated by HVI or AHAM to comply with the following requirements:

1. Local intermittent exhaust systems for kitchens shall be tested and verified to provide a minimum airflow rate or capture efficiency required by Table M1505.4.4.3. Testing shall include verification of the maximum sound rating as specified in Section M1505.4.4.3.2. Testing for the intermittent kitchen exhaust systems shall occur with the whole house ventilation system operating and with all dwelling unit or sleeping unit entry doors closed. Testing for exhaust systems that require makeup air in accordance with Section M1503.6 shall include verifying that the mechanical makeup air system is controlled to automatically start. Testing for exhaust systems that do not require mechanical makeup air in accordance with Section M1503.6 and that are exempt from pressurize equalization shall be tested with operable openings manually opened unless design exhaust airflow can be achieved with all operable openings closed. Testing shall be performed according to the ventilation equipment manufacturer's instructions, or by using a flow hood, flow grid, or other airflow measuring device. Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official.

EXCEPTION: The installed airflow is not required to be field-verified where an exhaust airflow rating at a pressure of 0.25 in. w.g. is used, provided the duct sizing meets the prescriptive requirements of Table M1505.4.4.2.

2. The verification shall utilize certified rating data from the HVI Publication 911, AHAM-Certified Range Hood Directory, or another directory of certified product performance ratings approved by the code official for determining compliance. The verification procedure shall consist of visual inspection of the local intermittent kitchen exhaust system to verify and record the following information:

2.1. The manufacturer name and model number.

2.2. The model is listed in the HVI, AHAM, or equivalent directory.

2.3. The rated airflow value listed in the HVI, AHAM, or equivalent directory.

2.4. The sound rating value listed in the HVI, AHAM, or equivalent directory.

2.5. If the value for the rated airflow given in the directory is greater than or equal to the airflow requirements specified in Section M1505.4.4.3 and if the value for the sound rating given in the directory is less than or equal to the sound rating requirements specified in Section M1505.4.4.2, then the local intermittent kitchen exhaust sys-

tem complies, otherwise the local intermittent kitchen exhaust system does not comply.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-12-027, § 51-51-1505, filed 5/27/20, effective 7/1/20. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-025, § 51-51-1505, filed 1/11/16, effective 7/1/16.]

**Reviser's note:** The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 16-03-025, filed 1/11/16, effective 7/1/16)

**WAC 51-51-2101 Section M2101—Hydronic piping systems installation.**

**M2101.3 Protection of potable water.** The potable water system shall be protected from backflow in accordance with the provisions listed in Section 603 of the state plumbing code.

~~((M2101.7 Prohibited tee applications. This section is not adopted.))~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-025, § 51-51-2101, filed 1/11/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 16-03-025, filed 1/11/16, effective 7/1/16)

**WAC 51-51-2103 Section M2103—Floor heating systems.**

**M2103.3 Piping joints.** Copper and copper alloy systems shall be soldered in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.
2. Copper tubing shall be joined by brazing complying with Section ~~((605.3.1))~~ 605 of the state plumbing code.
3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.
4. CPVC tubing shall be joined using solvent cement joints.
5. Polypropylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.
6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.
7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-025, § 51-51-2103, filed 1/11/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 16-03-025, filed 1/11/16, effective 7/1/16)

**WAC 51-51-2105 Section M2105—Ground-source heat-pump system loop piping.**

**M2105.9 CPVC plastic pipe.** Joints between CPVC plastic pipe or fittings shall be solvent-cemented in accordance with Section ((605.2.2)) 605 of the state plumbing code. Threaded joints between fittings and CPVC plastic pipe shall be in accordance with Section M2105.9.1.

**M2105.14 PVC plastic pipe.** Joints between PVC plastic pipe or fittings shall be solvent-cemented in accordance with Section ((605.12.2)) 605 of the state plumbing code. Threaded joints between fittings and PVC plastic pipe shall be in accordance with Section M2105.9.1.

**M2105.18 Protection of potable water.** Where ground-source heat-pump ground-loop systems have a connection to a potable water supply, the potable water system shall be protected from backflow in accordance with Section 603 of the state plumbing code.

**M2105.19 Pipe penetrations.** Openings for pipe penetrations in walls, floors and ceilings shall be larger than the penetrating pipe. Openings through concrete or masonry building elements shall be sleeved. The annular space surrounding pipe penetrations shall be protected in accordance with Section 312 of the state plumbing code.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-025, § 51-51-2105, filed 1/11/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-4400 Referenced standards.**

**AHAM**

Association of Home Appliance Manufacturers  
1111 19th St N.W., #402  
Washington D.C. 20036

**HRH-2-2019: Household Range Hoods.**

M1505.4.4.2

**Certified Range Hood Directory**

M1505.4.4.3.1

**ANCE**

**NMX-J-521/2-40-ANCE—2019/CAN/CSA-22.2 No. 60335-2-40—19/UL 60335-2-40-2019 Household and Similar Electrical Appliances - Safety-Part 2-40: Particular Requirements for Electric Heat Pumps, Air-Conditioners and Dehumidifiers.**

M1403.1, M1412.1, M1413.1

**ANSI**

**LC 1/CSA 6.26—18: Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST).**

G2414.5.4, G2411.3, G2415.5

403.5.5

**ASHRAE**

**34—2019: Designation and Safety Classification of Refrigerants.**  
M1411.1

**62.2-2019: Ventilation and Acceptable Indoor Air Quality in Residential Buildings.**

M1505.1

**ASTM**

**E2556/E2556M-10: Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment.**  
M1411.1

**E2558-2013: Standard Test Method for Determining Particulate Matter Emissions from Fires in Wood-burning Fireplaces.**  
R1004.1.1

**E3087—18: Standard Test Method for Measuring Capture Efficiency of Domestic Range Hoods.**

M1505.4.4.3.2, Table M1505.4.4.3

**CSA**

**CAN/CSA/C22.2 No. 60335-2-40—2012 60335-2-40—2019**

**NMX-J-521/2-40-ANCE—2019/CAN/CSA-C22.2 No. 60335-2-40—19/UL 60335-2-40-2019 Household and Similar Electric Appliances, Part 2-40-Safety: Particular Requirements for Electric Heat Pumps, Air-Conditioners and Dehumidifiers.**  
M2006.1

**HVI**

**HVI Publication 911: Certified Home Ventilation Products Directory.**  
M1505.4.4.3.1

**HVI Publication 915 (2016 with 2020 Update): Procedure for Loudness Rating of Residential Fan Products.**

M1505.4.1.2, M1505.4.1.3, M1505.4.4.2

**HVI Publication 916 (2015 with 2020 Update): Air Flow Test Procedure.**

M1505.4.1.2, M1505.4.1.3, M1505.4.4.2

**HVI Publication 920 (2020): Product Performance Certification Procedure Including Verification and Challenge.**

M1505.4.1.2, M1505.4.1.3, M1505.4.1.5, M1505.4.4.2

**UL**

**UL/CSA/ANCE 60335-2-40—2019 Household and Similar Electrical Appliances Safety-Part 2-40: Particular Requirements for Electrical Heat Pumps, Air Conditioners and Dehumidifiers.**

M1403.1, M1412.1, M1413.1

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-4400, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-4400, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-4400, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-4400, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, amended and recodified as §

51-51-4400, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 07-01-090, § 51-51-4300, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-109, § 51-51-4300, filed 12/17/03, effective 7/1/04.]

NEW SECTION

**WAC 51-51-4501 Chapter 45—Existing buildings and structures.**

**R4501 Scope and purpose.**

**R4501.1 General.** *Repairs, alterations, additions, and relocation of existing buildings and structures shall comply with the provisions of this code for new construction, except as modified by this chapter. Structural elements and systems shall comply with Section R102.7.1 and the provisions of this chapter.*

[ ]

NEW SECTION

**WAC 51-51-4502 Section R4502—Compliance.**

**R4502.1 General.** The work shall not cause the building or structure to become unsafe or adversely affect the performance of the building; shall not cause an existing mechanical or plumbing system to become unsafe, hazardous, insanitary, or overloaded; and unless expressly permitted by these provisions, shall not make the building any less compliant with this code or to any previously approved alternative arrangements than it was before the work was undertaken.

**R4502.2 Structural.** Structural elements and systems that are altered, repaired, or replaced shall comply with the structural provisions of this chapter and of Chapter 3 through Chapter 10 of the *International Residential Code* unless noted otherwise.

**R4502.2.1 Minimum design loads.** The minimum design loads for the structure shall be the loads applicable at the time the building was constructed. The minimum design loads for the structural components shall comply with the *International Residential Code*. Structural elements that are uncovered during the course of the alteration and that are found to be unsafe shall be repaired in accordance with Section R102.7.1.

**R4502.2.2 Unreinforced masonry parapet bracing.** Unreinforced masonry buildings located in Seismic Design Category D<sub>0</sub>, D<sub>1</sub>, or D<sub>2</sub> shall have parapet bracing and wall anchors installed at the roofline whenever a reroofing permit is issued. Such parapet bracing and wall anchors shall be of an approved design unless an evaluation demonstrates compliance of the existing bracing and anchorage.

**R4502.3 Smoke alarms.** Smoke alarms shall be provided in accordance with Section R314.2.2.

**R4502.4 Carbon monoxide alarms.** Carbon monoxide alarms shall be provided in accordance with Section R315.2.2.

**R4502.5 Replacement windows.** Where an existing window, including the sash and glazed portion, or safety glazing is replaced, the replacement window or safety glazing shall comply with the requirements of Sections 4502.5.1 through 4502.5.5 as applicable.

**R4502.5.1 Energy efficiency.** Replacement windows shall comply with the requirements of the Washington State Energy Code-Residential.

**R4502.5.2 Safety glazing.** Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Section R308.

**R4502.5.3 Window fall protection.** Window fall protection shall be installed per Section R312.2.

EXCEPTION: Where only the window glazing is being replaced.

**R4502.5.4 Replacement windows for emergency escape and rescue openings.** Replacement windows shall be exempt from Sections R310.2 and R310.4.4, provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window is of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

2. The replacement window is not part of a change of use.

**R4502.5.5 Window opening control device and fall protection device height.** Window opening control devices or fall protection device shall be located at a height per Section R310.1.1 or at as low a height as can be installed within the existing clear opening.

**R4502.6 Flood hazard areas.** Work performed in existing buildings located in a flood hazard area as established by Table R301.2(1) shall be subject to the provisions of Section R105.3.1.1.

[]

#### NEW SECTION

#### **WAC 51-51-4503 Section R4503—Repairs.**

**R4503.1 General.** *Repairs* shall comply with the applicable provisions of the code for new construction or as permitted by this section. Work on undamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to requirements for *alterations*.

**R4503.2 Materials.** Materials used during *repairs* shall comply with this section.

**R4503.2.1 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by this code for new construction, shall be used. Like materials shall be permitted for *repairs*, provided that *unsafe* conditions are not created. Hazardous materials shall not be used where this code does not permit their use in buildings of similar occupancy, purpose, and location.



**R4503.2.2 Existing materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building official to be *unsafe*.

**R4503.2.3 Plumbing materials and supplies.** The following plumbing materials and supplies shall not be used:

1. All-purpose solvent cement, unless listed for the specific application.

2. Flexible traps and tailpieces, unless listed for the specific application.

3. Solder having more than 0.2-percent lead in the repair of potable water systems.

**R4503.3 Water closets.** Where any water closet is replaced with a newly manufactured water closet, the replacement water closet shall comply with the requirements of Uniform Plumbing Code Section 411.

**R4503.4 Structural.** Repaired structural elements and systems shall comply with Section R102.7.1 and the structural provisions of this chapter.

**R4503.5 Demolition and replacement.** Where a building or structure is effectively demolished by damage or where the intended method of repair is demolition and replacement, the replaced building, including its replaced foundation, shall comply with requirements for new construction in the *International Residential Code*.

EXCEPTION: Existing foundations are permitted to remain and be reused where approved by the code official.

[ ]

## NEW SECTION

### **WAC 51-51-4504 Section R4504—Alterations.**

**R4504.1 General.** *Alterations* to existing buildings shall comply with the provisions of this code for new construction, except as permitted by this section.

**R4504.2 Newly constructed elements.** Newly constructed elements, components, and systems shall comply with the requirements of this code.

EXCEPTION: Added openable windows are not required to comply with the light and ventilation requirements of Section R303.

**R4504.3 Nonconformities.** The work shall not increase the extent of noncompliance or create nonconformity to those requirements that did not previously exist.

**R4504.4 Structural.** Altered structural elements and systems shall comply with Section R102.7.1 and the structural provisions of this chapter. New elements shall meet all of the requirements of this code for new construction. Structural elements that are uncovered during the course of the alteration and that are found to be unsafe shall be repaired in accordance with Section R102.7.1.

**R4504.4.1 Decreased structural capacity.** Where an alteration causes a decrease in capacity in any structural component, that structural component shall be shown to comply or shall be altered to comply with the applicable provisions of Chapters 3, 4, 5, 6, and 8.

**R4504.4.2 Increased structural loads.** Where an alteration causes an increase in loads as described in this section, the existing structural components that support the increased load, including the foundation, shall be shown to comply or shall be altered to comply with the applicable provisions of Chapters 3, 4, 5, 6, and 8. Existing structural components that do not provide support for the increased loads shall not be required to comply with this section.

**R4504.4.2.1 Dead load increase.** Dead load shall be considered to be increased for purposes of this section when the weight of materials used for the alteration exceeds the weight of the materials replaced, or when new materials or elements are added.

EXCEPTIONS:

1. Buildings in which the increase in dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m<sup>2</sup>) or less over an existing single layer of roof covering.
2. Installation of rooftop-mounted photovoltaic (PV) panel systems weighing 4 pounds per square foot or less over an existing single layer of roof covering.

**R4504.4.2.2 Live load increase.** An increase in live load shall be determined based on Table R301.5.

**R4504.4.2.3 Snow load increase.** Snow load shall be considered to be increased for purposes of this section when alteration of the roof configuration creates new areas that accumulate drifted snow.

**R4504.4.2.4 Wind load increase.** Wind load shall be considered to be increased for purposes of this section when the surface area of any exterior elevation subject to wind pressure is increased by more than 5 percent.

**R4504.4.2.5 Seismic load increase.** Seismic load shall be considered to be increased for purposes of this section in *existing buildings* assigned to Seismic Design Category C, D<sub>0</sub>, D<sub>1</sub>, or D<sub>2</sub> where new materials replace lighter weight materials in one of the following conditions:

1. Concrete tile or tile roof covering of similar weight is installed on more than 50 percent of the total roof area.
2. Brick veneer or cladding of similar weight is installed on walls above the second story.

**R4504.5 Ventilation.** Reconfigured spaces intended for occupancy and spaces converted to habitable or occupiable space in any work area shall be provided with ventilation in accordance with Section R303.

**R4504.6 Ceiling height.** Where a habitable attic or habitable space in a basement is created in an existing building, ceiling height shall not be less than 6 foot 8 inches (2032 mm). Bathrooms, toilet rooms, and laundry rooms shall have a ceiling height of not less than 6 feet 4 inches (1931 mm).

EXCEPTIONS:

1. For rooms with sloped ceilings, the required floor area of the room shall have a ceiling height of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a ceiling height of not less than 6 feet 8 inches (2134 mm).
2. At beams, girders, ducts, or other obstructions, the ceiling height shall be not less than 6 feet 4 inches (1931 mm) from the finished floor.

**R4504.7 Stairways, handrails, and guards.** Stairs, handrails, and guards shall comply with this section.

**R4504.7.1 Stairway illumination.** Stairways within the work area shall be provided with illumination in accordance with Section R303.6.

**R4504.7.2 Stair width.** Existing stairs not otherwise being altered or modified shall be permitted to maintain their current clear width at, above and below existing handrails.

**R4504.7.3 Stair headroom.** Headroom height on existing stairs being altered or modified shall not be reduced below the existing stairway finished headroom. Existing stairs not otherwise being altered shall be permitted to maintain the current finished headroom.

**R4504.7.4 Stair landing.** Landings serving existing stairs being altered or modified shall not be reduced below the existing stairway landing depth and width. Existing stairs not otherwise being altered shall be permitted to maintain the current landing depth and width.

**R4504.7.5 Stair treads and risers.** An existing stairway shall not be required to comply with Section R311.7.5 where the existing space and construction does not allow a reduction in pitch or slope. Where risers are added to an existing stair, the tread and riser dimensions of the added risers shall match the existing stair.

**R4504.7.6 Handrails and guards.** Where a stair or any portion of a stair is reconstructed, a handrail and guard, where required, shall be provided in accordance with Section R311 and R312.

[]

#### NEW SECTION

#### **WAC 51-51-4505 Section R4505—Additions.**

**R4505.1 Additions to an existing building.** Additions shall comply with this section and other applicable provisions of this code for new construction.

**R4505.2 Structure for horizontal additions.** Where an addition involves new construction next to and attached to an existing building and includes alterations to the existing building, the *addition* shall meet all of the requirements of this code for new construction. Alterations to the existing building shall comply with the requirements governing alterations within this code. In wood light-frame additions, connection of the structural components shall be permitted to be provided using wall top plates and addition studs that abut the existing building. Wall top plates shall be lapped and spliced in accordance with Section R602.3.2. Abutting studs shall be fastened in accordance with Table R602.3(1).

EXCEPTION: The structural components of the *addition* shall be permitted to be connected to the existing building in accordance with accepted engineering practice.

**R4505.3 Structure for vertical additions.** Where an addition involves new construction that adds a story to any part of the existing building or vertically increases the height of any part of the existing building, the new construction and the existing building together shall meet all of the requirements of this code for new construction.

Exception: Where the new structure and the existing structure together are evaluated in accordance with accepted engineering practice and are shown to be sufficient to support the combined loads from the new structure and existing structure, no structural alterations are required.

[]

NEW SECTION**WAC 51-51-4506 Section R4506—Relocations.**

**R4506.1 Relocated buildings.** Residential buildings or structures moved into or within the jurisdiction are not required to comply with the requirements of this code if the original use classification of the building or structure is not changed. Any repair, alteration, or change of use undertaken within the relocated structure shall comply with the requirements of this code applicable to the work being performed.

[ ]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-60105 Appendix U— Dwelling unit fire sprinkler systems.** The design and installation of residential fire sprinkler systems shall be in accordance with the ((2018)) International Residential Code Section P2904 Dwelling Unit Fire Sprinkler Systems.

**P2904.1.1 Required sprinkler locations.** Sprinklers shall be installed to protect all areas of a dwelling unit.

EXCEPTIONS:

1. Uninhabitable attics, crawl spaces and normally unoccupied concealed spaces that do not contain fuel-fired appliances do not require sprinklers. In uninhabitable attics, crawl spaces and normally unoccupied concealed spaces that contain fuel-fired equipment, a sprinkler shall be installed above the equipment; however, sprinklers shall not be required in the remainder of the space.
2. Clothes closets, linen closets and pantries not exceeding 24 square feet (2.2 m<sup>2</sup>) in area, with the smallest dimension not greater than 3 feet (915 mm) and having wall and ceiling surfaces of gypsum board.
3. Bathrooms not more than 55 square feet (5.1 m<sup>2</sup>) in area.
4. Garages; carports; exterior porches; unheated entry areas, such as mud rooms, that are adjacent to an exterior door; and similar areas.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-60105, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-60105, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-60105, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-60105, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-098, § 51-51-60105, filed 1/20/10, effective 7/1/10.]

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

**WAC 51-51-60106 Appendix T—Solar-ready provisions-detached one- and two-family dwellings ((, multiple single-family dwellings ( )) and townhouses ( ))).** The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**AT101 Scope.**

((**AT101.1 General.** These provisions shall be applicable for new construction where solar-ready provisions are required.))

**AT102 General definitions.** Solar-ready zone. A section or sections of the roof or building overhang designated and reserved for the future installation of a solar photovoltaic or solar water-heating system.

**AT103 Solar ready zone.**

~~((AT103.1 General. New detached one- and two-family dwellings, and multiple single-family dwellings (townhouses) with not less than 600 square feet (55.74 m<sup>2</sup>) of roof area oriented between 90 degrees and 270 degrees of true north shall comply with Sections U103.2 through U103.10.~~

EXCEPTIONS: 1. New residential buildings with a permanently installed on-site renewable energy system.  
2. A building where all areas of the roof that would otherwise meet the requirements of Section AT103 are in full or partial shade for more than 70 percent of daylight hours annually.

~~**AT103.2 Construction document requirements for solar ready zone.** Construction documents shall indicate the solar ready zone.)~~

**AT103.3 Solar-ready zone area.** The total solar-ready zone area shall be not less than 300 square feet (27.87 m<sup>2</sup>) exclusive of mandatory access or set back areas as required by this code. New ~~((multiple single-family dwellings (-))~~ townhouses ~~(+))~~ three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m<sup>2</sup>) per dwelling shall have a solar-ready zone area of not less than 150 square feet (13.94 m<sup>2</sup>). The solar-ready zone shall be composed of areas not less than 5 feet (1.52 m) in width and not less than 80 square feet (7.44 m<sup>2</sup>) exclusive of access or set back areas as required in this code or the applicable provisions of the *International Fire Code*. No portion of the solar zone shall be located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

~~((AT103.4 Obstructions. Solar-ready zones shall be free from obstructions including, but not limited to, vents, chimneys, and roof-mounted equipment.~~

~~**AT103.5 Shading.** The solar-ready zone shall be set back from any existing or new permanently affixed object on the building or site that is located south, east, or west of the solar zone a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings.)~~

**AT103.6 Capped roof penetration sleeve.** A capped roof penetration sleeve shall be provided adjacent to a solar-ready zone when the solar-ready zone has a roof slope of 2:12 or less. The capped roof penetration sleeve shall be sized to accommodate the future photovoltaic system conduit, but shall have an inside diameter not less than 1 1/4 inches.

~~((AT103.7 Roof load documentation. The structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.~~

~~**AT103.8 Interconnection pathway.** Construction documents shall indicate pathways for routing of conduit or plumbing from the solar-ready zone to the electrical service panel or service hot water system.~~

~~**AT103.9 Electrical service reserved space.** The main electrical service or feeder panel for each dwelling unit shall have a reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.~~

~~**AT103.10 Construction documentation certificate.** A permanent certificate, indicating the solar ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-60106, filed 10/13/20, effective 11/13/20; WSR 16-03-025, § 51-51-60106, filed 1/11/16, effective 7/1/16.]

## NEW SECTION

**WAC 51-51-60108 Appendix Y—Construction and demolition material management.** The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

### **AY101 General.**

**AY101.1 Purpose.** The purpose of this code section is to increase the reuse and recycling of construction and demolition materials.

**AY101.2 Scope.** This code section applies to new *buildings* and *structures* construction, *alterations* to existing *buildings* and *structures* and the *demolition* of existing *buildings* and *structures* having a work area greater than 750 square feet or with a project value greater than \$75,000, whichever is more restrictive.

EXCEPTION: Projects determined to be unsafe.

### **AY102 General definitions.**

**Demolition.** The process of razing, relocating, or removing an existing *building* or *structure*, or a portion thereof.

**Divert, diverted, or diversion.** The *reuse*, *recycling*, or beneficial use of construction and *demolition* materials.

**Recycling.** The process of transforming or remanufacturing waste materials into useable or marketable materials for use other than landfill disposal or incineration.

**Reuse.** The return of a material into the economic stream for use.

**Salvage.** The recovery of construction and *demolition building* material and components from a *building* or site in order to increase the *reuse* or repurpose potential of these materials and decrease the amount of material being sent to the landfill. *Salvaged* material may be sold, donated, or reused on site.

### **AY103 Construction and demolition material management.**

**AY103.1 Collection containers.** All sites where *recyclable* construction and *demolition* materials are generated and transported for *recycling*

must provide a separate container for *nonrecyclable* materials pursuant to WAC 173-345-040.

**AY103.2 Salvage assessment.** A *salvage* assessment shall be submitted prior to *permit* issuance. The *salvage* assessment shall identify the *building* components of an existing *building* that, if removed, have the potential to be *reused*. This assessment shall be signed by the *owner* and serve as an affidavit stating that the project shall be executed in compliance with the requirements of this code.

EXCEPTION: Projects that include only new construction.

**AY103.3 Waste diversion report.** A waste diversion report shall be submitted prior to issuance of the Certificate of Occupancy or approval of final inspection. The waste diversion report shall identify the following:

1. Weight or volume of project-generated construction and *demolition* material;
2. Whether the material was disposed in a landfill or *diverted*;
3. The hauler of the material;
4. The receiving facility or location; and
5. The date materials were accepted by the receiving facility or location.

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## NEW SECTION

**WAC 51-51-60109 Appendix Z—Building deconstruction.** The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

### **AZ101 General.**

**AZ101.1 Purpose.** The purpose of this section is to increase the amount of material *salvaged* for *reuse* through the act of *deconstruction* when a *building* or *structure* is *demolished*. Used sawn lumber is permitted to be *reused* in accordance with Section R602.1.1.1.

**AZ101.2 Scope.** This section applies to existing dwellings, townhouses, and accessory structures permitted to be demolished that are greater than 750 square feet and meet one of the following:

1. The structure has been identified as a historic building; or
2. The structure was built 90, or more, years ago.

EXCEPTIONS: 1. The structure is determined to be unsafe by the engineer of record;  
2. The structure shall be relocated;  
3. The engineer of record/building official determines that 50 percent, by weight, of the material in the structure that is not concrete, is not suitable for reuse.

### **AZ102 General definitions.**

**AZ102.1 General.** The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

**Deconstruction.** The systematic disassembly of a *structure*, in order to *salvage building* materials or components for the primary purpose of *reusing* materials to the maximum extent possible, with a secondary purpose of *recycling* the remaining materials.

**Demolition.** The process of razing, relocating, or removing an existing *building* or *structure*, or a portion thereof.

**Heavy machinery.** Heavy machinery includes, but is not limited to, track hoes, excavators, skid steer loaders, or forklifts.

**Recycling.** The process of transforming or remanufacturing waste materials into useable or marketable materials for use other than landfill disposal or incineration.

**Reuse.** The return of a material into the economic stream for use.

**Salvage.** The recovery of construction and *demolition building* material and components from a *building* or site in order to increase the *reuse* or repurpose potential of these materials and decrease the amount of material being sent to the landfill. *Salvaged* material may be sold, donated, or *reused*.

**AZ103 Deconstruction.**

**AZ103.1 Deconstruction.** Buildings and structures meeting the requirements of Section AZ101.2 shall be deconstructed.

**AZ103.2 Heavy machinery.** Heavy machinery may not be used in deconstruction to remove or dismantle components of buildings and structures in ways that render the components unsuitable for salvage.

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## WSR 23-02-060

## PERMANENT RULES

## BUILDING CODE COUNCIL

[Filed January 3, 2023, 3:55 p.m., effective July 1, 2023]

Effective Date of Rule: July 1, 2023.

Purpose: Update from the 2018 edition of chapter 51-11R WAC, the Washington State Energy Code Residential Provisions, to the 2021 edition, incorporating changes from the 2021 International Energy Conservation Code and those code changes submitted to increase energy savings and provide better clarity.

Citation of Rules Affected by this Order: New WAC 51-11R-11200 and 51-11R-40392; and amending 59 sections in chapter 51-11R WAC.

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

Other Authority: Chapter 19.27A RCW.

Adopted under notice filed as WSR 22-17-149 on August 23, 2022.

Changes Other than Editing from Proposed to Adopted Version: WAC 51-11R-20218: The definition of RESIDENTIAL BUILDING was modified to include amended language for Group R-2 that was erroneously left out of the initial draft.

WAC 51-11R-40211: Table R402.1.2 Insulation and Fenestration Requirements by Component was modified to retain the 0.30 U-Factor from the previous code.

WAC 51-11R-40213: Table R402.1.3 Equivalent U-Factors was modified to retain the 0.30 U-Factor from the previous code.

WAC 51-11R-40240: Section R402.4.1.3.1 Dwelling unit leakage rate was modified to change from the proposed 3.0 air changes per hour (ACH) to 4.0 ACH. The previously adopted rate was 5 ACH.

WAC 51-11R-40320: Section R403.3.4.1 Sealed air handler was modified to remove the changes pertaining to requiring the air handler to be installed in conditioned space.

WAC 51-11R-40551: Table R405.4.2(1) Specifications for the Standard Reference and Proposed Designs, under air exchange rate, the standard reference design was changed to 4.0 ACH to correlate with the change in WAC 51-11R-40240.

WAC 51-11R-40610: Option 2 was selected as the path moving forward for Section R406, Additional energy efficiency requirements.

Table R406.2 Fuel Normalization Credits was modified to correct the credit numbers, as the original filing had the rows switched around. The heading of the table was also edited for clarity, and section references were corrected.

Table R406.3 was modified to provide the missing credit numbers for Option 3.9, some clarifying language was added to the heading for the high efficiency HVAC equipment options and associated footnote c. Footnote e was also added to this section to clarify the intent of "primary living areas."

A final cost-benefit analysis is available by contacting Stoyan Bumbalov, P.O. Box 41449, Olympia, WA 98504-1449, phone 360-407-9255, email sbcc@des.wa.gov, website <https://sbcc.wa.gov/2021-code-adoption-cycle>.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 59, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 60, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 61, Repealed 0.

Date Adopted: November 11, 2022.

Tony Doan  
Chair

## OTS-4009.6

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

### **WAC 51-11R-10100 Section R101—Scope and general requirements.**

**R101.1 Title.** This code shall be known as the *Washington State Energy Code-Residential*, and shall be cited as such. It is referred to herein as "this code."

The 2021 edition of the *Washington State Energy Code* is hereby adopted. The *Washington State Energy Code* adopted under chapter 51-11R WAC shall become effective in all counties and cities of this state on July 1, 2023.

**R101.2 Scope.** This code applies to *residential buildings* and the buildings sites and associated systems and equipment. This code shall be the maximum and minimum energy code for residential construction in each town, city and county. Residential *sleeping units*, Group I-1, Condition 2 assisted living facilities licensed by Washington state under chapter 388-78A WAC and Group I-1, Condition 2 residential treatment facilities licensed by Washington state under chapter 246-337 WAC shall utilize the commercial building sections of the energy code regardless of the number of stories of height above grade plane.

**R101.3 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.

**R101.4 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.

**R101.4.1 Mixed residential and commercial buildings.** Where a building includes both *residential* building and *commercial* building portions,

each portion shall be separately considered and meet the applicable provisions of the WSEC - Commercial or WSEC - Residential Provisions.

**R101.5 Compliance.** *Residential buildings* shall meet the provisions of WSEC - Residential Provisions. *Commercial buildings* shall meet the provisions of WSEC - Commercial Provisions.

**R101.5.1 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.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-10100, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, and chapters 19.27, 19.27A, and 34.05 RCW. WSR 17-17-160, § 51-11R-10100, filed 8/23/17, effective 10/1/17. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-10100, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10100, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-10200 Section R102—Alternative materials, design and methods of construction and equipment.**

**R102.1 General.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. The *code official* shall have the authority to approve an alternative material, design or method of construction upon the written application of the owner or owner's authorized agent. The code official shall first find that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code for strength, effectiveness, fire resistance, durability, energy efficiency and safety. (~~(Where the alternative material, design or method of construction is not approved,~~) The code official shall respond in writing, stating the reason why the alternative was approved or was not approved.)

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-10200, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-10200, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10200, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-02-127, filed 1/6/16, effective 7/1/16)

**WAC 51-11R-10300 Section R103—Construction documents.**

**R103.1 General.** Construction documents, technical report, and other supporting data shall be submitted in one or more sets, or in a digital format where allowed by the code official, with each application for a permit. The construction documents and technical reports 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.

**R103.2 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, the following as applicable:

1. Energy compliance path per Section R401.2.
2. Insulation materials and their R-values.
- (~~2.~~) 3. Fenestration U-factors and SHGCs.
- (~~3.~~) 4. Area-weighted U-factor and SHGC calculations.
- (~~4.~~) 5. Mechanical system design criteria.
- (~~5.~~) 6. Mechanical and service water heating system and equipment types, sizes and efficiencies.
- (~~6.~~) 7. Equipment and systems controls.
- (~~7.~~) 8. Duct sealing, duct and pipe insulation and location.
- (~~8.~~) 9. Air sealing details.

**R103.2.1 Building thermal envelope depiction.** The building's thermal envelope shall be represented on the construction documents.

**R103.3 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. The *code official* is authorized to utilize a registered design professional or other approved entity not affiliated with the building design or construction in conducting the review of the plans and specifications for compliance with the code.

**R103.3.1 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.

**R103.3.2 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.

**R103.3.3 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.

**R103.4 Amended construction documents.** Work shall be installed in accordance with the *approved* construction documents, and any 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.

**R103.5 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.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-10300, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10300, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-10400 Section R104—(~~(Inspections)~~) Fees.**

~~(R104.1 General. Construction or work for which a permit is required shall be subject to inspection by the *code official* or his or her designated agent, and such construction or work shall remain visible and able to be accessed for inspection purposes until *approved*. It shall be the duty of the permit applicant to cause the work to remain visible and able to be accessed for inspection purposes. Neither the *code official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material, product, system or building component required to allow inspection to validate compliance with this code.~~

~~**R104.2 Required inspections.** The *code official* or his or her designated agent, upon notification, shall make the inspections set forth in Sections R104.2.1 through R104.2.5.~~

~~**R104.2.1 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 in-~~

ulation as required by the code and approved plans and specifications.

**R104.2.2 Framing and rough-in inspection.** Inspections at framing and rough-in 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 and SHGC) and proper installation; and air leakage controls as required by the code and approved plans and specifications.

**R104.2.2.1 Wall insulation inspection.** The *code official*, upon notification, shall make a wall insulation inspection in addition to those inspections required in Section R109 of the International Residential Code. This inspection shall be made after all wall and cavity insulation is in place and prior to cover.

**R104.2.3 Plumbing rough-in inspection.** Inspections at plumbing rough-in shall verify compliance as required by the code and approved plans and specifications as to types of insulation and corresponding *R*-values and protection, and required controls.

**R104.2.4 Mechanical rough-in inspection.** Inspections at mechanical rough-in 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 air leakage control, programmable thermostats, dampers, whole-house ventilation and minimum fan efficiency.

EXCEPTION: Systems serving multiple dwelling units shall be inspected in accordance with Section C104.2.4.

**R104.2.5 Final inspection.** The building shall have a final inspection and not be occupied until approved.

**R104.3 Reinspection.** A building shall be reinspected when determined necessary by the *code official*.

**R104.4 Approved inspection agencies.** The *code official* is authorized to accept reports of third-party inspection agencies not affiliated with the building design or construction, provided such agencies are approved as to qualifications and reliability relevant to the building components and systems they are inspecting.

**R104.5 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.

**R104.6 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.

**R104.7 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*.

**R104.7.1 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.)~~)

**R104.1 Fees.** A permit shall not be issued until the fees prescribed in Section R107.2 have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.

**R104.2 Schedule of permit fees.** A fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.

**R104.3 Work commencing before permit issuance.** Any person who commences any work before obtaining the necessary permits shall be subject to an additional fee established by the *code official*, which shall be in addition to the required permit fees.

**R104.4 Related fees.** The payment of the fee for the construction, alteration, removal, or demolition of work done in connection to or concurrently with the work or activity authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

**R104.5 Refunds.** The *code official* is authorized to establish a refund policy.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-10400, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-10400, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-10400, filed 5/2/17, effective 6/2/17; WSR 16-02-127, § 51-11R-10400, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10400, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-10500 Section R105—((Validity)) Inspections.**

**R105.1 General.** ((If a portion of this code is held to be illegal or void, such a decision shall not affect the validity of the remainder of this code.)) Construction or work for which a permit is required shall be subject to inspection by the *code official* or his or her designated agent, and such construction or work shall remain visible and able to be accessed for inspection purposes until approved. It shall be the duty of the permit applicant to cause the work to remain visible and able to be accessed for inspection purposes. Neither the *code official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material, product, system or building component required to allow inspection to validate compliance with this code.

**R105.2 Required inspections.** The *code official* or his or her designated agent, upon notification, shall make the inspections set forth in Sections R104.2.1 through R104.2.5.

**R105.2.1 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.

**R105.2.2 Framing and rough-in inspection.** Inspections at framing and rough-in 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 and SHGC) and proper installation; and air leakage controls as required by the code and approved plans and specifications.

**R105.2.2.1 Wall insulation inspection.** The code official, upon notification, shall make a wall insulation inspection in addition to those inspections required in Section R109 of the International Residential Code. This inspection shall be made after all wall and cavity insulation is in place and prior to cover.

**R105.2.3 Plumbing rough-in inspection.** Inspections at plumbing rough-in shall verify compliance as required by the code and approved plans and specifications as to types of insulation and corresponding R-values and protection, and required controls.

**R105.2.4 Mechanical rough-in inspection.** Inspections at mechanical rough-in 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 air leakage control, programmable thermostats, dampers, whole-house ventilation and minimum fan efficiency.

**EXCEPTION:** Systems serving multiple dwelling units shall be inspected in accordance with Section C104.2.4.

**R105.2.5 Final inspection.** The building shall have a final inspection and not be occupied until approved.

**R105.3 Reinspection.** A building shall be reinspected when determined necessary by the code official.

**R105.4 Approved inspection agencies.** The code official is authorized to accept reports of third-party inspection agencies not affiliated with the building design or construction, provided such agencies are approved as to qualifications and reliability relevant to the building components and systems they are inspecting.

**R105.5 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.

**R105.6 Reinspection and testing.** Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the code official for inspection and testing.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10500, filed 2/1/13, effective 7/1/13.]



AMENDATORY SECTION (Amending WSR 16-02-127, filed 1/6/16, effective 7/1/16)

**WAC 51-11R-10600 Section R106—(~~Referenced standards~~) Notice of approval.**

~~(**R106.1 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 R106.1.1 and R106.1.2.~~

~~**R106.1.1 Conflicts.** Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.~~

~~**R106.1.2 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.~~

~~**R106.2 Application of references.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.~~

~~**R106.3 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 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 shall govern.)~~

**R106.1 Approval.** After the prescribed tests and inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the code official.

**R106.2 Revocation.** The code official is authorized to, in writing, suspend or revoke a notice of approval issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure, premise, or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-10600, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10600, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-10700 Section R107—(~~(Fees)~~) Validity.**

~~((R107.1 Fees. A permit shall not be issued until the fees prescribed in Section R107.2 have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.~~

~~R107.2 Schedule of permit fees. A fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.~~

~~R107.3 Work commencing before permit issuance. Any person who commences any work before obtaining the necessary permits shall be subject to an additional fee established by the code official, which shall be in addition to the required permit fees.~~

~~R107.4 Related fees. The payment of the fee for the construction, alteration, removal or demolition of work done in connection to or concurrently with the work or activity authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.~~

~~R107.5 Refunds. The code official is authorized to establish a refund policy.))~~

R107.1 General. If a portion of this code is held to be illegal or void, such a decision shall not affect the validity of the remainder of this code.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10700, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-02-127, filed 1/6/16, effective 7/1/16)

**WAC 51-11R-10800 Section R108—(~~(Stop work order)~~) Referenced standards.**

~~((R108.1 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.~~

~~R108.2 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 authorized 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.~~

~~R108.3 Emergencies. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work.~~

~~R108.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condi-~~

tion, shall be subject to a fine as set by the applicable governing authority.)

**R108.1 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 R106.1.1 and R106.1.2.

**R108.1.1 Conflicts.** Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

**R108.1.2 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.

**R108.2 Application of references.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section, or provision of this code.

**R108.3 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 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 shall govern.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-10800, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10800, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-10900 Section R109—((Board of appeals)) Stop work order.**

~~((R109.1 General. In order to hear and decide appeals of orders, decisions or determinations made by the code official relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The code official shall be an ex officio member of said board but shall have no vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the code official.~~

**~~R109.2 Limitations on authority.~~** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall have no authority to waive requirements of this code.

**~~R109.3 Qualifications.~~** The board of appeals shall consist of members who are qualified by experience and training and are not employees of the jurisdiction.))

**R109.1 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.

**R109.2 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 authorized 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.

**R109.3 Emergencies.** Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work.

**R109.4 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 subject to a fine as set by the applicable governing authority.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-10900, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-11000 Section R110—((Violations)) Means of appeal.**

((It shall be unlawful for any person, firm, or corporation to erect or construct any building, or remodel or rehabilitate any existing building or structure in the state, or allow the same to be done, contrary to or in violation of any of the provisions of this code.))

**R110.1 General.** In order to hear and decide appeals of orders, decisions or determinations made by the *code official* relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The *code official* shall be an ex officio member of said board but shall have no vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *code official*.

**R110.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall have no authority to waive requirements of this code.

**R110.3 Qualifications.** The board of appeals shall consist of members who are qualified by experience and training and are not employees of the jurisdiction.

**R110.4 Administration.** The code official shall take immediate action in accordance with the decision of the board.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-11000, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-11100 Section R111—((Liability)) Violations.**

~~((Nothing contained in this code is intended to be nor shall be construed to create or form the basis for any liability on the part of any city or county or its officers, employees or agents for any injury or damage resulting from the failure of a building to conform to))~~ It shall be unlawful for any person, firm, or corporation to erect or construct any building, or remodel or rehabilitate any existing building or structure in the state, or allow the same to be done, contrary to or in violation of any of the provisions of this code.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-11100, filed 2/1/13, effective 7/1/13.]

NEW SECTION

**WAC 51-11R-11200 Section R112—Liability.** Nothing contained in this code is intended to be nor shall be construed to create or form the basis for any liability on the part of any city or county or its officers, employees, or agents for any injury or damage resulting from the failure of a building to conform to the provisions of this code.

[ ]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-20201 Section R202.1—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").))~~ ACCESS (TO). That which enables a device, appliance, or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel or similar obstruction.

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

**ADVANCED FRAMED WALLS.** Studs framed on 24-inch centers with double top plate and single bottom plate. Corners use two studs or other means of fully insulating corners, and one stud is used to support each header. Headers consist of double 2x material with R-10 insulation between the header and exterior sheathing. Interior partition wall/exterior wall intersections are fully insulated in the exterior wall. (See **Standard Framing** and Appendix A, of this code.)

**AIR BARRIER.** One or more materials joined together in a continuous manner to restrict or prevent the passage of air through the building thermal envelope and its assemblies.

~~((AIR-IMPERMEABLE INSULATION. An insulation that functions as an air barrier material.))~~

**ALTERATION.** Any construction, retrofit or renovation to an existing structure other than repair or addition. Also, a change in a building, electrical, gas, mechanical or plumbing system that involves an extension, addition or change to the arrangement, type or purpose of the original installation.

**APPROVED.** Acceptable to the code official.

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

**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").

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-20201, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-20201, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20201, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-20203 Section R202.3—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<sup>2</sup> × °F) [W/(m<sup>2</sup> × K)].

CAVITY INSULATION. Insulating material located between framing members.

**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.

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

**CONDITIONED FLOOR AREA.** The horizontal projection of the floors associated with the *conditioned space*.

**CONDITIONED SPACE.** An area, room or space that is enclosed within the building thermal envelope and that is directly or 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.

**CONNECTED THERMOSTAT.** An internet enabled device that automatically adjusts heating and cooling temperature settings.

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

**CONTINUOUS INSULATION (c.i.).** Insulating material that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

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

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-20203, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-20203, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20203, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-20204 Section R202.4—D.**

**DEMAND RECIRCULATION WATER SYSTEM.** A water distribution system ~~((having))~~ where 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)) pumps prime the service hot water piping with heated water upon demand for hot water.

**DIMMER.** A control device that is capable of continuously varying the light output and energy use of light sources.

**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.

**DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM.** A heating and cooling system that is comprised of one or multiple indoor evaporator/air-handling units and an outdoor condensing unit that is connected by refrigerant piping and electrical wiring. A ductless mini-split system is capable of cooling or heating one or more rooms without the use of a central ductwork system.

**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.

**DWELLING UNIT ENCLOSURE AREA.** The sum of the area of ceiling, floors, and walls separating a dwelling unit's conditioned space from the exterior or from adjacent conditioned or unconditioned spaces. Wall height shall be measured from the finished floor of the dwelling unit to the underside of the floor above.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-20204, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20204, filed 2/1/13, effective 7/1/13.]

**AMENDATORY SECTION** (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-20206 Section R202.6—F.**

**FENESTRATION.** Products classified as either vertical fenestration or skylights.

**VERTICAL FENESTRATION.** Windows (fixed or operable), 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 not less than 60 degrees from horizontal. Opaque areas such as spandrel panels are not considered vertical fenestration.

**SKYLIGHT.** Glass or other transparent or translucent glazing material installed with a slope of less than 60 degrees from horizontal, including unit skylights, tubular daylighting devices and glazing materials in solariums, sunrooms, roofs, and sloped walls.

**FENESTRATION AREA.** Total area of the fenestration measured using the rough opening, and including the glazing, sash and frame.

**FENESTRATION PRODUCT, FIELD-FABRICATED.** A fenestration product whose frame is made at the construction site of standard dimensional lumber or other materials that were not previously cut, or otherwise formed with the specific intention of being used to fabricate a fenestration product or exterior door. Field fabricated does not include site-built fenestration.

**FENESTRATION PRODUCT, SITE-BUILT.** A fenestration designed to be made up of field-glazed or field-assembled units using specific factory cut or otherwise factory-formed framing and glazing units. Examples of site-built fenestration include storefront systems, curtain walls, and atrium roof systems.

**F-FACTOR.** The perimeter heat loss factor for slab-on-grade floors (Btu/h × ft × °F) [W/(m × K)].



[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-20206, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-20206, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20206, filed 2/1/13, effective 7/1/13.]

**Reviser's note:** The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-20208 Section R202.8—H.**

**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 LIGHT SOURCES.** (~~Fixtures that use light emitting diodes (LED), T-8 or smaller diameter linear fluorescent lamps, or other lamps with a minimum efficacy of 65 lumens per watt.~~) Compact fluorescent lamps, light emitting diode (LED) lamps, T-8 or smaller diameter linear fluorescent lamps, or other lamps with an efficacy of not less than 65 lumens per watt, or luminaires with an efficacy of not less than 45 lumens per watt.

**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.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-20208, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-20208, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20208, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-20215 Section R202.15—O.**

**OCCUPANT SENSOR CONTROL.** An automatic control device 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 from renewable energy resources harvested at the building site.

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

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-20215, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27

RCW. WSR 20-01-047, § 51-11R-20215, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20215, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-20218 Section R202.18—R.**

~~((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").))~~ READY ACCESS (TO). That which enables a device, appliance, or equipment to be directly reached without requiring the removal or movement of any panel or similar obstruction.

RENEWABLE ENERGY CERTIFICATE (REC). An instrument that represents the environmental attributes of one megawatt hour of renewable energy; also known as an energy attribute certificate (EAC).

RENEWABLE ENERGY RESOURCES. Energy derived from solar radiation, wind, waves, tides, landfill gas, biogas, biomass, or extracted from hot fluid or steam heated within the earth.

REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

REEROOFING. The process of recovering or replacing an existing roof covering. See "Roof recover" and "Roof replacement."

RESIDENTIAL BUILDING. For this code, ~~((includes))~~ the following building types are residential buildings:

1. Detached one- and two-family dwellings ~~((τ))~~.
2. Multiple single-family dwellings (townhouses) ~~((and))~~.
3. Group ~~((R-2τ))~~ R-3 ~~((and R-4))~~ occupancy areas in buildings three stories or less in height above grade plane ~~((τ as well as))~~ whose dwelling units are accessed directly from the exterior.
4. Group R-2 occupancy areas in buildings three stories or less in height above grade plane whose dwelling units are accessed directly from the exterior.
5. Accessory structures ~~((thereto))~~ to residential buildings. Group R-2 buildings with dwelling units accessed from interior corridors or other interior spaces are not residential buildings.

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 and roof deck, and can also include a thermal barrier, an ignition barrier, insulation or a vapor retarder.

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.

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 ( $h \cdot \text{ft}^2 \cdot ^\circ\text{F}/\text{Btu}$ ) [ $(\text{m}^2 \cdot \text{K})/\text{W}$ ].

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-20218, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-20218, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20218, filed 2/1/13, effective 7/1/13.]

**Reviser's note:** The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-20220 Section R202.20—T.**

**THERMAL DISTRIBUTION EFFICIENCY (TDE).** The resistance to changes in air heat as air is conveyed through a distance of air duct. TDE is a heat loss calculation evaluating the difference in the heat of the air between the air duct inlet and outlet caused by differences in temperatures between the air in the duct and the duct material. TDE is expressed as a percent difference between the inlet and outlet heat in the duct.

**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.

**THERMOSTAT.** An automatic control device used to maintain temperature at a fixed or adjustable set point.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-20220, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-30310 Section R303.1—Identification.**

**R303.1 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.

**R303.1.1 Building thermal envelope insulation.** An *R*-value identification mark shall be applied by the manufacturer to each piece of *building thermal envelope* insulation 12 inches (305 mm) or greater in width. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and *R*-value of insulation installed in each element of the *building thermal envelope*. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled *R*-value, installed density, coverage area and number of bags installed shall be *listed* on the certification. For sprayed polyurethane foam (SPF) insulation, the installed

thickness of the areas covered and *R*-value of installed thickness shall be *listed* on the certification. For insulated siding, the *R*-value shall be labeled on the product's package and shall be listed on the certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

EXCEPTION: For roof insulation installed above the deck, the *R*-value shall be labeled as required by the material standards specified in Table 1508.5 of the *International Building Code* or Table R906.2 of the *International Residential Code*.

**R303.1.1.1 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<sup>2</sup>) 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 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.

**R303.1.2 Insulation mark installation.** Insulating materials shall be installed such that the manufacturer's *R*-value mark is readily observable upon inspection. For insulation materials that are installed without an observable manufacturer's *R*-value mark, such as blown or draped products, an insulation certificate complying with Section R303.1.1 shall be left immediately after installation by the installer, in a conspicuous location within the building, to certify the installed *R*-value of the insulation material.

**R303.1.3 Fenestration product rating.** *U*-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100.

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 R303.1.3(1), R303.1.3(2) or R303.1.3(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 R303.1.3(3).

EXCEPTIONS:

1. Units without NFRC ratings produced by a *small business* may be assigned default *U*-factors from Table R303.1.3(5) for vertical fenestration.
2. Owner-built, nonoperable wood frame window consisting of a double pane unit with low-*e* ( $E = 0.04$  or less), 1/2-inch air space with argon fill.

**R303.1.4 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  $h \times ft^2 \times ^\circ F/Btu$  at a mean temperature of 75°F (24°C).

**R303.1.4.1 Insulated siding.** The thermal resistance (*R*-value) of insulated siding shall be determined in accordance with ASTM C1363. Installation for testing shall be in accordance with the manufacturer's installation instructions.

**R303.1.5 Air-impermeable insulation.** Insulation having an air permeability not greater than 0.004 cubic feet per minute per square foot (0.002 L/(s × m<sup>2</sup>)) under pressure differential of 0.3-inch water gauge

(75 Pa) when tested in accordance with ASTM E2178 shall be determined air-impermeable insulation.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-30310, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-30310, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-30310, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-30310, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-30330 Section R303.3—Maintenance information.**

**R303.3 Maintenance information.** Maintenance instructions shall be furnished for equipment and systems that require preventive maintenance. Required regular maintenance actions shall be clearly stated and incorporated on a readily (~~accessible~~) visible label. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-30330, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40100 Section R401—General.**

**R401.1 Scope.** This chapter applies to residential buildings. Group R-2 occupancy areas with dwelling units accessed from enclosed interior corridors or other enclosed interior spaces must comply with the Washington State Energy Code (WSEC), Commercial Provisions. Other Group R-2 occupancy areas are permitted to comply with the WSEC, Commercial Provisions, in lieu of the WSEC, Residential Provisions.

**EXCEPTION:** Water heaters that each serve only an individual Group R-2 dwelling unit in a building three stories or less above grade plane are permitted to comply with the requirements of the WSEC, Residential Provisions.

**R401.2 Compliance.** Projects shall comply with one of the following:

1. Sections R401 through R404. In addition, dwelling units and sleeping units in a *residential building* shall comply with Section R406.
2. Section R405. (~~In addition, dwelling units and sleeping units in a residential building shall comply with Section R406.~~)
3. Section R407.

**R401.3 Certificate.** A permanent certificate shall be completed by the builder or other approved party and posted on a wall in the space where the furnace is located, a utility room, or an approved location

inside the building. When located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels. The certificate shall ~~((list))~~ indicate the following:

1. The predominant R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, below-grade wall, and/or floor) and ducts outside conditioned spaces((†)).

2. U-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration((†)). Where there is more than one value for each component, the certificate shall indicate the area weighted average value.

3. The results from any required duct system and building envelope air leakage testing done on the building((†and)).

4. The results from the whole-house mechanical ventilation system flow rate test. ((Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list))

5. The types, sizes, and efficiencies of heating, cooling, whole-house mechanical ventilation, and service water heating appliances. Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be listed for gas-fired unvented room heaters, electric furnaces or electric baseboard heaters.

6. Where on-site photovoltaic panel systems have been installed, the array capacity, inverter efficiency, panel tilt, orientation and estimated annual electrical generation shall be noted on the certificate.

7. The code edition under which the structure was permitted, and the compliance path used.

The code official may require that documentation for any required test results include an electronic record of the time, date, and location of the test. A date-stamped smart phone photo or air leakage testing software may be used to satisfy this requirement.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40100, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40100, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40100, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40210 Section R402.1—General.**

**R402.1 General.** The *building thermal envelope* shall meet the requirements of Sections R402.1.1 through R402.1.6.

EXCEPTION: 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 the *building thermal envelope* provisions of this code.

1. Those with a peak design rate of energy usage less than 3.4 Btu/h ft<sup>2</sup> (10.7 W/m<sup>2</sup>) or 1.0 watt/ft<sup>2</sup> 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.

**R402.1.1 Vapor retarder.** Wall assemblies in the building thermal envelope shall comply with the vapor retarder requirements of Section R702.7 of the International Residential Code or Section 1405.3 of the International Building Code, as applicable.

**R402.1.2 Insulation and fenestration criteria.** The building thermal envelope shall meet the requirements of Table ((R402.1.1)) R402.1.2 based on the climate zone specified in Chapter 3. Assemblies shall have a U-factor equal to or less than that specified in Table R402.1.2. Fenestration shall have a U-factor equal to or less than specified in Table R402.1.2.

**R402.1.3 R-value alternative.** Assemblies with R-value of insulation materials equal to or greater than that specified in Table R402.1.3 shall be an alternative to the U-factor in Table R402.1.2.

~~((R402.1.2))~~ **R402.1.4 R-value computation.** ~~((Insulation R-value shall be determined as specified in Section R303.1.4. Insulation material used in layers, such as framing cavity insulation or continuous insulation,))~~ Cavity insulation alone shall be used to determine compliance with the cavity insulation R-value requirement in Table R402.1.3. Where cavity insulation is installed in multiple layers, the R-values of the cavity insulation layers shall be summed to ((compute the corresponding component R-value)) determine compliance with the cavity insulation R-value requirements. The manufacturer's settled R-value shall be used for blown insulation. Continuous insulation (ci) alone shall be used to determine compliance with the continuous insulation R-value requirements in Table R402.1.3. Where continuous insulation is installed in multiple layers, the R-values of the continuous insulation layers shall be summed to determine compliance with the continuous insulation R-value requirements. Computed R-values shall not include an R-value for other building materials or air films. Where insulated siding is used for the purpose of complying with the continuous insulation requirements of Table ((R402.1.1)) R402.1.3, the manufacturer's labeled R-value for insulated siding shall be reduced by R-0.6.

~~((R402.1.3 U-factor alternative. An assembly with a U-factor equal to or less than that specified in Table R402.1.3 shall be permitted as an alternative to the R-value in Table R402.1.1. U-factors shall be determined as specified in Section R402.1.5.~~

~~R402.1.4))~~ **R402.1.5 Total UA alternative.** If the proposed building thermal envelope UA is less than or equal to the target UA, the building shall be considered in compliance with Table ((R402.1.1)) R402.1.2. The proposed UA shall be calculated in accordance with Equation 2. The target UA shall be calculated in accordance with Equation 1. U-factors shall be determined as specified in Section ((R402.1.5)) R402.1.6. In addition to UA compliance, the maximum fenestration U-factors of Section R402.5 shall be met.

~~((R402.1.5))~~ **R402.1.6 U-factor reference and calculations.** The U-factors for typical construction assemblies are included in Appendix A in chapter 51-11C WAC. 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 of Fundamentals using the framing factors listed in Appendix A where applicable and shall include the thermal bridging effects of framing

materials. The SHGC requirements shall be met in addition to UA compliance.

Fenestration *U*-factors shall comply with Section R303.1.3, Fenestration product rating.

~~((R402.1.6 Vapor retarder. Wall assemblies in the building thermal envelope shall comply with the vapor retarder requirements of Section R702.7 of the International Residential Code or Section 1405.3 of the International Building Code, as applicable.))~~

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40210, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-40210, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40210, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40210, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40211 Table ((R402.1.1)) R402.1.2—Insulation and fenestration requirements by component.**

TABLE ((R402.1.1)) R402.1.2  
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT<sup>a</sup>

((Climate Zone	Fenestration <i>U</i> -Factor <sup>b</sup>	Skylight <sup>b</sup> <i>U</i> -Factor	Ceiling <i>R</i> -Value <sup>c</sup>	Wood Frame Wall <sup>g,h</sup> <i>R</i> -Value	Floor <i>R</i> -Value	Below-Grade <sup>c,h</sup> Wall <i>R</i> -Value	Slab <sup>d,f</sup> <i>R</i> -Value & Depth
5 and Marine 4	0.30	0.50	49	21 int	30	10/15/ 21int+5TB	10, 2 ft

For SI: 1 foot = 304.8 mm, ci = continuous insulation, int = intermediate framing.  
<sup>a</sup> *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the compressed *R*-value of the insulation from Appendix Table A101.4 shall not be less than the *R*-value specified in the table.  
<sup>b</sup> The fenestration *U*-factor column excludes skylights.  
<sup>c</sup> "10/15/21+5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 on the continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21+5TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "TB" means R-5 thermal break between floor slab and basement wall.  
<sup>d</sup> R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.  
<sup>e</sup> For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R38 if the full insulation depth extends over the top plate of the exterior wall.  
<sup>f</sup> R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics.  
<sup>g</sup> For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for *climate zone 5* of ICC 400.  
<sup>h</sup> Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on-center, 78 percent of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.))

<b>CLIMATE ZONE 5 AND MARINE 4</b>	
Fenestration <i>U</i> -factor <sup>b</sup>	0.30
Skylight <i>U</i> -factor	0.50
Ceiling <i>U</i> -factor	0.024
Above-Grade Wall <i>U</i> -factor	0.056
Floor <i>U</i> -factor	0.029
Slab on Grade <i>F</i> -factor	0.54



<b>CLIMATE ZONE 5 AND MARINE 4</b>	
<u>Below Grade 2' Depth</u>	
<u>Wall U-factor</u>	<u>0.042</u>
<u>Slab F-factor</u>	<u>0.59</u>
<u>Below Grade 3.5' Depth</u>	
<u>Wall U-factor</u>	<u>0.040</u>
<u>Slab F-factor</u>	<u>0.56</u>
<u>Below Grade 7' Depth</u>	
<u>Wall U-factor</u>	<u>0.035</u>
<u>Slab F-factor</u>	<u>0.50</u>

- <sup>a</sup> U-factors or F-factors shall be obtained from measurement, calculation, or an approved source or as specified in Section R402.1.5.
- <sup>b</sup> A maximum U-factor of 0.32 shall apply to vertical fenestration products installed in buildings located above 4000 feet in elevation above sea level, or in windborne debris regions where protection of openings is required under Section R301.2.1.2 of the *International Residential Code*.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40211, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-40211, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40211, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-20-121, § 51-11R-40211, filed 10/1/13, effective 11/1/13. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40211, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40213 Table R402.1.3—(~~Equivalent U-factors~~) Insulation minimum R-values and fenestration requirements by components.**

TABLE R402.1.3  
(~~EQUIVALENT U-FACTORS~~<sup>a</sup>)

<b>Climate Zone 5 and Marine 4</b>	
<b>Fenestration U-Factor</b>	0.30
<b>Skylight U-Factor</b>	0.50
<b>Ceiling U-Factor</b>	0.026
<b>Above-Grade Wall U-Factor</b>	0.056
<b>Floor U-Factor</b>	0.029
<b>Slab on Grade F-Factor</b>	0.54
<b>Below Grade 2' Depth</b>	
<b>Wall U-Factor</b>	0.042
<b>Slab F-Factor</b>	0.59
<b>Below Grade 3.5' Depth</b>	
<b>Wall U-Factor</b>	0.040
<b>Slab F-Factor</b>	0.56

Climate Zone 5 and Marine 4	
<b>Below-Grade 7' Depth</b>	
<b>Wall <i>U</i>-Factor</b>	0.035
<b>Slab <i>F</i>-Factor</b>	0.50

<sup>a</sup> *U*-factors or *F*-factors shall be obtained from measurement, calculation or an approved source or as specified in Section R402.1.5.)

**INSULATION MINIMUM R-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENTS<sup>a</sup>**

Climate Zone 5 and Marine 4	
<b>Fenestration<sup>b,j</sup> <i>U</i>-Factor</b>	0.30
<b>Skylight<sup>b</sup> <i>U</i>-Factor</b>	0.50
<b>Ceiling<sup>c</sup> <i>R</i>-Value</b>	60
<b>Wood Frame Wall<sup>g,i</sup> <i>R</i>-Value</b>	20+5 or 13+10
<b>Floor <i>R</i>-Value</b>	30
<b>Below-Grade Wall<sup>c,h</sup> <i>R</i>-Value</b>	10/15/21 int + 5TB
<b>Slab<sup>d,f</sup> <i>R</i>-Value and Depth</b>	10, 4 ft.

For SI: 1 foot = 304.8 mm, ci = continuous insulation, int = intermediate framing.

<sup>a</sup> *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the compressed *R*-value of the insulation from Appendix Table A101.4 shall not be less than the *R*-value specified in the table.

<sup>b</sup> The fenestration *U*-factor column excludes skylights.

<sup>c</sup> "10/15/21+5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 on the continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21+5TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "TB" means R-5 thermal break between floor slab and basement wall.

<sup>d</sup> R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.

<sup>e</sup> For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38 if the full insulation depth extends over the top plate of the exterior wall.

<sup>f</sup> R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics.

<sup>g</sup> For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for *climate zone 5* of ICC 400.

<sup>h</sup> Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on center, 78 percent of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.

<sup>i</sup> The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example "13+10" means R-13 cavity insulation plus R-10 continuous insulation.

<sup>j</sup> A maximum *U*-factor of 0.32 shall apply to vertical fenestration products installed in buildings located above 4000 feet in elevation above sea level, or in windborne debris regions where protection of openings is required under Section R301.2.1.2 of the *International Residential Code*.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40213, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40213, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40213, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40215 Target/Proposed UA equations.**

**EQUATION 1 - GROUP R OCCUPANCY**

**TARGET UA**

$$UA_T = U_{WA}W + U_{BGW}A_{BGW} + U_{VGA}V_G + U_{OGA}O_G + U_{FA}F + U_{RCA}R_C + U_{DA}D + F_sP_s + F_{BGS}P_{BGS}$$

Where:

$U_{AT}$	=	The target combined thermal transmittance of the gross exterior wall, floor and roof/ceiling area.
$U_W$	=	The thermal transmittance value of the opaque above grade wall found in Table ((R402.1.3)) <u>R402.1.2.</u>
$A_W$	=	Opaque above grade wall area.
$U_{BGW}$	=	The thermal transmittance value of the below grade opaque wall found in Table ((R402.1.3)) <u>R402.1.2.</u>
$A_{BGW}$	=	Opaque below grade wall area.
$U_{VG}$	=	The thermal transmittance value of the fenestration found in Table ((R402.1.3)) <u>R402.1.2.</u>
$A_{VG}$	=	(a) The proposed glazing area; where proposed fenestration glazing area is less than 15 percent of the conditioned floor area, minus $A_{OG}$ . (b) 15 percent of the conditioned floor area; where the proposed fenestration glazing area is 15 percent or more of the conditioned floor area, minus $A_{OG}$ .
$U_{OG}$	=	The thermal transmittance value of the skylight glazing found in Table ((R402.1.3)) <u>R402.1.2.</u>
$A_{OG}$	=	Skylight glazing area (if the proposed $A_{OG}$ exceeds 15 percent, the target $A_{OG}$ shall be 15 percent of the total floor area of the conditioned space).
$U_F$	=	The thermal transmittance value of the floor found in Table ((R402.1.3)) <u>R402.1.2.</u>
$A_F$	=	Floor area over unconditioned space.
$U_{RC}$	=	The thermal transmittance value of the ceiling found in Table ((R402.1.3)) <u>R402.1.2.</u>
$A_{RC}$	=	Roof/ceiling area.
$U_D$	=	The thermal transmittance value of the fenestration found in Table ((R402.1.3)) <u>R402.1.2.</u>
$A_D$	=	Opaque door area.
$F_S$	=	Concrete slab on grade component $F$ -factor found in Table ((R402.1.3)) <u>R402.1.2.</u>
$P_S$	=	Lineal ft. of concrete slab on grade perimeter.
$F_{BGS}$	=	Concrete below grade slab component $F$ -factor found in Table ((R402.1.3)) <u>R402.1.2.</u>
$P_{BGS}$	=	Lineal ft. of concrete below grade slab perimeter.

**EQUATION 2 - GROUP R OCCUPANCY  
PROPOSED UA**

$$UA = U_W A_W + U_{BGW} A_{BGW} + U_{VG} A_{VG} + U_{OG} A_{OG} + U_F A_F + U_{RC} A_{RC} + U_D A_D + F_S P_S + F_{BGS} P_{BGS}$$

**Where:**

$UA$	=	The combined thermal transmittance of the gross exterior wall, floor and roof/ceiling assembly area.
$U_W$	=	The thermal transmittance of the opaque above grade wall area.
$A_W$	=	Opaque above grade wall area.
$U_{BGW}$	=	The thermal transmittance value of the below grade opaque wall.
$A_{BGW}$	=	Opaque below grade wall area.
$U_{VG}$	=	The thermal transmittance value of the fenestration glazing.
$A_{VG}$	=	Fenestration glazing area, including windows in exterior doors.
$U_{OG}$	=	The thermal transmittance value of the skylight glazing.
$A_{OG}$	=	Skylight glazing area.
$U_F$	=	The thermal transmittance of the floor.
$A_F$	=	Floor area over unconditioned space.
$U_{RC}$	=	The thermal transmittance of the ceiling.
$A_{RC}$	=	Ceiling area.
$U_D$	=	The thermal transmittance value of the opaque door area.
$A_D$	=	Opaque door area.
$F_S$	=	Concrete slab on grade component $F$ -factor.
$P_S$	=	Lineal ft. of concrete slab on grade perimeter.

$F_{BGS}$  = Concrete below grade slab component  $F$ -factor.

$P_{BGS}$  = Lineal ft. of concrete below grade slab perimeter.

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:

$$U_{W1}A_{W1} + U_{W2}A_{W2} + U_{W3}A_{W3} + \dots \text{etc.}$$

NOTE: Below grade walls: The wall is assumed to extend from the slab upward to the top of the mud sill for the distance specified in Table A104.1, with 6 inches of concrete wall extending above grade. This will be calculated separately from above grade walls using the wall height that best describes the system.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40215, filed 12/9/19, effective 7/1/20.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-40220 Section R402.2—Specific insulation requirements.**

**R402.2 Specific insulation requirements.** In addition to the requirements of Section R402.1, insulation shall meet the specific requirements of Sections R402.2.1 through R402.2.11.

**R402.2.1 Ceilings with attic spaces.** Where Section ((R402.1.1)) R402.1.3 would require ((R-49)) R-60 in the ceiling or attic, installing ((R-38)) R-49 over 100 percent of the ceiling area requiring insulation shall ((be deemed to)) satisfy the requirement for ((R-49)) R-60 wherever the full height of uncompressed ((R-38)) R-49 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the ((U-factor alternative approach)) insulation and fenestration criteria in Section ((R402.1.3)) R402.1.2 and the total UA alternative in Section ((R402.1.4)) R402.1.5.

**R402.2.1.1 Loose insulation in attic spaces.** Open-blown or poured loose fill insulation may be used in attic spaces where the slope of the ceiling is not more than 3 feet in 12 and there is at least 30 inches of clear distance from the top of the bottom chord of the truss or ceiling joist to the underside of the sheathing at the roof ridge.

**R402.2.2 Reserved.**

**R402.2.3 Eave baffle.** For air-permeable insulation((s)) in vented attics, a baffle shall be installed adjacent to soffit and eave vents. Baffles shall maintain ((an)) a net free area opening equal to or greater than the size of the vent. The baffle shall extend over the top of the attic insulation. The baffle shall be permitted to be any solid material. The baffle shall be installed to the outer edge of the exterior wall top plate so as to provide maximum space for attic insulation coverage over the top plate. Where soffit venting is not continuous, baffles shall be installed continuously to prevent ventilation air in the eave soffit from bypassing the baffle.

**R402.2.4 Access hatches and doors.** Access hatches and doors from conditioned spaces to unconditioned spaces ((e.g.,)) such as attics and crawl spaces((+)) shall be ((weatherstripped and)) insulated to ((a level equivalent to the insulation on the surrounding surfaces. Access shall be provided to all equipment that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is

required to be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the attic access is opened, and to provide a permanent means of maintaining the installed R-value of the loose fill insulation) the same R-value required by Table R402.1.3 for the wall or ceiling in which they are installed.

EXCEPTION: Vertical doors (~~that provide~~) providing access from conditioned spaces to unconditioned spaces (~~shall be permitted to meet~~) that comply with the fenestration requirements of Table (R402.1.1) R402.1.3.

**R402.2.4.1 Access hatches and door insulation installation and retention.** Vertical or horizontal access hatches and doors from conditioned spaces to unconditioned spaces such as attics and crawl spaces shall be weatherstripped. Access that prevents damaging or compressing the insulation shall be provided to all equipment. Where loose fill insulation is installed, a wood framed or equivalent baffle or retainer, or dam shall be installed to prevent the loose-fill insulation from spilling into the living spaces, from higher to lower sections of the attic and from attics covering conditioned spaces to unconditioned spaces. The baffle or retainer shall provide a permanent means of maintaining the installed R-value of the loose fill insulation.

**R402.2.5 Mass walls.** Mass walls, where used as a component of the building thermal envelope (~~of a building~~), shall be one of the following:

1. (~~Constructed of~~) Above-grade walls of concrete block, concrete, insulated concrete form, masonry cavity, brick (but not brick veneer), adobe, compressed earth block, rammed earth, mass timber, (~~solid timber~~) or solid logs.
2. Any other wall having a heat capacity greater than or equal to  $6 \text{ Btu/ft}^2 \times ^\circ\text{F}$  ( $123 \text{ kJ/m}^2 \times \text{K}$ ).

**R402.2.6 Steel-frame ceilings, walls, and floors.** Steel-frame ceilings, walls, and floors shall comply with the U-factor requirements of Table (~~(R402.1.3)~~) R402.1.2.

**R402.2.7 Floors.** Floor framing cavity insulation shall comply with one of the following:

1. Insulation shall be installed to maintain permanent contact with the underside of the subfloor decking in accordance with manufacturer instructions to maintain required R-value or readily fill the available cavity space. Insulation supports shall be installed so spacing is no more than 24 inches on center. Foundation vents shall be placed so that the top of the vent is below the lower surface of the floor insulation.

2. Floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing separating the cavity and the unconditioned space below. Insulation shall extend from the bottom to the top of all perimeter floor framing members and the framing members shall be air sealed.

3. A combination of cavity and continuous insulation shall be installed so that the cavity insulation is in contact with the top side of the continuous insulation that is installed on the underside of the floor framing separating the cavity and the unconditioned space below. The combined R-value of the cavity and continuous insulation shall equal the required R-value for floors. Insulation shall extend from the bottom to the top of all perimeter floor framing members and the framing members shall be air sealed.

EXCEPTIONS: 1. ((The floor framing cavity insulation shall be permitted to be in contact with the topside of sheathing or continuous insulation installed on the bottom side of floor framing where combined with insulation that meets or exceeds the minimum Wood Frame Wall R-value in Table R402.1.1 and extends from the bottom to the top of all perimeter floor framing members.  
2.)) When foundation vents are not placed so that the top of the vent is below the lower surface of the floor insulation, a permanently attached baffle shall be installed at an angle of 30° from horizontal, to divert air flow below the lower surface of the floor insulation.  
((3.)) 2. Substantial contact with the surface being insulated is not required in enclosed floor/ceiling assemblies containing ducts where full R-value insulation is installed between the duct and the exterior surface.

**R402.2.8 Below-grade walls.** Below-grade exterior wall insulation used on the exterior (cold) side of the wall shall extend from the top of the below-grade wall to the top of the footing and shall be approved for below-grade use. Above-grade insulation shall be protected. Insulation used on the interior (warm) side of the wall shall extend from the top of the below-grade wall to the below-grade floor level and shall include R-5 rigid board providing a thermal break between the concrete wall and the slab.

**R402.2.9 Slab-on-grade floors.** The minimum thermal resistance (R-value) of the insulation around the perimeter of unheated or heated slab-on-grade floors shall be as specified in Table ((C402.1.1)) 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. A two-inch by two-inch (maximum) pressure treated nailer may be placed at the finished floor elevation for attachment of interior finish materials. Insulation extending away from the building shall be protected by pavement or by a minimum of 10 inches (254 mm) of soil.

**R402.2.9.1 Heated slab-on-grade floors.** The entire area of a heated slab-on-grade floor shall be thermally isolated from the soil with a minimum of R-10 insulation. The insulation shall be an approved product for its intended use. If a soil gas control system is present below the heated slab-on-grade floor, which results in increased convective flow below the heated slab-on-grade floor, the heated slab-on-grade floor shall be thermally isolated from the sub-slab gravel layer. R-10 heated slab-on-grade floor insulation is required for all compliance paths.

**R402.2.10 Masonry veneer.** Insulation shall not be required on the horizontal portion of the foundation that supports a masonry veneer.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-40220, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40220, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40220, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40220, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40230 Section R402.3—Fenestration.**

**R402.3 Fenestration.** In addition to the requirements of Section R402, fenestration shall comply with Sections R402.3.1 through R402.3.5.

**R402.3.1 U-factor.** An area-weighted average of fenestration products shall be permitted to satisfy the U-factor requirements.

**R402.3.2 Glazed fenestration SHGC.** An area-weighted average of fenestration products more than 50 percent glazed shall be permitted to satisfy the SHGC requirements.

**R402.3.3 Glazed fenestration exemption.** Up to 15 square feet (1.4 m<sup>2</sup>) of glazed fenestration per dwelling unit shall be permitted to be exempt from U-factor and SHGC requirements in Section ((R402.1.1)) R402.1.2. This exemption shall not apply to the ((U-factor alternative approach in Section R402.1.3 and the)) total UA alternative in Section ((R402.1.4)) R402.1.5.

**R402.3.4 Opaque door exemption.** One side-hinged opaque door assembly up to 24 square feet (2.22 m<sup>2</sup>) in area is exempted from the U-factor requirement in Section ((R402.1.1)) R402.1.2. This exemption shall not apply to ((the U-factor alternative approach in Section R402.1.3 and)) the total UA alternative in Section ((R402.1.4)) R402.1.5.

**R402.3.5 ((Reserved)) Combustion air openings.** In Climate Zones 3 through 8, 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 R402.1.3, where the walls, floors, and ceilings shall meet the minimum of the below-grade wall R-value requirements. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. 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 R402.3.6 and R1006 of the *International Residential Code*.

**R402.3.6 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. When using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907. Gas fireplaces shall comply with the efficiency requirements in Section R403.7.2.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40230, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40230, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40230, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-40240 Section R402.4—Air leakage.**

**R402.4 Air leakage.** The *building thermal envelope* shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through ~~((R402.4.4))~~ R402.4.5.

**R402.4.1 Building thermal envelope air leakage.** The *building thermal envelope* shall comply with Sections R402.4.1.1 ~~((and R402.4.1.2))~~ through R402.4.1.3. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

**R402.4.1.1 Installation.** The components of the *building thermal envelope* as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the *code official*, an *approved* third party shall inspect all components and verify compliance.

**R402.4.1.2 Testing.** The building or dwelling unit shall be tested ~~((and verified as having an air leakage rate of not exceeding 5 air changes per hour. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). For this test only, the volume of the home shall be the conditioned floor area in ft<sup>2</sup> (m<sup>2</sup>) multiplied by 8.5 feet (2.6 m). Where required by the code official, testing shall be conducted by an approved third party.))~~ for air leakage. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E779 or ASTM E1827. Test pressure and leakage rate shall comply with Section R402.1.3. A written report of the test results, including verified location and time stamp of the date of the test, shall be signed by the ((party conducting the test)) testing agency and provided to the building owner and code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope. Once visual inspection has confirmed air sealing ((=see)) has been conducted in accordance with Table R402.4.1.1((=)), operable windows and doors manufactured by small business ((shall be)) are permitted to be sealed off at the frame prior to the test.

((EXCEPTION: For dwelling units that are accessed directly from the outdoors, other than detached one family dwellings and townhouses, an air leakage rate not exceeding 0.4 cfm per square foot of the dwelling unit enclosure area shall be an allowable alternative. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals) in accordance with RESNET/ICC 380, ASTM E779 or ASTM E1827. For the purpose of this test only, the enclosure area is to be calculated as the perimeter of the dwelling unit, measured to the outside face of the exterior walls, and the centerline of party walls, times 8.5 feet, plus the ceiling and floor area. Doors and windows of adjacent dwelling units (including top and bottom units) shall be open to the outside during the test. This exception is not permitted for dwelling units that are accessed from corridors or other enclosed common areas.))

Testing of single-family dwellings and townhouses shall be conducted in accordance with RESNET/ICC 380. Test pressure and leakage rate shall comply with Section R402.1.3.1.

For Group R-2 occupancies, testing shall be conducted in accordance with ASTM E779, ASTM E1827, or ASTM E3158. Test pressure and leakage rate shall comply with Section R402.1.3.2. The individual performing the air leakage test shall be trained and certified by a certification body that is, at the time of permit application, and ISO 17024 accredited certification body including, but not limited to, the Air Barrier Association of America.

During testing:



1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures;
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open, access hatches to conditioned crawl spaces and conditioned attics shall be open;
4. Exterior or interior terminations for continuous ventilation systems and heat recovery ventilators shall be sealed;
5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
6. Supply and return registers, if installed at the time of the test, shall be fully open.

EXCEPTION(S): ((1.)) Additions less than 500 square feet of conditioned floor area.

((2. Additions tested with the existing home having a combined maximum air leakage rate of 7 air changes per hour. To qualify for this exception, the date of construction of the existing house must be prior to the 2009 Washington State Energy Code.))

~~( (R402.4.2 Fireplaces. New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. When using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.~~

~~**R402.4.2.1 Gas fireplace efficiency.** All vented gas fireplace heaters rated to ANSI Z21.88 shall be listed and labeled with a fireplace efficiency (FE) rating of 50 percent or greater in accordance with CSA P.4.1. Vented gas fireplaces (decorative appliances) certified to ANSI Z21.50 shall be listed and labeled, including their FE ratings, in accordance with CSA P.4.1.)~~

~~**R402.4.1.3 Leakage rate.** Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) shall comply with Section R402.4.1.3.1. Group R-2 multifamily buildings shall comply with Section R402.4.1.3.2.~~

~~**R402.4.1.3.1 Dwelling unit leakage rate.** The maximum air leakage rate for any dwelling unit under any compliance path shall not exceed 4.0 air changes per hour. Testing shall be conducted with a blower door test at a test pressure of 0.2 inches w.g. (50 Pa).~~

~~EXCEPTION: *Additions* tested with the existing home having a combined maximum air leakage rate of 7 air changes per hour. To qualify for this exception, the date of construction of the existing dwelling must be prior to the 2009 Washington State Energy Code.~~

~~**R402.4.1.3.2 Group R-2 multifamily building leakage rate.** For Group R-2 multifamily buildings, the maximum leakage rate for any dwelling unit shall not exceed 0.25 cfm per square foot of the dwelling unit enclosure area. Testing shall be conducted with a blower door at a test pressure of 0.2 inches w.g. (50 Pa). Doors and windows of adjacent dwelling units (including top and bottom units) shall be open to the outside during the test.~~

**R402.4.3 Air leakage of fenestration.** Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m<sup>2</sup>), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m<sup>2</sup>), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

EXCEPTIONS: 1. Field-fabricated fenestration products (windows, skylights and doors).  
2. Custom exterior fenestration products 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.

~~((R402.4.4 Combustion air openings. In Climate Zones 3 through 8, 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 R402.1.1, 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 R403. 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 Section R402.4.2 and Section R1006 of the *International Residential Code*.)

**R402.4.5 Recessed lighting.** Recessed luminaires installed in the *building thermal envelope* shall be Type IC-rated and certified under ASTM E283 as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested at a 1.57 psf (75 Pa) pressure differential and shall have a label attached showing compliance with this test method. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

**R402.4.6 Electrical and communication outlet boxes (air-sealed boxes).** Electrical and communication outlet boxes installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. Electrical and communication outlet boxes shall be tested in accordance with NEMA OS 4, *Requirements for Air-Sealed Boxes for Electrical and Communication Applications*, and shall have an air leakage rate of not greater than 2.0 cubic feet per minute (0.944 L/s) at a pressure differential of 1.57 psf (75 Pa). Electrical and communication outlet boxes shall be marked "NEMA OS 4" or "OS 4" in accordance with NEMA OS 4. Electrical and communication outlet boxes shall be installed per the manufacturer's instructions and with any supplied components required to achieve compliance with NEMA OS 4.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-40240, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40240, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40240, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-123, § 51-11R-40240, filed 12/3/14, effective 1/3/15. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40240, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40241 Table R402.4.1.1—Air barrier and insulation installation.**

**TABLE R402.4.1.1  
AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION<sup>a</sup>**

COMPONENT	AIR BARRIER CRITERIA <sup>(a)</sup>	INSULATION CRITERIA <sup>(a)</sup>
General requirements	<p>A continuous air barrier shall be installed in the building envelope.</p> <p><del>((Exterior thermal envelope contains a continuous air barrier.))</del></p> <p>Breaks or joints in the air barrier shall be sealed.</p>	<p>Air-permeable insulation shall not be used as a sealing material.</p>
Cavity insulation installation		<p>All cavities in the thermal envelope shall be filled with insulation. The density of the insulation shall be at the manufacturers' product recommendation and said density shall be maintained for all volume of each cavity. Batt type insulation will show no voids or gaps and maintain an even density for the entire cavity. Batt insulation shall be installed in the recommended cavity depth. Where an obstruction in the cavity due to services, blocking, bracing or other obstruction exists, the batt product will be cut to fit the remaining depth of the cavity. Where the batt is cut around obstructions, loose fill insulation shall be placed to fill any surface or concealed voids, and at the manufacturers' specified density. Where faced batt is used, the installation tabs must be stapled to the face of the stud. There shall be no compression to the batt at the edges of the cavity due to inset stapling installation tabs.</p> <p>Insulation that upon installation readily conforms to available space shall be installed filling the entire cavity and within the manufacturers' density recommendation.</p>
Ceiling/attic	<p>The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier sealed.</p> <p>Access openings, drop down stair or knee wall doors to unconditioned attic spaces shall be sealed.</p>	<p>The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.</p> <p>Batt insulation installed in attic roof assemblies may be compressed at exterior wall lines to allow for required attic ventilation.</p>
Walls	<p>The junction of the foundation and sill plate shall be sealed. The junction of the top plate and top of exterior walls shall be sealed. Knee walls shall be sealed.</p>	<p>Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum.</p> <p>Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.</p>
Windows, skylights and doors	<p>The space between window/door jambs and framing and skylights and framing shall be sealed.</p>	
Rim joists	<p>Rim joists shall include <del>((the))</del> <u>an exterior</u> air barrier<sup>b</sup>.</p>	<p>Rim joists shall be insulated <u>so that the insulation maintains permanent contact with the exterior rim board</u><sup>b</sup>.</p>

COMPONENT	AIR BARRIER CRITERIA <sup>(A)</sup>	INSULATION CRITERIA <sup>(A)</sup>
	<u>The junctions of the rim board to the sill plate and the rim board and the subfloor shall be air sealed.</u>	
Floors (including above garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking or floor framing cavity insulation shall be permitted to be in contact with the topside of sheathing or continuous insulation installed on the underside of floor framing and extend from the bottom to the top of all perimeter floor framing members.
<u>Basement, crawl space ((walls)), and slab foundations</u>	<p>Exposed earth in unvented crawl spaces shall be covered with a Class I, black vapor retarder with overlapping joints taped.</p> <p><u>Penetrations through concrete foundation walls and slabs shall be air sealed.</u></p> <p><u>Class I vapor retarders shall not be used as an air barrier on below-grade walls and shall be installed in accordance with Section R702.7 of the <i>International Residential Code</i>.</u></p>	<p><del>((Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace walls.))</del> <u>Crawl space insulation, where provided instead of floor insulation, shall be installed in accordance with Section R402.2.10.</u></p> <p><u>Conditioned basement foundation wall insulation shall be installed in accordance with Section R402.2.8.1.</u></p> <p><u>Slab on grade floor insulation shall be installed in accordance with Section R402.2.10.</u></p>
Shafts, penetrations	<p>Duct <del>((shafts, utility penetrations,))</del> and flue shafts <del>((opening))</del> to exterior or unconditioned space shall be <u>air sealed.</u></p> <p><u>Utility penetrations of the air barrier shall be caulked, gasketed, or otherwise sealed and shall allow for expansion and contraction of materials and mechanical vibration.</u></p>	<u>Insulation shall be fitted tightly around utilities passing through shafts and penetrations in the building thermal envelope to maintain required R-value.</u>
Narrow cavities	<u>Narrow cavities, of an inch or less, not able to be insulated, shall be air sealed.</u>	Batts in narrow cavities shall be cut to fit and installed to the correct density without any voids or gaps or compression, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.	<u>Insulated portions of the garage separation assembly shall be installed in accordance with Sections R303 and R402.2.8.</u>
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be <u>air sealed</u> <del>((to the finished surface))</del> <u>in accordance with Section R402.4.5.</u>	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated <u>and shall be buried or surrounded with insulation.</u>
Plumbing <del>((and)),</del> wiring, or other obstructions	<u>All holes created by wiring, plumbing, or other obstructions in the air barrier assembly shall be air sealed.</u>	Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls. There shall be no voids or gaps or compression where cut to fit. Insulation that on installation readily conforms to available space shall extend behind piping and wiring. <u>Insulation shall be installed to fill the available space and surround wiring, plumbing, or other obstructions, unless the required R-value can be met by installing insulation and air barrier systems completely to the exterior side of the obstructions.</u>
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate the wall from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.

COMPONENT	AIR BARRIER CRITERIA <sup>(a)</sup>	INSULATION CRITERIA <sup>(a)</sup>
Electrical/phone box on exterior wall	The air barrier shall be installed behind electrical or communication boxes or air sealed boxes shall be installed.	
HVAC register boots	HVAC supply and return register boots shall be sealed to the subfloor, wall covering or ceiling penetrated by the boot.	
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed 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.	

IC = insulation contact.

<sup>a</sup> In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

<sup>b</sup> Insulation installed in unconditioned/ventilated attic spaces is not required to be enclosed within an air barrier assembly.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40241, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40241, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40241, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40250 Section R402.5—Maximum fenestration *U*-factor and SHGC.**

**R402.5 Maximum fenestration *U*-factor.** The area-weighted average maximum fenestration *U*-factor permitted using tradeoffs from Section ((R402.1.4)) R402.1.5 or R405 shall be 0.48 for vertical fenestration, and 0.75 for skylights.

**EXCEPTION:** The maximum *U*-factor and solar heat gain coefficient (SHGC) for fenestration shall not be required in storm shelters complying with ICC 500.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40250, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40250, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40250, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 22-13-100, filed 6/14/22, effective 7/15/22)

**WAC 51-11R-40310 Section R403.1—Controls.**

**R403.1 Controls.** ((At least)) Not less than one thermostat shall be provided for each separate heating and cooling system.

**R403.1.1 Programmable or connected thermostat.** Where the primary heating system is a forced-air furnace, at least one thermostat per dwelling unit shall be Energy Star certified and capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day and different days of the week. 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/setup periods per day. This thermostat shall include the capability to set back, set up or temporarily operate the system to maintain zone temperatures down to 55°F (13°C) or up to 85°F (29°C). The thermostat shall ~~((initially))~~ be programmed initially by the manufacturer with a heating temperature set point ~~((no higher))~~ of not greater than 70°F (21°C) and a cooling temperature set point ~~((no lower))~~ of not less than 78°F (26°C). The thermostat and/or control system shall have an adjustable deadband of not less than 10°F.

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 mini-split heat pump systems that have an integral proprietary thermostat.

**R403.1.2 Heat pump supplementary heat.** Unitary air cooled heat pumps shall include 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. At final inspection the auxiliary heat lock out control shall be set to 35°F or less.

**R403.1.3 Continuously burning pilot lights.** The natural gas systems and equipment listed below are not permitted to be equipped with continuously burning pilot lights.

1. Fan-type central furnaces.
2. Household cooking appliances.

EXCEPTION: Household cooking appliances without electrical supply voltage connections and in which each pilot light consumes less than 150 Btu/hr.

3. Pool heaters.
4. Spa heaters.
5. ~~((Beginning September 1, 2022,))~~ Fireplaces.

EXCEPTION: Any fireplace with on-demand, intermittent or interrupted ignition (as defined in ANSI Z21.20) is not considered continuous.

[Statutory Authority: RCW 19.27A.045 and 19.27A.020. WSR 22-13-100, § 51-11R-40310, filed 6/14/22, effective 7/15/22. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40310, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40310, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40310, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-02-127, filed 1/6/16, effective 7/1/16)

**WAC 51-11R-40315 Section R403.2—Hot water boiler.**

**R403.2 Hot water boiler ((~~outdoor~~)) temperature ((~~setback~~)) reset.**

~~((Hot water boilers that supply heat to the building through one or two pipe heating systems shall have an outdoor temperature setback control that lowers the boiler water temperature based on the outdoor temperature.))~~ The manufacturer shall configure each gas, oil, and electric boiler (other than a boiler equipped with a tankless domestic water heating coil) with an automatic means of adjusting the water temperature supplied by the boiler to ensure incremental change of the inferred heat load will cause an incremental change in the temperature of the water supplied by the boiler. This can be accomplished with outdoor reset, indoor reset, or water temperature sensing.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40315, filed 1/6/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40320 Section R403.3—Ducts.**

**R403.3 Ducts.** Ducts and air handlers shall be installed in accordance with Sections R403.3.1 through R403.3.7.

~~**R403.3.1 ((Insulation.** Ducts outside the building thermal envelope shall be insulated to a minimum of R-8. Ducts within a concrete slab or in the ground shall be insulated to R-10 with insulation designed to be used below grade))~~ **Ducts located outside conditioned space.** Supply and return ducts located outside *conditioned space* shall be insulated to and R-value of not less than R-8 for ducts 3 inches (76 mm) in diameter and larger and not less than R-6 for ducts smaller than 3 inches (76 mm) in diameter. Ducts buried beneath a building shall be insulated as required per this section or have an equivalent thermal distribution efficiency. Ducts within a concrete slab or in the ground shall be insulated to R-10 with insulation designed to be used below grade. Underground ducts utilizing the *thermal distribution efficiency* method shall be listed and labeled to indicate the R-value equivalency.

((EXCEPTION: Ducts or portions thereof located completely inside the *building thermal envelope*. Ducts located in crawl spaces do not qualify for this exception.))

**R403.3.2 Ducts located in conditioned space.** For ducts to be considered as being located inside a conditioned space, such ducts shall comply with the following:

1. All duct systems shall be located completely within the *continuous air barrier* and within the *building thermal envelope*.
2. All heating, cooling, and ventilation system components shall be installed inside the conditioned space including, but not limited to, forced air ducts, hydronic piping, hydronic floor heating loops, convectors and radiators. Combustion equipment shall be direct vent or sealed combustion.

3. For forced air ducts, a maximum of 10 linear feet of return ducts and 5 linear feet of supply ducts is permitted to be located outside the conditioned space, provided they are insulated to a minimum of R-8.

3.1. Metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic.

3.2. If flex ducts are used, they cannot contain splices. Flex duct connections must be made with nylon straps and installed using a plastic strapping tensioning tool.

4. Ductwork in floor cavities located over unconditioned space shall comply with all of the following:

4.1. A continuous air barrier installed between unconditioned space and the duct.

4.2. Insulation installed in accordance with Section R402.2.7.

4.3. A minimum R-19 insulation installed in the cavity width separating the duct from unconditioned space.

5. Ductwork located within exterior walls of the building thermal envelope shall comply with the following:

5.1. A continuous air barrier installed between unconditioned space and the duct.

5.2. A minimum R-10 insulation installed in the cavity width separating the duct from unconditioned space.

5.3. The remainder of the cavity insulation shall be fully insulated to the drywall side.

**R403.3.3 Ducts buried within ceiling insulation.** Where supply and return air ducts are partially or completely buried in ceiling insulation, such ducts shall comply with all of the following:

1. The supply and return ducts shall have an insulation R-value not less than R-8.

2. At all points along each duct, the sum of the ceiling insulation R-value against and above the top of the duct, and against and below the bottom of the duct, shall be not less than R-19, excluding the R-value of the duct insulation.

**EXCEPTION:** Sections of the supply duct that are less than 3 feet (914 mm) from the supply outlet shall not be required to comply with these requirements.

**R403.3.3.1 Effective R-value of deeply buried ducts.** Where using a simulated energy performance analysis, sections of ducts that are: Installed in accordance with Section R403.3.3; located directly on, or within 5.5 inches (140 mm) of the ceiling; surrounded with blown-in attic insulation having an R-value of R-30 or greater and located such that the top of the duct is not less than 3.5 inches (89 mm) below the top of the insulation, shall be considered as having an effective duct insulation R-value of R-25.

**R403.3.4 Sealing.** Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with either the *International Mechanical Code* or *International Residential Code*, as applicable.

**EXCEPTIONS:**

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
2. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams, and locking-type joints and seams of other than the snap-lock and button-lock types.

**((R403.3.2.1)) R403.3.4.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.



**~~((R403.3.3)) R403.3.5 Duct testing.~~** Ducts shall be leak tested in accordance with WSU RS-33, using the maximum duct leakage rates specified.

EXCEPTION(S): ~~((1- The total leakage or leakage to the outdoors test is not required for ducts and air handlers located entirely within the building thermal envelope. For forced air ducts, a maximum of 10 linear feet of return ducts and 5 linear feet of supply ducts may be located outside the conditioned space. All metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic. If flex ducts are used, they cannot contain splices. Flex duct connections must be made with nylon straps and installed using a plastic strapping tensioning tool. Ducts located in crawl spaces do not qualify for this exception. 2-))~~ A duct air leakage test shall not be required for ducts serving ~~((heat or energy recovery ventilators))~~ ventilation systems that are not integrated with the ducts serving heating or cooling systems.

A written report of the results shall be signed by the party conducting the test and provided to the *code official*.

**~~((R403.3.4)) R403.3.6 Duct leakage.~~** The total leakage of the ducts, where measured in accordance with Section R403.3.3, shall be as follows:

1. Rough-in test: Total leakage shall be less than or equal to ~~((4))~~ 4.0 cfm (113.3 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. All registers shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to ~~((3))~~ 3.0 cfm (85 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area.

2. Postconstruction test: Leakage to outdoors shall be less than or equal to ~~((4))~~ 4.0 cfm (113.3 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area or total leakage shall be less than or equal to ~~((4))~~ 4.0 cfm (113.3 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

3. Test for ducts within thermal envelope: Where all ducts and air handlers are located entirely within the building thermal envelope, total leakage shall be less than or equal to 8.0 cubic feet per minute (226.6 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area. For forced air ducts, a maximum of 10 linear feet of return ducts and 5 linear feet of supply ducts may be located outside the conditioned space. All metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic. If flex ducts are used, they cannot contain splices. Flex duct connections must be made with nylon straps and installed using a plastic strapping tensioning tool. Ducts located in crawl spaces do not qualify for this exception.

**~~((R403.3.5)) R403.3.7 Building cavities.~~** Building framing cavities shall not be used as ducts or plenums. Installation of ducts in exterior walls, floors or ceilings shall not displace required envelope insulation.

~~((R403.3.6 Ducts buried within ceiling insulation. Where supply and return air ducts are partially or completely buried in ceiling insulation, such ducts shall comply with all of the following:~~

1. The supply and return ducts shall have an insulation R-value not less than R-8.

2. At all points along each duct, the sum of the ceiling insulation R-value against and above the top of the duct, and against and

~~below the bottom of the duct, shall be not less than R-19, excluding the R-value of the duct insulation.~~

EXCEPTION: Sections of the supply duct that are less than 3 feet (914 mm) from the supply outlet shall not be required to comply with these requirements.

~~**R403.3.6.1 Effective R-value of deeply buried ducts.** Where using a simulated energy performance analysis, sections of ducts that are: Installed in accordance with Section R403.3.6; located directly on, or within 5.5 inches (140 mm) of the ceiling; surrounded with blown-in attic insulation having an R-value of R-30 or greater and located such that the top of the duct is not less than 3.5 inches (89 mm) below the top of the insulation, shall be considered as having an effective duct insulation R-value of R-25.~~

~~**R403.3.7 Ducts located in conditioned space.** For ducts to be considered as being located inside a conditioned space, such ducts shall comply with the following:~~

~~1. All duct systems shall be located completely within the continuous air barrier and within the *building thermal envelope*.~~

~~2. All heating, cooling and ventilation system components shall be installed inside the conditioned space including, but not limited to, forced air ducts, hydronic piping, hydronic floor heating loops, convectors and radiators. Combustion equipment shall be direct vent or sealed combustion.~~

~~3. For forced air ducts, a maximum of 10 linear feet of return ducts and 5 linear feet of supply ducts is permitted to be located outside the conditioned space, provided they are insulated to a minimum of R-8.~~

~~3.1. Metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic.~~

~~3.2. If flex ducts are used, they cannot contain splices. Flex duct connections must be made with nylon straps and installed using a plastic strapping tensioning tool.)~~

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40320, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-40320, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40320, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40320, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40330 Section R403.4—Mechanical system piping insulation.**

**R403.4 Mechanical system piping insulation.** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-6.

EXCEPTION: Up to 200 feet of hydronic system piping installed within the conditioned space may be insulated with a minimum of 1/2-inch insulation with a *k* value of 0.28.

**R403.4.1 Protection of piping insulation.** Piping insulation, including termination ends, exposed to weather shall be protected from damage, including that caused by sunlight, moisture, ~~((equipment maintenance))~~ physical damage, and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Protection shall be removable for the exposed length or no less than six inches from the equipment for maintenance. Adhesive tape shall not be permitted.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40330, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40330, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40330, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40340 Section R403.5—Service hot water systems.**

**R403.5 Service hot water systems.** Energy conservation measures for service hot water systems shall be in accordance with ~~((Sections R403.5.1 through R403.5.5))~~ this section. Service water-heating equipment shall meet the requirements of DOE 10 C.F.R. Part 430 Uniform Energy Factor or the equipment shall meet the requirements of Section C404.2.

**R403.5.1 Heated water circulation and temperature maintenance systems.** Heated water circulation systems shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be ~~((accessible))~~ in a location with access. Manual controls shall be ~~((readily accessible))~~ in a location with ready access.

**R403.5.1.1 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))~~ are 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 circulation pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

**R403.5.1.1.1 Demand recirculation water systems serving an individual dwelling unit.** Demand recirculation water systems shall have controls that 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.

**R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall 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.

**R403.5.2** (~~**(Demand recirculation water systems.**~~ ~~*Demand recirculation water systems*~~ shall have controls that comply with both of the following:

1. ~~The controls 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 controls shall limit the temperature of the water entering the cold water piping to not greater than 104°F (40°C).~~) **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. Water heaters, circulating water systems, and heat trace temperature maintenance systems shall be considered to be sources of heated water. The volume in the piping shall be determined from Table C404.3.1 in the Washington State Energy Code, Commercial Provisions or Table L502.7 of the Uniform Plumbing Code. 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.

**R403.5.3 Hot water pipe insulation.** Insulation for service hot water pipe, both within and outside the conditioned space, shall have a minimum thermal resistance (*R*-value) of R-3.

EXCEPTION: Pipe insulation is permitted to be discontinuous where it passes through studs, joists or other structural members and where the insulated pipes pass other piping, conduit or vents, provided the insulation is installed tight to each obstruction.

**R403.5.4 Drain water heat recovery units.** Drain water heat recovery units shall comply with CSA 55.2 or IAPMO PS 92. Drain water heat recovery units shall be in accordance with CSA 55.1 or IAPMO IGC 346-2017.

**R403.5.5 Water heater installation location.** Service hot water systems shall be installed within the building thermal envelope.

EXCEPTION: Where the hot water system efficiency is greater than or equal to 2.0 UEF.

**R403.5.6 Electric water heater insulation.** All electric water heaters in unconditioned spaces, or on concrete floors in conditioned spaces, shall be placed on an insulated surface with a minimum thermal resistance of R-10, and a minimum compressive strength of 40 psi or engineered to support the appliance.

**R403.5.7 Heat pump water heating.** Service hot water in one- and two-family dwellings and multiple single-family dwellings (townhouses) shall be provided by a heat pump system. The heat pump water heating system shall be sized to provide 100 percent of peak hot water demand. Where the heat pump is located in unconditioned space, the heat pump water heating system shall be sized to provide 100 percent of peak hot water demand at an entering source dry bulb (or wet bulb if rated for wet bulb temperatures) air temperature of 40°F (4°C).

EXCEPTIONS: 1. Resistance heating elements integrated into heat pump equipment.  
2. Electric water heaters with a rated water storage volume of no greater than 20 gallons.  
3. Dwelling units with no more than 1,000 square feet of conditioned floor area.  
4. Supplementary water heating systems in accordance with Section R403.5.7.1, provided the system capacity does not exceed the capacity of the heat pump water heating system.

- 5. Solar water heating systems.
- 6. Waste heat and energy recovery systems.
- 7. Heat trace freeze protection systems.
- 8. Snow and ice melt systems.

#### **R403.5.7.1 Supplementary heat for heat pump water heating systems.**

Heat pumps used for water heating and having supplementary water heating equipment shall have controls that limit supplementary water heating equipment operation to only those times when one of the following applies:

1. The heat pump water heater cannot meet hot water demand.
2. For heat pumps located in unconditioned space, the outside air temperature is below 40°F (4°C).
3. The heat pump is operating in defrost mode.
4. The vapor compression cycle malfunctions or loses power.

EXCEPTION: Heat trace temperature maintenance systems, provided the system capacity does not exceed the capacity of the heat pump water heating system.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40340, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40340, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-053, § 51-11R-40340, filed 11/25/14, effective 5/1/15. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-20-121, § 51-11R-40340, filed 10/1/13, effective 11/1/13. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40340, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

#### **WAC 51-11R-40350 Section R403.6—Mechanical ventilation.**

**R403.6 Mechanical ventilation.** The buildings complying with Section R402.4.1 shall be provided with mechanical ventilation that meets the requirements of Section M1505 in the International Residential Code or Section 403 in the International Mechanical Code, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

**R403.6.1 Whole-house mechanical ventilation system fan efficacy.** Mechanical ventilation system fans shall meet the efficacy requirements of Table R403.6.1 at one or more rating points. Fans shall be tested in accordance with HVI 916 and listed. The airflow shall be reported in the product listing or on the label. Fan efficacy shall be reported in the product listing or shall be derived from the input power and airflow values reported in the product listing on the label. Fan efficacy for fully ducted HRV, ERV, balanced, and in-line fans shall be determined at a static pressure of not less than 0.2 inch w.c. (49.85 Pa). Fan efficacy for ducted range hoods, bathroom and utility room fans shall be determined at a static pressure of not less than 0.1 inch w.c. (24.91 Pa).

((EXCEPTION: Where an air handler that is integral to the tested and listed HVAC equipment is used to provide whole-house ventilation, the air handler shall be powered by an electronically commutated motor.))

**R403.6.2 Testing.** Mechanical ventilation systems shall be tested and verified to provide the minimum ventilation flow rates required by Section R403.6. Testing shall be performed according to the ventilation equipment manufacturer's instructions, or by using a flow hood or box, flow grid, or other airflow measuring device at the mechanical ventilation fan's inlet terminals or grilles, outlet terminals or grilles, or in the connected ventilation ducts. Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

**EXCEPTION:** Kitchen range hoods that are ducted to the outside with 6-inch (152 mm) or larger duct and not more than one 90-degree (1.57 rad) elbow or equivalent in the duct run.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40350, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40350, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40350, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-40351 Table R403.6.1—Mechanical ventilation system fan efficacy.**

**TABLE R403.6.1  
WHOLE HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY<sup>a</sup>**

(Fan Location)	Air Flow Rate Minimum (cfm)	Minimum Efficacy (cfm/watt)	Air Flow Rate Maximum (cfm)
HRV or ERV	Any	1.2 cfm/watt	Any
Range hoods	Any	2.8	Any
In-line fan	Any	2.8	Any
Bathroom, utility room	10	1.4	<90
Bathroom, utility room	90	2.8	Any))

System Type	Air Flow Rate (cfm)	Minimum Efficacy (cfm/watt)
HRV, ERV or balanced	Any	1.2
Range hoods	Any	2.8
In-line supply or exhaust fan	Any	3.8
Other exhaust fan	<90	2.8
Other exhaust fan	≥90	3.5

For SI: 1 cfm = 28.3 L/min.  
a. ((When tested in accordance with HVI Standard 916-)) Design outdoor or exhausted airflow rates/watt of fan used.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-40351, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27

RCW. WSR 20-01-047, § 51-11R-40351, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40351, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40351, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-40360 Section R403.7—Equipment sizing.**

**R403.7 Equipment sizing and efficiency rating.** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other *approved* heating and cooling calculation methodologies. The output capacity of heating and cooling equipment shall not be greater than that of the smallest available equipment size that exceeds the loads calculated, including allowable oversizing limits. Equipment shall meet the minimum federal efficiency standards as referenced in Tables C403.3.2(1), C403.3.2(2), C403.3.2(3), C403.3.2(4), C403.3.2(5), C403.3.2(6), C403.3.2(7), C403.3.2(8) and C403.3.2(9) and tested and rated in accordance with the applicable test procedure.

~~((R403.7.1 Electric resistance zone heated units. All detached one- and two-family dwellings and multiple single-family dwellings (townhouses) up to three stories in height above grade plane using electric zonal heating as the primary heat source shall install an inverter-driven ductless mini-split heat pump in the largest zone in the dwelling. Building permit drawings shall specify the heating equipment type and location of the heating system.~~

EXCEPTION: Total installed heating capacity of 2 kW per dwelling unit or less.))

**R403.7.1 Gas fireplace efficiency.** All vented gas fireplace heaters rated to ANSI Z21.88 shall be listed and labeled with a fireplace efficiency (FE) rating of 50 percent or greater in accordance with CSA P.4.1. Vented gas fireplaces (decorative appliances) certified to ANSI Z21.50 shall be listed and labeled, including their FE ratings, in accordance with CSA P.4.1.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-40360, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40360, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40360, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40360, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40390 Section R403.10—Pool and spa energy consumption.**

**R403.10 ((Pool and permanent spa)) Energy consumption of pools and spas.** ~~The energy consumption of pools and permanent spas shall ((comply with))~~ be controlled by the requirements in Sections R403.10.1 through R403.10.4.2.

**R403.10.1 Heaters.** The electric power to heaters shall be controlled by ~~((a readily accessible))~~ an on-off switch that is an integral part of the heater mounted on the exterior of the heater in a location with ready access, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the settings of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater.

**R403.10.2 Time switches.** Time switches or other control method that can automatically turn off and on heaters and pump motors according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built in time switches shall be deemed in compliance with this requirement.

EXCEPTIONS:     1. Where public health standards require 24-hour pump operation.  
                  2. Pumps that operate solar- and waste-heat-recovery pool heating systems.

**R403.10.3 Covers.** Outdoor heated pools and outdoor permanent spas shall be provided with a vapor-retardant cover, or other *approved* vapor retardant means.

EXCEPTION:     Where more than 75 percent of the energy for heating, computed over an operating season of not ~~((less))~~ fewer than three calendar months, is from a heat pump or on-site renewable energy system, covers or other vapor-retardant means shall not be required.

**R403.10.4 Residential pool pumps.** Pool pump motors may not be split-phase or capacitor start-induction run type.

**R403.10.4.1 Two-speed capability.**

1. Pump motors: Pool pump motors with a capacity of 1 hp or more shall have the capability of operating at two or more speeds with low speed having a rotation rate that is no more than one-half of the motor's maximum rotation rate.

2. Pump controls: Pool pump motor controls shall have the capability of operating the pool pump with at least two speeds. The default circulation speed shall be the lowest speed, with a high speed override capability being for a temporary period not to exceed one normal cycle.

**R403.10.4.2 Pump operation.** Circulating water systems shall be controlled so that the circulation pump(s) can be conveniently turned off, automatically or manually, when the water system is not in operation.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40390, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40390, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40390, filed 2/1/13, effective 7/1/13.]



AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40391 Section R403.10—Other pools and spas.**

**R403.11 Portable spas.** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14.

**R403.12 Residential pools and permanent residential spas.** (~~Residential swimming pools and permanent residential spas that are accessory to detached one- and two-family dwellings and townhouses three stories or less in height above grade plane and that are available only to the household and its guests~~) The energy consumption of residential swimming pools and permanent residential spas shall be controlled in accordance with the requirements of APSP-15.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40391, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40391, filed 1/6/16, effective 7/1/16.]

NEW SECTION

**WAC 51-11R-40392 Section R403.13—Heat pump space heating.**

**R403.13 Heat pump space heating.** Space heating shall be provided by a heat pump system.

EXCEPTIONS:

1. Detached one- and two-family dwellings and multiple-single family dwellings (townhouses up to three stories in height above grade having an installed HVAC heating capacity no greater than 1.5 watts of electric resistance heating per square foot of *dwelling unit conditioned floor area*, or up to 500 watts, whichever is greater.
2. Group R-2 *dwelling or sleeping units* having an installed HVAC heating capacity no greater than 750 watts in Climate Zone 4, and 1,000 watts in Climate Zone 5, in any separate habitable room with exterior fenestration are permitted to be heated using electric resistance appliances. For buildings in location with exterior design conditions below 4°F (-15.6°C), an additional 250 watts above that allowed for Climate Zone 5 is permitted.
- 2.1. A room within a dwelling or sleeping unit that has two primary walls facing different cardinal directions, each with exterior fenestration, is permitted to have an installed HVAC heating capacity no greater than 1,000 watts in Climate Zone 4, and 1,300 watts in Climate Zone 5. Bay windows and other minor offsets are not considered primary walls. For buildings in location with exterior design conditions below 4°F (-15.6°C), an additional 250 watts above that allowed for Climate Zone 5 is permitted.
3. Resistance heating elements integrated into heat pump equipment.
4. Solar thermal systems.
5. Waste heat, radiant heat exchanger, and energy recovery systems.
6. Supplementary heat in accordance with Section R403.1.2.
7. Where there is no electric utility service available at the building site.
8. Heating systems that rely primarily on biomass are allowed in Climate Zone 5.

[ ]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40410 Section R404.1—Lighting equipment.**

**R404.1 Lighting equipment.** (~~Not less than 90 percent of lamps in~~) All permanently installed lighting fixtures, excluding kitchen appliance lighting fixtures, shall ((be)) contain only high-efficacy ((lamps)) lighting sources.

**R404.1.1 Exterior lighting.** Connected exterior lighting for residential buildings shall comply with Section C405.5.

EXCEPTION: Solar-powered lamps not connected to any electrical service.

**((R404.1.1)) R404.1.2 Fuel gas lighting equipment.** Fuel gas lighting systems shall not have continuously burning pilot lights.

**R404.2 Interior lighting controls.** Permanently installed interior lighting fixtures shall be controlled with either a dimmer, an occupant sensor control, or other control that is installed or built into the fixture.

EXCEPTION: Lighting controls shall not be required for the following:

1. Bathrooms;
2. Hallways;
3. Lighting designed for safety or security.

**R404.3 Exterior lighting controls.** Where the total permanently installed exterior lighting power is greater than 30 watts, the permanently installed exterior lighting shall comply with the following:

1. Lighting shall be controlled by a manual on and off switch which permits automatic shut-off actions.

EXCEPTION: Lighting serving multiple dwelling units.

2. Lighting shall be automatically shut off when daylight is present and satisfies the lighting needs.

3. Controls that override automatic shut-off actions shall not be allowed unless the override automatically returns automatic control to its normal operation within 24 hours.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40410, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40410, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40410, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-40500 Section R405—(~~Simulated performance alternative (Performance)~~) Total building performance.**

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40500, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40510 Section R405.1—Scope.**

**R405.1 Scope.** This section establishes criteria for compliance using (~~simulated energy~~) total building performance analysis. Such analysis shall include heating, cooling, mechanical ventilation, and service water heating energy only.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40510, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40510, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 22-10-094, filed 5/3/22, effective 6/3/22)

**WAC 51-11R-40520 Section R405.2—(~~Mandatory requirements~~) Performance based compliance.**

**R405.2 (~~Mandatory requirements~~) Performance based compliance.** ~~Compliance ((with this section requires compliance with those sections shown in Table R405.2. All supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-8))~~ based on total building performance requires the following:

1. The requirements of the sections indicated within Table R405.2(1).
  2. For structures less than 1,500 square feet of conditioned floor area, the annual carbon emissions shall be less than or equal to 64 percent of the annual carbon emissions of the standard reference design.
  3. For structures 1,500 to 5,000 square feet of conditioned floor area, the annual carbon emissions shall be no more than 47 percent of the standard reference design.
  4. For structures over 5,000 square feet of conditioned floor area, the annual carbon emissions shall be no more than 41 percent of the standard reference design.
  5. For structures serving Group R-2 occupancies, the annual carbon emissions shall be less than or equal to 61 percent of the annual energy consumption of the standard reference design. See Section R401.1 and residential building in Section R202 for Group R-2 scope.
- Carbon emissions for both the standard reference design and the proposed design shall be calculated using Table R405.2(2). Energy use derived from simulation analysis shall be expressed in pounds of carbon per square foot of conditioned floor area.

TABLE R405.2(1)  
MANDATORY COMPLIANCE MEASURES FOR ((SIMULATED PERFORMANCE ALTERNATIVE)) TOTAL BUILDING PERFORMANCE

Section <sup>a</sup>	Title	Comments
<b>General</b>		
R401.3	Certificate	
<b>Envelope</b>		
<u>R402.1.1</u>	<u>Vapor retarder</u>	
<u>R402.2.3</u>	<u>Eave baffle</u>	
<u>R402.2.4.1</u>	<u>Access hatches and doors</u>	
<u>R402.2.10.1</u>	<u>Crawlspace wall insulation installations</u>	
R402.4	Air leakage	

Section <sup>a</sup>	Title	Comments
R402.5	Maximum fenestration <i>U</i> -factor	
<b>Systems</b>		
R403.1	Controls	
((R403.1.2	Heat pump supplemental heat	
R403.3.2	Sealing	
R403.3.1	Insulation	
R403.3.3	Duct testing	
R403.3.4	Duct leakage	
R403.3.5	Building cavities))	
<u>R403.3</u>	<u>Ducts</u>	Except for <u>R403.3.2</u> and <u>R403.3.3</u>
R403.4	Mechanical system piping insulation	
R403.5.1	Heated water circulation and temperature maintenance system	
<u>R403.5.3</u>	<u>Drain water heat recovery units</u>	
<u>R403.5.7</u>	<u>Heat pump water heating</u>	
R403.6	Mechanical ventilation	
R403.7	Equipment sizing and efficiency rating	
R403.8	Systems serving multiple dwelling units	
R403.9	Snow melt system controls	
R403.10	((Pool and permanent spa energy consumption)) <u>Energy consumption of pools and spas</u>	
R403.11	Portable spas	
<u>R403.12</u>	<u>Residential pools and permanent residential spas</u>	
<u>R403.13</u>	<u>Heat pump space heating</u>	
<b>Electrical Power and Lighting</b>		
R404.1	Lighting equipment	
((R404.1.1	Lighting equipment))	
R404.2	((Electric readiness)) <u>Interior lighting controls</u>	
<b>((Other Requirements</b>		
R406	Additional energy efficiency requirements))	

<sup>a</sup> Reference to a code section includes all the relative subsections except as indicated in the table.

**TABLE R405.2 (2)**  
**CARBON EMISSIONS FACTORS**

<u>Type</u>	<u>CO<sub>2</sub>e (lb/unit)</u>	<u>Unit</u>
Electricity	0.44	kWh
Natural gas	11.7	Therm
Oil	19.2	Gallon
Propane	10.5	Gallon
Other <sup>a</sup>	195.00	mmBtu
On-site renewable energy	0.00	

<sup>a</sup> District energy systems may use alternative emission factors supported by calculations approved by the code official.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 22-10-094, § 51-11R-40520, filed 5/3/22, effective 6/3/22. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40520, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40520, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-40530 Section R405.3—(~~Performance-based compliance~~) Documentation.**

(~~R405.3 Performance-based compliance.~~ Compliance based on simulated energy performance requires that a proposed residence (~~proposed design~~) be shown to have an annual energy consumption based on carbon emissions of the fuels and energy use in the proposed building. Carbon emissions for both the standard reference design and the proposed design shall be calculated using Table R405.3. Energy use derived from simulation analysis shall be expressed in pounds of carbon per square foot of ~~conditioned floor area~~ as follows:

- ~~1. For structures less than 1,500 square feet of conditioned floor area, the annual carbon emissions shall be less than or equal to 73 percent of the annual carbon emissions of the standard reference design.~~
- ~~2. For structures 1,500 to 5,000 square feet of conditioned floor area, the annual carbon emissions shall be no more than 56 percent of the standard reference design.~~
- ~~3. For structures over 5,000 square feet of conditioned floor area, the annual carbon emissions shall be no more than 50 percent of the standard reference design.~~
- ~~4. For structures serving Group R-2 occupancies, the annual carbon emissions shall be less than or equal to 70 percent of the annual energy consumption of the standard reference design.~~

**TABLE R405.3**  
**CARBON EMISSIONS FACTORS**

<u>Type</u>	<u>CO<sub>2</sub>e (lb/unit)</u>	<u>Unit</u>
Electricity	0.80	kWh

Type	CO <sub>2</sub> e (lb/unit)	Unit
Natural gas	11.7	Therm
Oil	19.2	Gallon
Propane	10.5	Gallon
Other <sup>a</sup>	195.00	mmBtu
On-site renewable energy	0.00	

<sup>a</sup> District energy systems may use alternative emission factors supported by calculations approved by the code official.))

**R405.3 Documentation.** Documentation of the software used for the performance design and the parameters for the building shall be in accordance with Sections R405.3.1 through R405.3.3.

**R405.3.1 Compliance software tools.** Documentation verifying that the methods and accuracy of the compliance software tools conform to the provisions of this section shall be provided to the code official.

**R405.3.2 Compliance report.** Compliance software tools shall generate a report that documents that the proposed design complies with Section R405.2.

A compliance report on the proposed design shall be submitted with the application for the building permit. Upon completion of the building, a confirmed compliance report based upon the confirmed condition of the building shall be submitted to the code official before a certificate of occupancy is issued.

Compliance reports shall include information in accordance with Sections R405.3.2.1 and R405.3.2.2.

**R405.3.2.1 Compliance report for permit application.** A compliance report submitted with the application for building permit shall include all of the following:

1. Building street address, or other building site identification.
2. The name, organization, and contact information of the individual performing the analysis and generating the compliance report.
3. The name and version of the compliance software tool.
4. Documentation of all inputs entered into the software used to produce the results for the reference design and/or the rated home.
5. A certificate indicating that the proposed design complied with Section R405.2. The certificate shall document the building components' energy specifications that are included in the calculation including: Component-level insulation R-values or U-factors; duct system and building envelope air leakage testing assumptions; and the type and rated efficiencies of proposed heating, cooling, mechanical ventilation, and service water-heating equipment to be installed. If on-site renewable energy systems will be installed, the certificate shall report the type and production size of the proposed system. Additional documentation reporting estimated annual energy production shall be provided.
6. When a site-specific report is not generated, the proposed design shall be based on the worst-case orientation and configuration of the rated home.

**R405.3.2.2 Compliance report for certificate of occupancy.** A compliance report submitted for obtaining the certificate of occupancy shall include all of the following:

1. Building street address, or other building site identification.
2. Declaration of the total building performance path on the title page of the energy report and the title page of the building plans.
3. A statement bearing the name of the individual performing the analysis and generating the report, along with their organization and contact information, indicating that the as-built building complies with Section R405.2.
4. The name and version of the compliance software tool.
5. A site-specific energy analysis report that is in compliance with Section R405.2.
6. A final confirmed certificate indicating compliance based on inspection, and a statement indicating that the confirmed rated design of the built home complies with Section R405.2. The certificate shall report the energy features that were confirmed to be in the home, including component level insulation R-values or U-factors; results from any required duct system and building envelope air leakage testing; and the type and rated efficiencies of the heating, cooling, mechanical ventilation, and service water-heating equipment installed.
7. Where on-site renewable energy systems have been installed, the certificate shall report the type and production size of the installed system. Additional documentation reporting estimated annual energy production shall be provided.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-40530, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40530, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40530, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40530, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-02-127, filed 1/6/16, effective 7/1/16)

**WAC 51-11R-40540 Section R405.4—(~~Documentation~~) Calculation procedure.**

(~~R405.4 Documentation. Documentation of the software used for the performance design and the parameters for the building shall be in accordance with Sections R405.4.1 through R405.4.3.~~)

~~**R405.4.1 Compliance software tools.** Documentation verifying that the methods and accuracy of the compliance software tools conform to the provisions of this section shall be provided to the code official.~~

~~**R405.4.2 Compliance report.** Compliance software tools shall generate a report that documents that the *proposed design* complies with Section R405.3.~~

~~A compliance report on the *proposed design* shall be submitted with the application for the building permit. Upon completion of the building, a compliance report based upon the as-built condition of the building shall be submitted to the code official before a certificate~~

~~of occupancy is issued. Batch sampling of buildings to determine energy code compliance for all buildings in the batch shall be prohibited.~~

~~Compliance reports shall include information in accordance with Sections R405.4.2.1 and R405.4.2.2. Where the *proposed design* of a building could be built on different sites where the cardinal orientation of the building on each site is different, compliance of the *proposed design* for the purposes of the application for the building permit shall be based upon the worst-case orientation, worst-case configuration, worst-case building air leakage and worst-case duct leakage. Such worst-case parameters shall be used as inputs to the compliance software for energy analysis.~~

~~**R405.4.2.1 Compliance report for permit application.** A compliance report submitted with the application for building permit shall include all of the following:~~

- ~~1. Building street address, or other building site identification.~~
- ~~2. A statement indicating that the *proposed design* complies with Section R405.3.~~
- ~~3. An inspection checklist documenting the building component characteristics of the *proposed design* as indicated in Table R405.5.2(1). The inspection checklist shall show results for both the *standard reference design* and the *proposed design* with all user inputs to the compliance software to generate the results.~~
- ~~4. A site-specific energy analysis report that is in compliance with Section R405.3.~~
- ~~5. Name of the individual performing the analysis and generating the report.~~
- ~~6. Name and version of the compliance software tool.~~

~~**R405.4.2.2 Compliance report for certificate of occupancy.** A compliance report submitted for obtaining the certificate of occupancy shall include all of the following:~~

- ~~1. Building street address, or other building site identification.~~
- ~~2. A statement indicating that the as-built building complies with Section R405.3.~~
- ~~3. A certificate indicating that the building passes the performance matrix for code compliance and the energy saving features of the building.~~
- ~~4. A site-specific energy analysis report that is in compliance with Section R405.3.~~
- ~~5. Name of the individual performing the analysis and generating the report.~~
- ~~6. Name and version of the compliance software tool.~~

~~**R405.4.3 Additional documentation.** The *code official* shall be permitted to require the following documents:~~

- ~~1. Documentation of the building component characteristics of the *standard reference design*.~~
- ~~2. A certification signed by the builder providing the building component characteristics of the *proposed design* as given in Table R405.5.2(1).~~
- ~~3. Documentation of the actual values used in the software calculations for the *proposed design*.)~~

~~**R405.4 Calculation procedure.** Calculations of the performance design shall be in accordance with Sections R405.4.1 and R405.4.2.~~



**R405.4.1 General.** Except as specified by this section, the standard reference design and proposed design shall be configured and analyzed using identical methods and techniques.

**R405.4.2 Residence specifications.** The standard reference design and proposed design shall be configured and analyzed as specified by Table R405.4.2(1). Table R405.4.2(1) shall include by reference all notes contained in Table R402.1.3.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40540, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40540, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-40550 ((Section R405.5—Calculation procedure.)) Re-served.**

~~((R405.5 Calculation procedure. Calculations of the performance design shall be in accordance with Sections R405.5.1 and R405.5.2.~~

~~**R405.5.1 General.** Except as specified by this section, the standard reference design and proposed design shall be configured and analyzed using identical methods and techniques.~~

~~**R405.5.2 Residence specifications.** The standard reference design and proposed design shall be configured and analyzed as specified by Table R405.5.2(1). Table R405.5.2(1) shall include by reference all notes contained in Table R402.1.1.)~~

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40550, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-40551 Table ((R405.5.2(1))) R405.4.2(1)—Specifications for the standard reference and proposed designs.**

TABLE ((R405.5.2(1))) R402.4.2(1)  
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Above-grade walls	Type: Mass wall if proposed wall is mass; otherwise wood frame. Gross area: Same as proposed U-factor: From Table ((R402.1.3)) R402.1.2 Solar absorptance = 0.75 Emittance = 0.90	As proposed As proposed As proposed As proposed As proposed

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Below-grade walls	Type: Same as proposed Gross area: Same as proposed <i>U</i> -factor: From Table ((R402.1.3)) R402.1.2, with insulation layer on interior side of walls.	As proposed As proposed As proposed
Above-grade floors	Type: Wood frame Gross area: Same as proposed <i>U</i> -factor: From Table ((R402.1.3)) R402.1.2	As proposed As proposed As proposed
Ceilings	Type: Wood frame Gross area: Same as proposed <i>U</i> -factor: From Table ((R402.1.3)) R402.1.2	As proposed As proposed As proposed
Roofs	Type: Composition shingle on wood sheathing Gross area: Same as proposed Solar absorptance = 0.75 Emittance = 0.90	As proposed As proposed As proposed As proposed
Attics	Type: Vented with aperture = 1 ft <sup>2</sup> per 300 ft <sup>2</sup> ceiling area	As proposed
Foundations	Type: Same as proposed foundation wall area above and below-grade Soil characteristics: Same as proposed.	As proposed As proposed
Opaque doors	Area: 40 ft <sup>2</sup> Orientation: North <i>U</i> -factor: Same as fenestration from Table ((R402.1.3)) R402.1.2.	As proposed As proposed As proposed
Vertical fenestration other than opaque doors <sup>a</sup>	Total area <sup>b</sup> = (a) The proposed glazing area; where proposed glazing area is less than 15% of the conditioned floor area. (b) 15% of the conditioned floor area; where the proposed glazing area is 15% or more of the conditioned floor area.	As proposed
	Orientation: Equally distributed to four cardinal compass orientations (N, E, S & W).	As proposed
	<i>U</i> -factor: From Table ((R402.1.3)) R402.1.2	As proposed
	SHGC: From Table R402.1.1 except that for climates with no requirement (NR) SHGC = 0.40 shall be used.	As proposed
	Interior shade fraction: 0.92 - (0.21 × SHGC for the standard reference design) External shading: None	0.92 - (0.21 × SHGC as proposed) As proposed
Skylights	None	As proposed
Air exchange rate	Air leakage rate of ((5)) 4 air changes per hour at a pressure of 0.2 inches w.g. (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than 0.01 × CFA + 7.5 × (N <sub>br</sub> + 1) where: CFA = conditioned floor area N <sub>br</sub> = number of bedrooms - <u>The mechanical ventilation system type shall be the same as in the proposed design.</u> Energy recovery shall not be assumed for mechanical ventilation.	As proposed <sup>a</sup> . The mechanical ventilation rate <sup>b</sup> shall be in addition to the air leakage rate and shall be as proposed.

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Mechanical ventilation	None, except where mechanical ventilation is specified by the proposed design, in which case: Annual vent fan energy use: $kWh/yr = (1e_f) \times (0.0876 \times CFA + 65.7 \times (N_{br} + 1))$ where: $e_f$ = the minimum ((exhaust)) fan efficacy from Table R403.6.1 corresponding to the system type at a flow rate of $0.01 \times CFA + 7.5 \times (N_{br} + 1)$ $CFA$ = conditioned floor area $N_{br}$ = number of bedrooms	As proposed
Internal gains	$IGain = 17,900 + 23.8 \times CFA + 4104 \times N_{br}$ (Btu/day per dwelling unit)	Same as standard reference design
Internal mass	An internal mass for furniture and contents of 8 pounds per square foot of floor area.	Same as standard reference design, plus any additional mass specifically designed as a thermal storage element <sup>c</sup> but not integral to the building envelope or structure.
Structural mass	For masonry floor slabs, 80% of floor area covered by R-2 carpet and pad, and 20% of floor directly exposed to room air.	As proposed
	For masonry basement walls, as proposed, but with insulation required by Table ((R402.1.3)) R402.1.2 located on the interior side of the walls.	As proposed
	For other walls, for ceilings, floors, and interior walls, wood frame construction.	As proposed
Heating systems <sup>d, e</sup>	((Where the proposed design utilizes electric heating without a heat pump)) The standard reference design shall be an air source heat pump meeting the requirements of Section C403 of the WSEC—Commercial Provisions. ((For all other systems, the same system type as proposed, and the same system efficiency required by prevailing minimum federal standard.)) Capacity: Sized in accordance with Section R403.6	As proposed
Cooling systems <sup>d, f</sup>	Same system type as proposed. Same system efficiency as required by prevailing minimum federal standard. Capacity: Sized in accordance with Section R403.6.	As proposed
Service water heating <sup>d, e, f, g</sup>	((Same system type as proposed. Same system efficiency as required by prevailing minimum federal standard. Use: Same as proposed design)) The standard reference design shall be a heat pump water heating meeting the standards for Tier 1 of NEEA's Advanced Water Heating Specifications. Use, in units of gal/day = $25.5 + (8.5 \times N_{br})$ Where $N_{br}$ = number of bedrooms	As proposed ((gal/day = $30 + (10 \times N_{br})$ )) Use, in units of gal/day = $25.5 + (8.5 \times N_{br}) \times (1 - HWDS)$ Where: $N_{br}$ = number of bedrooms HWDS = factor for the compactness of the hot water distribution system

Compactness ratio <sup>1</sup> factor		HWDS
1 story	2 or more stories	
>60%	>30%	0
>30% to ≤60%	>15% to ≤30%	0.05
>15% to ≤30%	>7.5% to ≤15%	0.10
≤15%	≤7.5%	0.15

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Thermal distribution systems	<p>Duct insulation: From Section R403.3.3.</p> <p>Duct location: Same as proposed design.</p> <p>A thermal distribution system efficiency (DSE) of 0.93 shall be applied to both the heating and cooling system efficiencies for all systems.</p> <p><b>Exception:</b> For nonducted heating and cooling systems that do not have a fan, the standard reference design distribution system efficiency (DSE) shall be 1.</p>	<p><u>Duct insulation: As proposed.</u></p> <p><u>Duct location: As proposed.</u></p> <p>As specified in Table R405.5.2(2).</p>
Thermostat	Type: Manual, cooling temperature setpoint = 75°F; Heating temperature setpoint = 72°F	Same as standard reference

For SI: 1 square foot = 0.93 m<sup>2</sup>, 1 British thermal unit = 1055 J, 1 pound per square foot = 4.88 kg/m<sup>2</sup>, 1 gallon (U.S.) = 3.785 L, °C = (°F-3)/1.8, 1 degree = 0.79 rad

- a Where required by the *code official*, testing shall be conducted by an *approved party*. Hourly calculations as specified in the ASHRAE *Handbook of Fundamentals*, or the equivalent, shall be used to determine the energy loads resulting from infiltration.
- b The combined air exchange rate for infiltration and mechanical ventilation shall be determined in accordance with Equation 43 of 2001 ASHRAE *Handbook of Fundamentals*, page 26.24 and the "Whole-house Ventilation" provisions of 2001 ASHRAE *Handbook of Fundamentals*, page 26.19 for intermittent mechanical ventilation.
- c Thermal storage element shall mean a component not part of the floors, walls or ceilings that is part of a passive solar system, and that provides thermal storage such as enclosed water columns, rock beds, or phase-change containers. A thermal storage element must be in the same room as fenestration that faces within 15 degrees (0.26 rad) of true south, or must be connected to such a room with pipes or ducts that allow the element to be actively charged.
- d For a proposed design with multiple heating, cooling or water heating systems using different fuel types, the applicable standard reference design system capacities and fuel types shall be weighted in accordance with their respective loads as calculated by accepted engineering practice for each equipment and fuel type present.
- e For a proposed design without a proposed heating system, a heating system with the prevailing federal minimum efficiency shall be assumed for both the standard reference design and proposed design.
- f For a proposed design home without a proposed cooling system, an electric air conditioner with the prevailing federal minimum efficiency shall be assumed for both the standard reference design and the proposed design.
- g For a proposed design with a nonstorage-type water heater, a 40-gallon storage-type water heater with the prevailing federal minimum energy factor for the same fuel as the predominant heating fuel type shall be assumed. For the case of a proposed design without a proposed water heater, a 40-gallon storage-type water heater with the prevailing federal minimum efficiency for the same fuel as the predominant heating fuel type shall be assumed for both the proposed design and standard reference design.
- h For residences with conditioned basements, R-2 and R-4 residences and townhouses, the following formula shall be used to determine fenestration area:

$$AF = A_s \times FA \times F$$

Where:

- AF = Total fenestration area.
- A<sub>s</sub> = Standard reference design total fenestration area.
- FA = (Above-grade thermal boundary gross wall area)/(above-grade boundary wall area + 0.5 x below-grade boundary wall area).
- F = (Above-grade thermal boundary wall area)/(above-grade thermal boundary wall area + common wall area) or 0.56, whichever is greater.

and where:

Thermal boundary wall is any wall that separates conditioned space from unconditioned space or ambient conditions.

Above-grade thermal boundary wall is any thermal boundary wall component not in contact with soil.

Below-grade boundary wall is any thermal boundary wall in soil contact.

Common wall area is the area of walls shared with an adjoining dwelling unit.

L and CFA are in the same units.

- i The factor for the compactness of the hot water distribution system is the ratio of the area of the rectangle that bounds the source of hot water and the fixtures that it serves (the "hot water rectangle") divided by the floor area of the dwelling.
  1. Sources of hot water include water heaters, or in multifamily buildings with central water heating systems, circulation loops, or electric heat traced pipes.
  2. The hot water rectangle shall include the source of hot water and the points of termination of all hot water fixture supply piping.
  3. The hot water rectangle shall be shown on the floor plans and the area shall be computed to the nearest square foot.
  4. Where there is more than one water heater and each water heater serves different plumbing fixtures and appliances, it is permissible to establish a separate hot water rectangle for each hot water distribution system and add the area of these rectangles together to determine the compactness ratio.
  5. The basement or attic shall be counted as a story when it contains the water heater.
  6. Compliance shall be demonstrated by providing a drawing on the plans that shows the hot water distribution system rectangle(s), comparing the area of the rectangle(s) to the area of the dwelling and identifying the appropriate compactness ratio and HWDS factor.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-40551, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40551, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and

19.27.074. WSR 16-02-127, § 51-11R-40551, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40551, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 16-02-127, filed 1/6/16, effective 7/1/16)

**WAC 51-11R-40552 Table ((R405.5.2(2))) R405.4.2(2)—Default distribution system efficiencies for proposed designs.**

**TABLE ((R405.5.2(2))) R402.4.2(2)  
DEFAULT DISTRIBUTION SYSTEM EFFICIENCIES FOR PROPOSED  
DESIGNS<sup>a</sup>**

DISTRIBUTION SYSTEM CONFIGURATION AND CONDITION	DISTRIBUTION SYSTEM EFFICIENCY
Distribution system components located in unconditioned space	0.88
Distribution systems entirely located in conditioned space <sup>b</sup>	0.93
Zonal systems <sup>c</sup>	1.00

For SI: 1 cubic foot per minute = 0.47 L/s, 1 square foot = 0.093m<sup>2</sup>, 1 pound per square inch = 6895 Pa, 1 inch water gauge = 1250 Pa.

<sup>a</sup> Values given by this table are for distribution systems, which must still meet all prescriptive requirements for duct and pipe system insulation and leakage.

<sup>b</sup> Entire system in conditioned space shall mean that no component of the distribution system, including the air-handler unit, is located outside of the conditioned space. All components must be located on the interior side of the thermal envelope (inside the insulation) and also inside of the air barrier. Refrigerant compressors and piping are allowed to be located outside.

<sup>c</sup> Zonal systems are systems where the heat source is located within each room. Systems shall be allowed to have forced airflow across a coil but shall not have any ducted airflow external to the manufacturer's air-handler enclosure. Hydronic systems do not qualify.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40552, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40552, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 13-04-055, filed 2/1/13, effective 7/1/13)

**WAC 51-11R-40560 Section ((R405.6)) R405.5—Calculation software tools.**

**((R405.6)) R405.5 Calculation software tools.** Calculation software, where used, shall be in accordance with Sections ((R405.6.1)) R405.5.1 through ((R405.6.3)) R405.5.3.

**((R405.6.1)) R405.5.1 Minimum capabilities.** 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. Calculation of whole-building (as a single zone) sizing for the heating and cooling equipment in the *standard reference design* residence in accordance with Section R403.6.
2. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air-conditioning equipment based on climate and equipment sizing.
3. Printed *code official* inspection checklist listing each of the *proposed design* component characteristics from Table R405.5.2(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.).

**((R405.6.2)) R405.5.2 Specific approval.** Performance analysis tools meeting the applicable sections of Section R405 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.

**((R405.6.3)) R405.5.3 Input values.** When calculations require input values not specified by Sections R402, R403, R404 and R405, those input values shall be taken from an approved source.

[Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40560, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40610 Section R406.1—Scope.**

**R406.1 Scope.** This section establishes additional energy efficiency requirements for all new construction covered by this code, including additions subject to Section R502 and change of occupancy or use subject to Section R505 unless specifically exempted in Section R406. Credits from both Sections R406.2 and R406.3 are required.

**R406.2 Carbon emission equalization.** This section establishes a base equalization between fuels used to define the equivalent carbon emissions of the options specified. The permit shall define the base fuel selection to be used and the points specified in Table R406.2 shall be used to modify the requirements in Section R406.3. (~~The sum of credits from Tables R406.2 and R406.3 shall meet the requirements of Section R406.3.~~)

TABLE R406.2  
FUEL NORMALIZATION CREDITS

System Type	Description of ((Primary)) Heating Sources	Credits	
		All Other	Group R-2 <sup>a</sup>
((4	Combustion heating equipment meeting minimum federal efficiency standards for the equipment listed in Table C403.3.2(4) or C403.3.2(5)	0	0

System Type	Description of ((Primary)) Heating Sources	Credits	
		All Other	Group R-2 <sup>a</sup>
<u>2</u>	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2)  <b>or</b> Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590	1.0	1.0
<u>3</u>	For heating system based on electric resistance only (either forced air or Zonal)	-1.0	-1.0
<u>4</u>	For heating system based on electric resistance with a ductless mini-split heat pump system in accordance with Section R403.7.1 including the exception	0.5	N/A
<u>5</u>	All other heating systems	-1	-0.5))
<u>1</u>	For combustion heating system using equipment meeting minimum federal efficiency standards for the equipment listed in Table C403.3.2(5) or C403.3.2(6)	-3.0	0
<u>2</u>	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(2) and supplemental heating provided by electric resistance or a combustion furnace meeting minimum standards listed in Table C403.3.2(5) <sup>b</sup>	0	0
<u>3</u>	For heating system based on electric resistance only (either forced air or zonal)	-1.0	-0.5
<u>4<sup>c</sup></u>	For a heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(2) or C403.3.2(9)  <b>or</b> Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590	1.5	2.0
<u>5</u>	For heating system based on electric resistance with: 1. Inverter-driven ductless mini-split heat pump system installed in the largest zone in the dwelling  <b>or</b> 2. With 2 kW or less total installed heating capacity per dwelling	0.5	0

<sup>a</sup> See Section R401.1 and *residential building* in Section R202 for Group R-2 scope.

<sup>b</sup> The gas back-up furnace will operate as fan-only when the heat pump is operating. The heat pump shall operate at all temperatures above 38°F (3.3°C) (or lower). Below that "changeover" temperature, the heat pump would not operate to provide space heating. The gas furnace provides heating below 38°F (3.3°C) (or lower).

<sup>c</sup> Additional points for this HVAC system are included in Table R406.3.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40610, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-40610, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40610, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-40620 Section R406.3—Additional energy efficiency requirements.**

**R406.3 Additional energy efficiency requirements.** Each dwelling unit in a residential building shall comply with sufficient options from Table R406.2 and R406.3 so as to achieve the following minimum number of credits:

1. *Small Dwelling Unit:* ((3-0)) 2.5  
credits  
  
*Dwelling units less than 1500 square feet in conditioned floor area with less than 300 square feet of fenestration area. Additions to existing building that are greater than 500 square feet of heated floor area but less than 1500 square feet.*
2. *Medium Dwelling Unit:* ((6-0)) 5.0  
credits  
  
*All dwelling units that are not included in #1, #3, or #4.*
3. *Large Dwelling Unit:* ((7-0)) 6.0  
credits  
  
*Dwelling units exceeding 5000 square feet of conditioned floor area.*
4. *Dwelling units serving Group R-2 occupancies. See Section R401.1 and residential building in Section R202 for Group R-2 scope.* 4.5 credits
5. *Additions ((less than or equal to)) 150 square feet to 500 square feet:* ((1-5)) 2.0  
credits

The drawings included with the building permit application shall identify which options have been selected and the point value of each option, regardless of whether separate mechanical, plumbing, electrical, or other permits are utilized for the project.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40620, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40620, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40620, filed 2/1/13, effective 7/1/13.]

AMENDATORY SECTION (Amending WSR 22-10-094, filed 5/3/22, effective 6/3/22)

**WAC 51-11R-40621 Table R406.3—Energy credits.**

TABLE 406.3  
ENERGY CREDITS

((OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2
<b>1. EFFICIENT BUILDING ENVELOPE OPTIONS</b>			
Only one option from Items 1.1 through 1.7 may be selected in this category. Compliance with the conductive UA targets is demonstrated using Section R402.1.4, Total UA alternative, where [1-(Proposed UA/Target UA)] > the required %UA reduction			
1.1	Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical fenestration U = 0.24.	0.5	0.5



((OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2
1.2	Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical fenestration U = 0.20.	1.0	1.0
1.3	Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical fenestration U = 0.28 Floor R-38 Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab <b>or</b> Compliance based on Section R402.1.4: Reduce the Total conductive UA by 5%.	0.5	N/A
1.4	Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical fenestration U = 0.25 Wall R-21 plus R-4 ei Floor R-38 Basement wall R-21 int plus R-5 ei Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab <b>or</b> Compliance based on Section R402.1.4: Reduce the Total conductive UA by 15%.	1.0	1.0
1.5	Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical fenestration U = 0.22 Ceiling and single-rafter or joist-vaulted R-49 advanced Wood frame wall R-21 int plus R-12 ei Floor R-38 Basement wall R-21 int plus R-12 ei Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab <b>or</b> Compliance based on Section R402.1.4: Reduce the Total conductive UA by 30%.	2.0	1.5
1.6	Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical fenestration U = 0.18 Ceiling and single-rafter or joist-vaulted R-60 advanced Wood frame wall R-21 int plus R-16 ei Floor R-48 Basement wall R-21 int plus R-16 ei Slab on grade R-20 perimeter and under entire slab Below grade slab R-20 perimeter and under entire slab <b>or</b> Compliance based on Section R402.1.4: Reduce the Total conductive UA by 40%.	3.0	2.0
1.7	Advanced framing and raised heel trusses or rafters Vertical Glazing U-0.28 R-49 Advanced (U-0.020) as listed in Section A102.2.1, <i>Ceilings below a vented attic</i> <b>and</b> R-49 vaulted ceilings with full height of uncompressed insulation extending over the wall top plate at the eaves.	0.5	0.5
<b>2. AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION OPTIONS</b> Only one option from Items 2.1 through 2.4 may be selected in this category.			

((OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2
2.1	<p>Compliance based on R402.4.1.2: Reduce the tested air leakage to 3.0 air changes per hour maximum at 50 Pascals</p> <p><b>or</b></p> <p>For R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.3 cfm/ft<sup>2</sup> maximum at 50 Pascals</p> <p><b>and</b></p> <p>All whole house ventilation requirements as determined by Section M1505.3 of the <i>International Residential Code</i> or Section 403.8 of the <i>International Mechanical Code</i> shall be met with a high efficiency fan(s) (maximum 0.35 watts/cfm), not interlocked with the furnace fan (if present). Ventilation systems using a furnace including an ECM motor are allowed, provided that they are controlled to operate at low speed in ventilation only mode.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected, the maximum tested building air leakage, and shall show the qualifying ventilation system and its control sequence of operation.</p>	0.5	1.0
2.2	<p>Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 2.0 air changes per hour maximum at 50 Pascals</p> <p><b>or</b></p> <p>For R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.25 cfm/ft<sup>2</sup> maximum at 50 Pascals</p> <p><b>and</b></p> <p>All whole house ventilation requirements as determined by Section M1505.3 of the <i>International Residential Code</i> or Section 403.8 of the <i>International Mechanical Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.65.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</p>	1.0	1.5
2.3	<p>Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 1.5 air changes per hour maximum at 50 Pascals</p> <p><b>or</b></p> <p>For R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.20 cfm/ft<sup>2</sup> maximum at 50 Pascals</p> <p><b>and</b></p> <p>All whole house ventilation requirements as determined by Section M1505.3 of the <i>International Residential Code</i> or Section 403.8 of the <i>International Mechanical Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.75.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</p>	1.5	2.0
2.4	<p>Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.6 air changes per hour maximum at 50 Pascals</p> <p><b>or</b></p> <p>For R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.15 cfm/ft<sup>2</sup> maximum at 50 Pascals</p> <p><b>and</b></p> <p>All whole house ventilation requirements as determined by Section M1505.3 of the <i>International Residential Code</i> or Section 403.8 of the <i>International Mechanical Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.80. Duct installation shall comply with Section R403.3.7.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</p>	2.0	2.5

((OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2
<b>3. HIGH EFFICIENCY HVAC EQUIPMENT OPTIONS</b>			
Only one option from Items 3.1 through 3.6 may be selected in this category.			
3.1 <sup>a</sup>	<p>Energy Star rated (U.S. North) Gas or propane furnace with minimum AFUE of 95%  <b>OR</b>                      Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	1.0	1.0
3.2 <sup>a</sup>	<p>Air source centrally ducted heat pump with minimum HSPF of 9.5.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	1.0	N/A
3.3 <sup>a</sup>	<p>Closed-loop ground source heat pump; with a minimum COP of 3.3  <b>OR</b>                      Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	1.5	1.0
3.4	<p>Ductless mini-split heat pump system, zonal control: In homes where the primary space heating system is zonal electric heating, a ductless mini-split heat pump system with a minimum HSPF of 10.0 shall be installed and provide heating to the largest zone of the housing unit.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	1.5	2.0
3.5 <sup>a</sup>	<p>Air source, centrally ducted heat pump with minimum HSPF of 11.0.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</p>	1.5	N/A
3.6 <sup>a</sup>	<p>Ductless split system heat pumps with no electric resistance heating in the primary living areas. A ductless heat pump system with a minimum HSPF of 10 shall be sized and installed to provide heat to entire dwelling unit at the design outdoor air temperature.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type).</p>	2.0	3.0
<b>4. HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM OPTIONS</b>			
4.1	<p>All supply and return ducts located in an unconditioned attic shall be deeply buried in ceiling insulation in accordance with Section R403.3.6.</p> <p>For mechanical equipment located outside the conditioned space, a maximum of 10 linear feet of return duct and 5 linear feet of supply duct connections to the equipment may be outside the deeply buried insulation. All metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic. If flex ducts are used, they cannot contain splices.</p> <p>Duct leakage shall be limited to 3 cfm per 100 square feet of conditioned floor area.</p> <p>Air handler(s) shall be located within the conditioned space.</p>	0.5	0.5

((OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2
4.2	<p>HVAC equipment and associated duct system(s) installation shall comply with the requirements of Section R403.3.7.</p> <p>Locating system components in conditioned crawl spaces is not permitted under this option.</p> <p>Electric resistance heat and ductless heat pumps are not permitted under this option.</p> <p>Direct combustion heating equipment with AFUE less than 80% is not permitted under this option.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and shall show the location of the heating and cooling equipment and all the ductwork.</p>	1.0	N/A
<p><b>5. EFFICIENT WATER HEATING OPTIONS</b>                      Only one option from Items 5.2 through 5.6 may be selected in this category. Item 5.1 may be combined with any option.</p>			
5.1	<p>A drain water heat recovery unit(s) shall be installed, which captures waste water heat from all and only the showers, and has a minimum efficiency of 40% if installed for equal flow or a minimum efficiency of 54% if installed for unequal flow. Such units shall be rated in accordance with CSA B55.1 or IAPMO IGC 346-2017 and be so labeled.</p> <p>To qualify to claim this credit, the building permit drawings shall include a plumbing diagram that specifies the drain water heat recovery units and the plumbing layout needed to install it. Labels or other documentation shall be provided that demonstrates that the unit complies with the standard.</p>	0.5	0.5
5.2	<p>Water heating system shall include one of the following:                      Energy Star rated gas or propane water heater with a minimum UEF of 0.80.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.</p>	0.5	0.5
5.3	<p>Water heating system shall include one of the following:                      Energy Star rated gas or propane water heater with a minimum UEF of 0.91  <b>or</b>                      Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 therms or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OG-300 Certified Solar Water Heating Systems  <b>or</b>                      Water heater heated by ground source heat pump meeting the requirements of Option 3.3.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and, for solar water heating systems, the calculation of the minimum energy savings.</p>	1.0	1.0
5.4	<p>Water heating system shall include one of the following:                      Electric heat pump water heater meeting the standards for Tier I of NEEA's advanced water heating specification  <b>or</b>                      For R-2 Occupancy, electric heat pump water heater(s), meeting the standards for Tier I of NEEA's advanced water heating specification, shall supply domestic hot water to all units. If one water heater is serving more than one dwelling unit, all hot water supply and recirculation piping shall be insulated with R-8 minimum pipe insulation.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.</p>	1.5	2.0

((OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2
5.5	<p>Water heating system shall include one of the following:                      Electric heat pump water heater meeting the standards for Tier III of NEEA's advanced water heating specification  <b>OR</b>                      For R-2 Occupancy, electric heat pump water heater(s), meeting the standards for Tier III of NEEA's advanced water heating specification, shall supply domestic hot water to all units. If one water heater is serving more than one dwelling unit, all hot water supply and recirculation piping shall be insulated with R-8 minimum pipe insulation.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.</p>	2.0	2.5
5.6	<p>Water heating system shall include one of the following:                      Electric heat pump water heater with a minimum UEF of 2.9 and utilizing a split system configuration with the air-to-refrigerant heat exchanger located outdoors. Equipment shall meet Section 4, requirements for all units, of the NEEA standard <i>Advanced Water Heating Specification</i> with the UEF noted above  <b>OR</b>                      For R-2 Occupancy, electric heat pump water heater(s), meeting the standards for Tier III of NEEA's advanced water heating specification and utilizing a split system configuration with the air-to-refrigerant heat exchanger located outdoors, shall supply domestic hot water to all units. If one water heater is serving more than one dwelling unit, all hot water supply and recirculation piping shall be insulated with R-8 minimum pipe insulation.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.</p>	2.5	3.0
<b>6. RENEWABLE ELECTRIC ENERGY OPTION</b>			
6.1	<p>For each 1200 kWh of electrical generation per housing unit provided annually by on-site wind or solar equipment a 1.0 credit shall be allowed, up to 3 credits. Generation shall be calculated as follows:                      For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTS or approved alternate by the code official.</p> <p>Documentation noting solar access shall be included on the plans.</p> <p>For wind generation projects designs shall document annual power generation based on the following factors:                      The wind turbine power curve; average annual wind speed at the site; frequency distribution of the wind speed at the site and height of the tower.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the photovoltaic or wind turbine equipment type, provide documentation of solar and wind access, and include a calculation of the minimum annual energy power production.</p>	1.0	1.0
<b>7. APPLIANCE PACKAGE OPTION</b>			
7.1	<p>All of the following appliances shall be new and installed in the dwelling unit and shall meet the following standards:                      Dishwasher – Energy Star rated                      Refrigerator (if provided) – Energy Star rated                      Washing machine – Energy Star rated                      Dryer – Energy Star rated, ventless dryer with a minimum CEF rating of 5.2.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the appliance type and provide documentation of Energy Star compliance. At the time of inspection, all appliances shall be installed and connected to utilities. Dryer ducts and exterior dryer vent caps are not permitted to be installed in the dwelling unit.</p>	0.5	1.5))

OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2 <sup>b</sup>
<b>1. EFFICIENT BUILDING ENVELOPE OPTIONS</b>			
<p>Only one option from Items 1.1 through 1.4 may be selected in this category.                      Compliance with the conductive UA targets is demonstrated using Section R402.1.5, Total UA alternative, where <math>[1 - (\text{Proposed UA} / \text{Target UA})] &gt;</math>; the required %UA reduction</p>			
1.1	<p>Prescriptive compliance is based on Table R402.1.3 with the following modifications:  <u>Vertical fenestration U = 0.22.</u></p>	0.5	0.5
1.2	<p>Prescriptive compliance is based on Table R402.1.3 with the following modifications:  <u>Vertical fenestration U = 0.25</u>  <u>Floor R-38</u>  <u>Basement wall R-21 int plus R-5 ci</u>  <u>Ceiling and single-rafter or joist-vaulted R-60 advanced</u>  <u>Slab on grade R-10 perimeter and under entire slab</u>  <u>Below grade slab R-10 perimeter and under entire slab</u></p> <p><b>or</b></p> <p><u>Compliance based on Section R402.1.5: Reduce the Total conductive UA by 15%.</u></p>	0.5	1.0
1.3	<p>Prescriptive compliance is based on Table R402.1.3 with the following modifications:  <u>Vertical fenestration U = 0.18</u>  <u>Ceiling and single-rafter or joist-vaulted R-60 advanced</u>  <u>Floor R-38</u>  <u>Basement wall R-21 int plus R-12 ci</u>  <u>Slab on grade R-10 perimeter and under entire slab</u>  <u>Below grade slab R-10 perimeter and under entire slab</u></p> <p><b>or</b></p> <p><u>Compliance based on Section R402.1.5: Reduce the Total conductive UA by 22.5%.</u></p>	1.0	1.5
1.4	<p>Prescriptive compliance is based on Table R402.1.3 with the following modifications:  <u>Vertical fenestration U = 0.18</u>  <u>Ceiling and single-rafter or joist-vaulted R-60 advanced</u>  <u>Wood frame wall R-21 int plus R-16 ci</u>  <u>Floor R-48</u>  <u>Basement wall R-21 int plus R-16 ci</u>  <u>Slab on grade R-20 perimeter and under entire slab</u>  <u>Below grade slab R-20 perimeter and under entire slab</u></p> <p><b>or</b></p> <p><u>Compliance based on Section R402.1.5: Reduce the Total conductive UA by 30%.</u></p>	1.5	2.0
<b>2. AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION OPTIONS</b>			
<p>Only one option from Items 2.1 through 2.3 may be selected in this category.</p>			

OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2 <sup>b</sup>
2.1	<p><u>Compliance based on Section R402.4.1.2:</u>  <u>Reduce the tested air leakage to 2.0 air changes per hour maximum at 50 Pascals</u></p> <p><b>or</b></p> <p><u>For R-2 Occupancies, optional compliance based on Section R402.4.1.2:</u>  <u>Reduce the tested air leakage to 0.25 cfm/ft<sup>2</sup> maximum at 50 Pascals</u></p> <p><b>and</b></p> <p><u>All whole house ventilation requirements as determined by Section M1505.3 of the <i>International Residential Code</i> or Section 403.8 of the <i>International Mechanical Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.65.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</u></p>	0.5	1.0
2.2	<p><u>Compliance based on Section R402.4.1.2:</u>  <u>Reduce the tested air leakage to 1.5 air changes per hour maximum at 50 Pascals</u></p> <p><b>or</b></p> <p><u>For R-2 Occupancies, optional compliance based on Section R402.4.1.2:</u>  <u>Reduce the tested air leakage to 0.20 cfm/ft<sup>2</sup> maximum at 50 Pascals</u></p> <p><b>and</b></p> <p><u>All whole house ventilation requirements as determined by Section M1505.3 of the <i>International Residential Code</i> or Section 403.8 of the <i>International Mechanical Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.75.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</u></p>	1.0	1.5
2.3	<p><u>Compliance based on Section R402.4.1.2:</u>  <u>Reduce the tested air leakage to 0.6 air changes per hour maximum at 50 Pascals</u></p> <p><b>or</b></p> <p><u>For R-2 Occupancies, optional compliance based on Section R402.4.1.2:</u>  <u>Reduce the tested air leakage to 0.15 cfm/ft<sup>2</sup> maximum at 50 Pascals</u></p> <p><b>and</b></p> <p><u>All whole house ventilation requirements as determined by Section M1505.3 of the <i>International Residential Code</i> or Section 403.8 of the <i>International Mechanical Code</i> shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.80. Duct installation shall comply with Section R403.3.7.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.</u></p>	1.5	2.0
<p><b>3. HIGH EFFICIENCY HVAC EQUIPMENT OPTIONS</b>                      Only one option from Items 3.1 through 3.8 may be selected in this category. Item 3.9 may be taken with Items 3.1 or 3.3<sup>c</sup> only.</p>			

OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2 <sup>b</sup>
3.1 <sup>a</sup>	<p>For a System Type 1 in Table R406.2:  <u>Energy Star rated (U.S. North) gas or propane furnace with minimum AFUE of 95%.</u></p> <p><b>or</b></p> <p><u>Energy Star rated (U.S. North) gas or propane boiler with minimum AFUE of 90%</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</u></p>	1.0	1.0
3.2 <sup>a</sup>	<p>For secondary heating system serving System Type 2 in Table R406.2:  <u>Energy Star rated (U.S. North) Gas or propane furnace with minimum AFUE of 95%</u></p> <p><b>or</b></p> <p><u>Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</u></p>	0.5	0.5
3.3 <sup>a,c,d</sup>	<p><u>Air-source centrally ducted heat pump with minimum HSPF of 9.5.</u></p> <p><u>In areas where the winter design temperature as specified in Appendix RC is 23°F or below, a cold climate heat pump found on the NEEP cc ASHP qualified product list shall be used.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</u></p>	0.5	N/A
3.4 <sup>a,d</sup>	<p><u>Closed-loop ground source heat pump; with a minimum COP of 3.3</u></p> <p><b>or</b></p> <p><u>Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</u></p>	1.5	1.0
3.5 <sup>d</sup>	<p><u>Ductless mini-split heat pump system, zonal control: In homes where the primary space heating system is zonal electric heating, a ductless mini-split heat pump system with a minimum HSPF of 10.0 shall be installed and provide heating to the largest zone of the housing unit.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</u></p>	1.5	2.0
3.6 <sup>a,d</sup>	<p><u>Air-source, centrally ducted heat pump with minimum HSPF of 11.0.</u></p> <p><u>A centrally ducted air source cold climate variable capacity heat pump (cc VHP) found on the NEEP cc VCHP qualified product list with a minimum of 10 HSPF may be used to satisfy this requirement.</u></p> <p><u>In areas where the winter design temperature as specified in Appendix RC is 23°F or below, an air source centrally ducted heat pump shall be a cold climate variable capacity heat pump as listed on the NEEP qualified product list.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.</u></p>	1.0	N/A



OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2 <sup>b</sup>
3.7 <sup>a,d,e</sup>	<p>Ductless split system heat pumps with no electric resistance heating in the primary living areas. A ductless heat pump system with a minimum HSPF of 10 shall be sized and installed to provide heat to entire dwelling unit at the design outdoor air temperature.</p> <p><b>Exception:</b> In homes with total heating loads of 24,000 or less using multi-zone mini-split systems with nominal ratings of 24,000 or less, the minimum HSPF to claim this credit shall be 9 HSPF.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type).</p>	2.0	3.0
3.8 <sup>a,d</sup>	<p>Air-to-water heat pump with minimum COP of 3.2 at 47°F, rated in accordance with AHRI 550/590 by an accredited or certified testing lab.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type).</p>	1.0	N/A
3.9 <sup>c</sup>	<p>Connected thermostat meeting ENERGY STAR Certified Smart Thermostats/EPA ENERGY STAR specifications.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the thermostat model.</p>	0.5	0.5
<b>4. HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM OPTIONS</b>			
4.1	<p>HVAC equipment and associated duct system(s) installation shall comply with the requirements of Section R403.3.2.</p> <p>Electric resistance heat, hydronic heating and ductless heat pumps are not permitted under this option.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and shall show the location of the heating and cooling equipment and all the ductwork.</p>	0.5	N/A
<b>5. EFFICIENT WATER HEATING OPTIONS</b>			
Only one option from Items 5.3 through 5.5 may be selected in this category. Items 5.1 and 5.2 may be combined with any option.			
5.1	<p>A drain water heat recovery unit(s) shall be installed, which captures wastewater heat from at least two showers, including tub/shower combinations. It is acceptable, but not required, for sink water to be connected. Unit shall have a minimum efficiency of 40% if installed for equal flow or a minimum efficiency of 54% if installed for unequal flow. Such units shall be rated in accordance with CSA B55.1 or IAPMO IGC 346-2017 and be so labeled.</p> <p>To qualify to claim this credit, the building permit drawings shall include a plumbing diagram that specifies the drain water heat recovery units and the plumbing layout needed to install it. Labels or other documentation shall be provided that demonstrates that the unit complies with the standard.</p>	0.5	0.5
5.2	<p>For Compact Hot Water Distribution system credit, the volume shall store not more than 16 ounces of water between the nearest source of heated water and the termination of the fixture supply pipe where calculated using Section R403.5.2. <i>Construction documents</i> shall indicate the ounces of water in piping between the hot water source and the termination of the fixture supply. When the hot water source is the nearest primed plumbing loop or trunk, this must be primed with an On Demand recirculation pump and must run a dedicated ambient return line from the furthest fixture or end of loop to the water heater.</p> <p>To qualify for this credit, the dwelling must have a minimum of 1.5 bathrooms.</p>	0.5	0.5

OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2 <sup>b</sup>
5.3	<p><u>Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 therms or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OG-300 Certified Solar Water Heating Systems</u></p> <p><b>or</b></p> <p><u>Water heater heated by ground source heat pump meeting the requirements of Option 3.3.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and, for solar water heating systems, the calculation of the minimum energy savings.</u></p>	1.0	1.0
5.4	<p><u>Water heating system shall include one of the following: Electric heat pump water heater meeting the standards for Tier III of NEEA's advanced water heating specification</u></p> <p><b>or</b></p> <p><u>For R-2 Occupancy, electric heat pump water heater(s), meeting the standards for Tier III of NEEA's advanced water heating specification, shall supply domestic hot water to all units. If one water heater is serving more than one dwelling unit, all hot water supply and recirculation piping shall be insulated with R-8 minimum pipe insulation.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.</u></p>	2.0	2.5
5.5	<p><u>Water heating system shall include one of the following: Electric heat pump water heater with a minimum UEF of 2.9 and utilizing a split system configuration with the air-to-refrigerant heat exchanger located outdoors. Equipment shall meet Section 4, requirements for all units, of the NEEA standard <i>Advanced Water Heating Specification</i> with the UEF noted above</u></p> <p><b>or</b></p> <p><u>For R-2 Occupancy, electric heat pump water heater(s), meeting the standards for Tier III of NEEA's advanced water heating specification and utilizing a split system configuration with the air-to-refrigerant heat exchanger located outdoors, shall supply domestic hot water to all units. If one water heater is serving more than one dwelling unit, all hot water supply and recirculation piping shall be insulated with R-8 minimum pipe insulation.</u></p> <p><u>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.</u></p>	2.5	3.0
<b>6. RENEWABLE ELECTRIC ENERGY OPTION</b>			

OPTION	DESCRIPTION	CREDIT(S)	
		All Other	Group R-2 <sup>b</sup>
6.1	<p>For each 600 kWh of electrical generation per housing unit provided annually by on-site wind or solar equipment a 0.5 credit shall be allowed, up to 4.5 credits. Generation shall be calculated as follows:                      For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTs or approved alternate by the code official.</p> <p>Documentation noting solar access shall be included on the plans.</p> <p>For wind generation projects designs shall document annual power generation based on the following factors:                      The wind turbine power curve; average annual wind speed at the site; frequency distribution of the wind speed at the site and height of the tower.</p> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the photovoltaic or wind turbine equipment type, provide documentation of solar and wind access, and include a calculation of the minimum annual energy power production.</p>	0.5 – 4.5	0.5 – 4.5
<b>7. APPLIANCE PACKAGE OPTION</b>			
7.1	<p>All of the following appliances shall be new and installed in the dwelling unit and shall meet the following standards:</p> <ol style="list-style-type: none"> <li>1. Dishwasher, standard - Energy Star rated, Most Efficient 2021 or Dishwasher, compact – Energy Star rated (Version 6.0)</li> <li>2. Refrigerator (if provided) - Energy Star rated (Version 5.1)</li> <li>3. Washing machine (Residential) - Energy Star rated (Version 8.1)</li> <li>4. Dryer - Energy Star rated, Most Efficient 2022</li> </ol> <p>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the appliance type and provide documentation of Energy Star compliance. At the time of inspection, all appliances shall be installed and connected to utilities. Dryer ducts and exterior dryer vent caps are not permitted to be installed in the <i>dwelling unit</i>.</p>	0.5	1.5

<sup>a</sup> An alternative heating source sized at a maximum of 0.5 Watts/ft<sup>2</sup> (equivalent) of heated floor area or 500 Watts, whichever is bigger, may be installed in the dwelling unit.  
<sup>b</sup> See Section R401.1 and residential building in Section R202 for Group R-2 scope.  
<sup>c</sup> Option 3.9 can only be taken with Options 3.1 and 3.3. To qualify to claim option 3.8 with 3.3, the system shall be a 1-2 speed heat pump system. Variable capacity heat pumps are ineligible from claiming this option.  
<sup>d</sup> This option may only be claimed if serving System Type 4 or 5 from Table R406.2.  
<sup>e</sup> Primary living areas include living, dining, kitchen, family rooms, and similar areas.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 22-10-094, § 51-11R-40621, filed 5/3/22, effective 6/3/22. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-40621, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-40621, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-40621, filed 1/6/16, effective 7/1/16. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27.020, and 19.27.074. WSR 14-24-123, § 51-11R-40621, filed 12/3/14, effective 1/3/15. Statutory Authority: RCW 19.27A.025, 19.27A.045, and 19.27.074. WSR 13-20-121, § 51-11R-40621, filed 10/1/13, effective 11/1/13. Statutory Authority: RCW 19.27A.020, 19.27A.045 and chapters 19.27 and 34.05 RCW. WSR 13-04-055, § 51-11R-40621, filed 2/1/13, effective 7/1/13.]

**Reviser's note:** The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-50100 Section R501—General.**

**R501.1 Scope.** The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing buildings and structures.

**R501.1.1** (~~(Additions, alterations, or repairs. Additions, alterations, or repairs to an existing building, building system or portion thereof shall comply with Sections R502, R503 or R504.)~~) **General.** 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. Unaltered portions of the existing building or building supply system shall not be required to comply with this code.

**R501.1.2 Thermostats for accessory dwelling units.** Where a separate *dwelling unit*, that provides independent facilities for living, sleeping, cooking, bathing and sanitation, is established within or attached to an existing *dwelling unit*, the heating and cooling for the newly-created *dwelling unit* shall be controllable with a separate programmable thermostat in accordance with Section R403.1.1.

**R501.2** (~~(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.)~~) **Compliance.** Additions, alterations, repairs or changes of occupancy to, or relocation of, an existing building, building system or portion thereof shall comply with Sections R502, R503, R504 or R505, respectively, in this code. Changes where unconditioned space is changed to conditioned space shall comply with Section R502.

**R501.3 Maintenance.** Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices and systems that 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.

**R501.4 Compliance.** *Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in this code and the International Residential Code, International Building Code, International Existing Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, Uniform Plumbing Code, International Property Maintenance Code, and NFPA 70.*

**R501.5 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 hazards to life, health or property are not created. Hazardous materials shall not be used where the code for new construc-

tion would not permit their use in buildings of similar occupancy, purpose and location.

**R501.6 Historic buildings.** The *code 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 register 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*.

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-50100, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-50100, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-50100, filed 1/6/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-50200 Section R502—Additions.**

**R502.1 General.** *Additions* to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code, except as specified in this chapter. *Additions* shall not create an unsafe or hazardous condition or overload existing building systems. An *addition* shall be deemed to comply with this code where the *addition* alone complies, where the existing building and *addition* comply with this code as a single building, or where the building with the *addition* uses no more energy than the existing building. *Additions* shall be in accordance with Section R502.1.1 or R502.1.2.

**R502.1.1 Small additions.** *Additions* not greater than 150 square feet (13.9 m<sup>2</sup>) shall not be required to comply with Section R406.

**R502.2 Change in space conditioning.** Any nonconditioned or low-energy space that is altered to become *conditioned space* shall be required to be brought into full compliance with this code.

**EXCEPTION:** Where the total building performance option in Section R405 is used to comply with this section, the annual energy use of the *proposed design* is permitted to be 110 percent of the annual energy use otherwise allowed by Section R405.3.

**R502.3 Prescriptive compliance.** Additions shall comply with Sections ((R502.1.1.1)) R502.3.1 through ((R502.1.1.4)) R502.3.4.

**((R502.1.1.1)) R502.3.1 Building envelope.** New building envelope assemblies that are part of the *addition* shall comply with Sections R402.1, R402.2, R402.3.1 through R402.3.5, and R402.4.

EXCEPTION: Where nonconditioned space is changed to *conditioned space*, the building envelope of the *addition* shall comply where the UA, as determined in Section ((R402.1.4)) R402.1.5, of the existing building and the *addition*, and any *alterations* that are part of the project, is less than or equal to UA generated for the existing building.

**((R502.1.1.2)) R502.3.1.1 Existing ceilings with attic spaces.** Where an addition greater than 150 square feet (9.2 m<sup>2</sup>) adjoins existing ceilings with attic spaces, the existing attic spaces shall comply with Section R402.

**R502.3.2 Heating and cooling systems.** ((New heating, cooling and duct systems that are part of the)) HVAC ducts newly installed as part of an addition shall comply with Section R403.

EXCEPTION: The following need not comply with the testing requirements of Section R403.3.3:

1. Additions of less than ((750)) 150 square feet.
2. Duct systems that are documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in WSU RS-33.
3. ((Ducts with less than 40 linear feet in unconditioned spaces.
- 4.)) Existing duct systems constructed, insulated or sealed with asbestos.

**((R502.1.1.3)) R502.3.3 Service hot water systems.** New service hot water systems that are part of the *addition* shall comply with Section R403.5.

**((R502.1.1.4)) R502.3.4 Lighting.** New lighting systems that are part of the *addition* shall comply with Section 404.1.

**((R502.1.2)) R502.4 Existing plus addition compliance ((Simulated Performance Alternative)) Total Building Performance).** Where nonconditioned space is changed to *conditioned space* the *addition* shall comply where the annual energy use of the *addition* and the existing building, and any *alterations* that are part of the project, is less than or equal to the annual energy use of the existing building when modeled in accordance with Section R405. The *addition* and any *alterations* that are part of the project shall comply with Section R405 in its entirety.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-50200, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-50200, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-50200, filed 1/6/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-21-081, filed 10/19/20, effective 2/1/21)

**WAC 51-11R-50300 Section R503—Alterations.**

**R503.1 General.** *Alterations* to any building or structure shall comply with the requirements of the code for new construction, without requiring the unaltered portions of the existing building or building system to comply with this code. *Alterations* shall be such that the existing building or structure is no less conforming to 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 ex-

~~isting building or building system to comply with this code.)) Alterations shall not create an unsafe or hazardous condition or overload existing building systems.~~

*Alterations* shall be such that the existing building or structure uses no more energy than the existing building or structure prior to the *alteration*. *Alterations* to existing buildings shall comply with Sections R503.1.1 through R503.2.

The *code official* may approve designs of *alterations* which do not fully conform to all of the requirements of this code where in the opinion of the *code official* full compliance is physically impossible and/or economically impractical and:

The *alteration* improves the energy efficiency of the building; or

The *alteration* is energy efficient and is necessary for the health, safety, and welfare of the general public.

**R503.1.1 Building envelope.** Building envelope assemblies that are part of the *alteration* shall comply with Section ((R402.1.1 or R402.1.4)) R402.1.3 or R402.1.5, Sections R402.2.1 through R402.2.11, R402.3.1, R402.3.2, R402.4.3, and R402.4.4.

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. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation. 2 x 4 framed walls shall be insulated to a minimum of R-15 and 2 x 6 framed walls shall be insulated to a minimum of R-21.
3. Construction where the existing roof, wall or floor cavity is not exposed.
4. *Roof recover*.
5. 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. 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.

**R503.1.1.1 Replacement fenestration.** 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 ((R402.1.1)) R402.1.3. Where more than one replacement *fenestration* unit is being installed, an area-weighted average of the *U*-factor and SHGC of all replacement *fenestration* shall be permitted to be used to demonstrate compliance.

**R503.1.2 Heating and cooling systems.** New heating, cooling and duct systems that are part of the *alteration* shall comply with Section R403.

EXCEPTIONS: 

1. Where ducts from an existing heating and cooling system are extended, duct systems with less than 40 linear feet in unconditioned spaces shall not be required to be tested in accordance with Section R403.2.2.
2. Existing duct systems constructed, insulated or sealed with asbestos.
3. Replacements of space heating equipment shall not be required to comply with Section R403.13 where the rated capacity of the new equipment does not exceed the rated capacity of the existing equipment.

**R503.1.3 Service hot water systems.** New service hot water systems that are part of the *alteration* shall comply with Section R403.5.

EXCEPTIONS: 

1. Replacement of water heating equipment shall not be required to comply with Section R403.5.5.
2. Replacement of water heating equipment shall not be required to comply with Section R403.5.7 where the rated capacity of the new equipment does not exceed the rated capacity of the existing equipment.

**R503.1.4 Lighting.** New lighting systems that are part of the *alteration* shall comply with Section R404.1.

EXCEPTION: Alterations that replace less than ((50)) 10 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.

~~((R503.2 Change in space conditioning. Any nonconditioned or low-energy space that is altered to become conditioned space shall be required to be brought into full compliance with this code.~~

EXCEPTION: Where the simulated performance option in Section R405 is used to comply with this section, the annual energy use of the proposed design is permitted to be 110 percent of the annual energy use otherwise allowed by Section R405.3.)

[Statutory Authority: RCW 19.27A.045 and chapter 19.27A RCW. WSR 20-21-081, § 51-11R-50300, filed 10/19/20, effective 2/1/21. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-50300, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 17-10-063, § 51-11R-50300, filed 5/2/17, effective 6/2/17. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-50300, filed 1/6/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 16-02-127, filed 1/6/16, effective 7/1/16)

**WAC 51-11R-50500 Section R505—Change of occupancy or use.**

**R505.1 ((Change in occupancy or use.)) General.** Any space not within the scope of Section R101.2 which is converted to space that is within the scope of Section R101.2 shall be brought into full compliance with this code.

Spaces undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code.

Any space that is converted to a *dwelling unit* or portion thereof from another use or occupancy shall comply with this code.

EXCEPTION: Where the simulated performance option in Section R405 is used to comply with this section, the annual energy use of the proposed design is permitted to be 110 percent of the annual energy use otherwise allowed by Section R405.3.

**R505.1.1 Unconditioned space.** Any unconditioned or low-energy space that is altered to become a conditioned space shall comply with Section R502.

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-50500, filed 1/6/16, effective 7/1/16.]

AMENDATORY SECTION (Amending WSR 20-01-047, filed 12/9/19, effective 7/1/20)

**WAC 51-11R-51000 Chapter 6—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 R106.

<b>AAMA</b>	American Architectural Manufacturers Association 1827 Walden Office Square Suite 550 Schaumburg, IL 60173-4268	
Standard reference number	Title	Referenced in code section number



AAMA/WDMA/CSA 101/I.S.2/A C440-17	North American Fenestration Standard/Specifications for Windows, Doors and Unit Skylights	R402.4.3
<b>ACCA</b>	Air Conditioning Contractors of America 2800 Shirlington Road, Suite 300 Arlington, VA 22206	
Standard reference number	Title	Referenced in code section number
Manual J-16	Residential Load Calculation Eighth Edition	R403.7
Manual S-14	Residential Equipment	R403.7
<b>ANSI</b>	American National Standards Institute 25 West 43rd Street, 4th Floor New York, NY 10036	
Standard reference number	Title	Referenced in code section number
Z21.50-2016/CSA 2.22-2016	Vented Decorative Gas Appliances	R402.4.2.1, R403.1.3
Z21.88-2017/CSA 2.33-2017	Vented Gas Fireplace Heaters	R402.4.2.1
<b>APSP</b>	The Association of Pool and Spa Professionals 2111 Eisenhower Avenue, Suite 500 Alexandria, VA 22206	
Standard reference number	Title	Referenced in code section number
ANSI/APSP/ICC ((14-2014)) 14-2019	American National Standard for Portable Electric Spa Energy Efficiency	R403.11
ANSI/APSP/ICC 15a-2011	American National Standard for Residential Swimming Pool and Spa Energy Efficiency— Includes Addenda A approved January 9, 2013	R403.12
<b>ASHRAE</b>	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
((ASHRAE-2017)) <del>ASHRAE-2021</del>	ASHRAE Handbook of Fundamentals	((R402.1.4)) <u>R402.1.5</u> , Table R405.5.2(1)
ASHRAE 193-2010 (RA 2014)	Method of Test for Determining the Airtightness of HVAC Equipment	R403.3.2.1
<b>ASTM</b>	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859	
Standard reference number	Title	Referenced in code section number
C1363-11	Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus	R303.1.4.1
((E-283-04)) E 283-2004 (2012)	Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen	R402.4.5
((E779-10)) E779-2010 (2018)	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	R402.4.1.2
E1554/E1554M-E2013	<u>Standard Test Method for Determining Air Leakage of Air Distribution Systems by Fan Pressurization</u>	<u>R403.3.5</u>
((E1827-H)) E1827-2011 (2017)	Standard Test Methods for Determining Airtightness of Building Using an Orifice Blower Door	R402.4.1.2
E2178-2013	<u>Standard Test Method for Air Permeance of Building Materials</u>	<u>R303.1.5</u>
E3158-2018	<u>Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building</u>	<u>R402.4.1.2</u>
<b>CSA</b>	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/A440-17	North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights	R402.4.3

CSA 55.1-2015	Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Systems .....	R403.5.4, Table R406.2
CSA 55.2-2015	Drain Water Heat Recovery Units .....	R403.5.4
CSA P.4.1-15	Testing Method for Measuring Annual Fireplace Efficiency .....	R402.4.2.1
<b>DASMA</b>	Door and Access Systems Manufacturers Association 1300 Sumner Avenue Cleveland, OH 44115-2851	
<del>((105-2016))</del> 105-2017	Test Method for Thermal Transmittance and Air Infiltration of Garage Doors and Rolling Doors .....	R303.1.3
<b>HVI</b>	Home Ventilating Institute 1000 North Rand Road, Suite 214 Wauconda, IL 60084	
<del>((916-09))</del> 916-18	Airflow Test Procedure .....	R303.1.3
<b>ICC</b>	International Code Council, Inc. 500 New Jersey Avenue, N.W. 6th Floor Washington, DC 20001	
Standard reference number	Title	Referenced in code section number
<u>ANSI/APSP/ICC 14-2019</u>	<u>American National Standard for Portable Electric Spa Energy Efficiency</u> .....	<u>R403.11</u>
<u>ANSI/APSP/ICC 15a-2011</u>	<u>American National Standard for Residential Swimming Pool and Spa Energy Efficiency—Includes Addenda A approved January 9, 2013</u> .....	<u>R403.12</u>
<u>ANSI/RESNET/ICC 380—2019</u>	<u>Standard for Testing Airtightness of building, Dwelling Unit and Sleeping Unit Enclosures; Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems</u> .....	<u>R402.4.1.2</u>
<del>((IBC-17))</del> IBC-21	International Building Code .....	R201.3, R303.2, R402.11, R4501.4
ICC 400-17	Standard on the Design and Construction of Log Structures .....	Table R402.1.1
<u>ICC 500-2020</u>	<u>ICC/NSSA Standard for the Design and Construction of Storm Shelters</u> .....	<u>R402.5</u>
<del>((IFC-17))</del> IFC-21	International Fire Code .....	R201.3, R501.4
<del>((IFGC-17))</del> IFGC-21	International Fuel Gas Code .....	R201.3, R501.4
<del>((IFGC-17))</del> IFGC-21	International Mechanical Code .....	R201.3, R403.3.2, R403.6, R501.4
<del>((IPMC-17))</del> IPMC-21	International Property Maintenance Code .....	R501.4
<del>((IRC-17))</del> IRC-21	International Residential Code .....	R104.2.1, R201.3, R303.2, R401.2, R403.2.2, R403.5, R406.1, R406.2, Table R406.2
<b>IEEE</b>	The Institute of Electrical and Electronic Engineers, Inc. 3 Park Avenue New York, NY 10016-5997	
Standard reference number	Title	Referenced in code section number
515.1-2012	IEEE Standard for the Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Commercial Applications .....	R403.5.1.2
<b>ISO</b>	<u>International Organization for Standardization</u> <u>1, rue de Varembe, Case postale 56, CH-1211</u> <u>Geneva, Switzerland</u>	
Standard reference number	Title	Referenced in code section number
<u>ISO/IEC 17024-212</u>	<u>Conformity Assessment: General requirements for bodies operating certification of persons</u> .....	<u>R402.4.1.2</u>
<b>NEEA</b>	Northwest Energy Efficiency Alliance 421 S.W. 6th Ave., Suite 600 Portland, OR 97204	
Standard reference number	Title	Referenced in code section number
NEEA-2011	Northern Climate Specification for Heat Pump Water Heaters, Vers. 4.0 .....	Table R406.2

<b>NEEP</b>	Northeast Energy Efficiency Partnership, Inc. 24 School Street, 2nd Floor Boston, MA 02108-4314	
Standard reference number	Title	Referenced in code section number
ccASHP Version 3.1	Cold Climate Air Source Heat Pump (ccASHP) Product List and Specifications: <a href="https://neep.org/heating-electrification/ccashp-specification-product-list">https://neep.org/heating-electrification/ccashp-specification-product-list</a>	Table R406.3
<b>NEMA</b>	National Electrical Manufacturers Association 1300 17th Street N No. 900 Arlington, VA 22209	
Standard reference number	Title	Referenced in code section number
OS4-2016	Requirements for Air-Sealed Boxes for Electrical and Communications Applications	R402.4.6
<b>NFPA</b>	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7417	
Standard reference number	Title	Referenced in code section number
70-20	National Electrical Code	R501.4
<b>NFRC</b>	National Fenestration Rating Council, Inc. 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770	
Standard reference number	Title	Referenced in code section number
<del>((100-2010))</del> 100-2020	Procedure for Determining Fenestration Products <i>U</i> -factors	R303.1.3
<del>((200-2010))</del> 200-2020	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence	R303.1.3
<del>((400-2010))</del> 400-2020	Procedure for Determining Fenestration Product Air Leakage	R402.4.3
<b>UL</b>	Underwriters Laboratory 333 Pfingsten Road Northbrook, IL 60062	
Standard reference number	Title	Referenced in code section number
UL 127-11	Factory Built Fireplace	R402.4.2
UL 515-11	Electric Resistance Heat Tracing for Commercial and Industrial Applications	R403.5.1.2
UL 907-94	Fireplace Accessories (with revisions through April 2010)	R402.4.2
<b>US-FTC</b>	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 <del>((May 31, 2005))</del> (2015)	<i>R</i> -value Rule	Rule R303.1.4
<b>WDMA</b>	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 <del>((101/I.S.2/A440-11))</del> 101/I.S.2/A440-17	North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights	R402.4.3
<b>WSU</b>	Washington State University Energy Extension Program 905 Plum Street S.E., Bldg 3 P.O. Box 43165 Olympia, WA 98506-3166	
Standard reference number	Title	Referenced in code section number
WSU RS 33	Duct Testing Standard for New and Existing Construction Publication No. WSUEEP15-016	R403.3.3

[Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160 and chapter 19.27 RCW. WSR 20-01-047, § 51-11R-51000, filed 12/9/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-02-127, § 51-11R-51000, filed 1/6/16, effective 7/1/16.]

WSR 23-02-068  
PERMANENT RULES  
DEPARTMENT OF

**CHILDREN, YOUTH, AND FAMILIES**

[Filed January 4, 2023, 9:33 a.m., effective February 4, 2023]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Making amendments to WAC 110-15-0210 to implement section 305 (chapter 199, Laws of 2021) by establishing a dual language designation and providing for subsidy rate enhancements or site-specific grants for licensed or certified child care providers and early childhood education and assistance program (ECEAP) or birth-to-three ECEAP contractors who are given the dual language designation.

Citation of Rules Affected by this Order: Amending WAC 110-15-0210.

Statutory Authority for Adoption: RCW 43.216.592.

Adopted under notice filed as WSR 22-22-099 on November 2, 2022.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 1, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 4, 2023.

Brenda Villarreal  
Rules Coordinator

**OTS-3877.5**

AMENDATORY SECTION (Amending WSR 19-12-058, filed 5/31/19, effective 7/1/19)

**WAC 110-15-0210 Tiered reimbursement ((and)) quality improvement awards, and dual language enhancements.** (1) Providers receiving payment under the WCCC program will receive a tiered reimbursement as outlined in the (("))*Early Achievers Operating Guidelines*, available on DCYF's website.(("))

(2) Quality improvement awards, as described by chapter 43.216 RCW, are reserved for early achievers participating providers offering programs to an enrollment population consisting of at least five percent of children receiving a state subsidy for licensed family homes and at least five percent of nonschool age children receiving subsidy for licensed centers.

(a) Qualifying state subsidy programs include working connections child care (WCCC), seasonal child care (SCC), DCYF child welfare child care programs, homeless child care program (HCCP), ECLIPSE and medic-

aid child care programs. Other qualifying programs may include those supported by municipalities, colleges or universities, local school districts, or federally recognized tribal organizations.

(i) Participants providing (~~(homeless child care program)~~) HCCP, ECLIPSE, or medicaid services must present DCYF with information indicating that services were provided under these programs.

(ii) Participants providing subsidized child care supported by municipalities, colleges or universities, local school districts, or federally recognized tribal organizations must present DCYF with information indicating that services were provided under these programs.

(b) Percent subsidy calculations are derived from a monthly average of the number of children receiving qualifying subsidy divided by the monthly average licensed capacity of a specific provider over a (~~(twelve-month)~~) 12-month period.

(i) The (~~(twelve-month)~~) 12-month period utilized for the above calculation will include the (~~(twelve)~~) 12 months prior to the formal release of a facility's early achievers rating.

(ii) Facilities must have provided care at least one day in a given month for that month to be utilized in the above calculation.

(3) Eligible providers may receive a dual language enhancement.

(a) For purposes of this subsection, "eligible providers" means providers who:

(i) Accept WCCC, SCC, or CWCC payments;

(ii) Are enrolled in the early achievers program; and

(iii) Meet the requirements for the dual language designation standard described in the *Early Achievers Operating Guidelines*, available on DCYF's website.

(b) Dual language enhancements must be spent on professional development training, the purchase of dual language and culturally appropriate curricula and accompanying training programs, instructional materials, increased wages for individual staff who provide bilingual instruction, or other related expenses.

[Statutory Authority: RCW 43.216.055 and 43.216.065. WSR 19-12-058, § 110-15-0210, filed 5/31/19, effective 7/1/19. WSR 18-14-078, recodified as § 110-15-0210, filed 6/29/18, effective 7/1/18. Statutory Authority: RCW 43.215.070 and chapter 43.215 RCW. WSR 16-19-107, § 170-290-0210, filed 9/21/16, effective 10/22/16. Statutory Authority: RCW 43.215.060, 43.215.070, and chapter 43.215 RCW. WSR 13-21-113, § 170-290-0210, filed 10/22/13, effective 11/22/13.]

**WSR 23-02-069**  
**PERMANENT RULES**  
**DEPARTMENT OF**  
**FISH AND WILDLIFE**

[Filed January 4, 2023, 9:40 a.m., effective February 4, 2023]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The purpose of the new section to [in] chapter 220-500 WAC, WAC 220-500-045 Domestic sheep and goats on Washington department of fish and wildlife (WDFW)-managed lands, is to reduce risk of disease transmission to bighorn sheep via contact with domestic goats and sheep on wildlife areas managed by WDFW. The rule prohibits visitors from bringing domestic goats or sheep onto 31 wildlife area units spread across 12 wildlife areas managed by WDFW. WDFW identified these wildlife area units using a risk-of-contact tool adapted from a tool developed for the United States Forest Service. The rule also prohibits goats or sheep that have tested positive for *Mycoplasma ovipneumoniae* or that are displaying signs of illness from entering any WDFW-managed lands. Finally, subsection (3) of the rule requires a goat owner or owner's agent to contact WDFW by phone if a goat or sheep becomes lost on WDFW-managed lands.

CR-101 was filed by WDFW on August 23, 2021, and CR-102 on October 11, 2022. A State Environmental Policy Act determination of non-significance was issued November 16, 2022. A public comment period was open from October 11 until November 30, 2022, and a public hearing on the rule was held online on December 1, 2022.

At the beginning of the 1800s, there were an estimated 1.5 to 2 million bighorn sheep in North America. Today, less than 70,000 remain. Overhunting, habitat loss, and, most significantly, the spread of the pneumonia pathogen from domestic sheep to wild herds led to the extirpation of bighorns from Washington by the mid-1920s.

About 1,500 sheep in 17 herds currently live in central and eastern Washington. The threat of disease still looms over the long-term success of bighorn restoration efforts. Bighorn sheep (*Ovis canadensis*) is listed as a species of greatest conservation need in the state wildlife action plan and a priority species under WDFW's priority habitat and species program.

In 2012, the Western Association of Fish and Wildlife Agencies (WAFWA) Wild Sheep Working Group published management recommendations for domestic sheep and goats in bighorn habitat in 2012. WAFWA advocates that effective separation should be a primary management goal of state, provincial, territorial, and federal agencies responsible for the conservation of wild sheep, based on evidence that domestic sheep or goats can transfer pathogens to wild sheep. Specifically, domestic sheep and goats have been linked to the transmission of *Mycoplasma ovipneumoniae*, a bacteria commonly found in the nasal cavity and sinuses of apparently healthy domestic sheep and goats. Infection of bighorn herds can cause large all-age die-offs, followed by years of poor lamb recruitment.

Citation of Rules Affected by this Order: New WAC 220-500-045.

Statutory Authority for Adoption: RCW 77.04.012, 77.04.020, 77.04.055, 77.12.047, and 77.12.210.

Adopted under notice filed as WSR 22-21-045 on October 11, 2022.

Changes Other than Editing from Proposed to Adopted Version: The following was added to clarify penalties associated with noncompliance with the proposed rule: "A violation of this subsection may be punish-

able under RCW 77.15.160 or other relevant statute, depending on the circumstances of the violation."

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 1, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: December 14, 2022.

Kelly Susewind  
Director

## OTS-4153.2

### NEW SECTION

**WAC 220-500-045 Domestic goats and sheep on Washington department of fish and wildlife managed lands.** (1) It is unlawful for any person to bring or lead domestic goats or sheep onto the following department wildlife area units or other WDFW-managed lands posted as closed to domestic goats or sheep, unless otherwise permitted by the director to do so:

(a) Asotin Creek Wildlife Area: Asotin Creek, Weatherly, and George Creek Units;

(b) Chelan Wildlife Area: Beebe Springs, Chelan Butte, Swakane, and Entiat Units;

(c) Chief Joseph Wildlife Area: Chief Joseph, 4-0 Ranch, Grouse Flats, and Shumaker Units;

(d) Colockum Wildlife Area: Colockum Unit;

(e) Columbia Basin Wildlife Area: Lower Crab Creek and Quincy Lakes Units;

(f) L.T. Murray Wildlife Area: Quilomene, L.T. Murray, and Whiskey Dick Units;

(g) Oak Creek Wildlife Area: Cowiche, Oak Creek, and Rock Creek Units;

(h) Scotch Creek Wildlife Area: Chesaw, Ellemehan, Scotch Creek, Charles and Mary Eder, Similkameen-Chopaka, and Tunk Valley Units;

(i) Sinlahekin Wildlife Area: Sinlahekin, Driscoll Island, and Carter Mountain Units;

(j) Wells Wildlife Area: Indian Dan Canyon Unit;

(k) Wenas Wildlife Area: Wenas Unit;

(l) W.T. Wooten Wildlife Area: W.T. Wooten Unit.

(2) Goats or sheep that have tested positive for *Mycoplasma ovipneumoniae* or that are displaying signs of pneumonia or other illness will not be allowed on any WDFW-managed lands. Goats or sheep display-



ing signs of pneumonia or other illness while on department lands must be removed by the animal(s) owner or owner's agent within 48 hours.

(3) If a goat or sheep becomes lost, the owner or owner's agent must make every effort to locate and recover it. If the goat or sheep cannot be recovered, the animal's owner or owner's agent shall contact the department by telephone as soon as possible. A violation of this subsection may be punishable under RCW 77.15.160 or other relevant statute depending on the circumstances of the violation.

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**WSR 23-02-073**  
**PERMANENT RULES**  
**BUILDING CODE COUNCIL**

[Filed January 4, 2023, 10:53 a.m., effective July 1, 2023]

Effective Date of Rule: July 1, 2023.

Purpose: The purpose of this permanent rule making is to adopt the 2021 International Building Code (structural provisions), and the 2021 International Existing Building Code, published by the International Code Council (ICC), with state amendments to incorporate proposed changes as adopted by the Washington state building code council on November 18, 2022. The rules provide increased clarity and life safety measures for building construction in Washington state. The implementation date is July 1, 2023.

Citation of Rules Affected by this Order: New 11; and amending 42.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074.

Other Authority: RCW 19.27.540.

Adopted under notice filed as WSR 22-17-151 on August 23, 2022.

Changes Other than Editing from Proposed to Adopted Version:

<b>WAC</b>	<b>Section</b>	<b>Change</b>	<b>Rationale/Discussion</b>
51-50-1615	IBC 1615	Replaces the initial proposal filed with CR-102.	After the initial proposal was filed, the Washington department of natural resources has finalized the development of tsunami design zone maps for all coastal areas of the state. The revised proposal adopts the latest tsunami hazard maps into the state building code and brings forward the latest published tsunami design zone requirements contained in the American Society of Civil Engineers Standard 7-22, which would otherwise be adopted as part of the 2024 International Building Code.
51-50-21070	IBC 2107.2	Removes Section 2107.2 and saves WAC 51-50-21070 as reserved.	After further review, it was considered that this section is no longer needed. The existing amendment is addressed in the model code. The existing amendment refers to TMS 402/ACI 530/ASCE 5 Section 2.1.8.7.1.1. This standard and this section are obsolete; the correct reference, as it appears in the model code, is TMS 402, Section 6.1.6.1.1.
51-50-2304	IBC 2304.11.3.1	Removes the phrase "discussion at committee level."	Editorial correction; this phrase was inadvertently added to the initial proposal.
51-50-480200	IEBC 202	Modifies the definitions for SUBSTANTIAL DAMAGE and SUBSTANTIAL IMPROVEMENT.	Both definitions are revised to provide an option to comply with the latest FEMA guidance or use of the Building Valuation Data. (See detailed rationale here [contact agency for link].)
51-50-480306	IEBC 306.7.1	Combines Option 1 and Option 2.	Two Options for modified language in Section 306.7.1 were initially proposed and filed with the CR-102. The council voted to combine both options.
51-50-480401	IEBC 401.4	Modifies the language in Section 401.4 (deletes the phrase "or remaining foundation as approved by the code official) and adds a new exception.	The intent of the initial proposal (21-GP2-055) was to allow the reuse of existing foundations, where approved by the code official. This modification provides the specific language, so it is clear to the code user on the reuse of existing foundations.

WAC	Section	Change	Rationale/Discussion
51-50-480503	IEBC 503.13	The text is moved out of the exception into paragraph 2, Section 2.1, and "where approved" is added to section 2.1. Adds subsections 2.1.1 and 2.1.2.	Clarifies the applicability of the proposal and overall improves it; it does not change its original intent. It reflects comments heard from the ICC committee during the April 2022 Committee Action Hearings in Rochester NY and includes another IEBC proposed change (EB68) that is anticipated to be incorporated in the 2024 IEBC. Identical changes are made in Section 805.4.
51-50-480805	IEBC 805.4	The text is moved out of the exception into paragraph 2, section 2.1, and "where approved" is added to section 2.1. Adds sub-sections 2.1.1 and 2.1.2.	Clarifies the applicability of the proposal and overall improves it, it does not change its original intent. It reflects comments heard from the ICC committee during the April 2022 Committee Action Hearings in Rochester NY and includes another IEBC proposal change (EB68) that is anticipated to be incorporated in the 2024 IEBC. Identical changes are made in Section 503.13.
51-50-481401	IEBC 1401.2	<ul style="list-style-type: none"> <li>• Deletes references which no longer exists: "51-54," "51-57," "51-11," "51-13."</li> <li>• Adds the correct references: "51-54A," "51-11C," "51-11R."</li> </ul>	The modification is intended to correct references to building codes that no longer exist.

A final cost-benefit analysis is available by contacting Stoyan Bumbalov, 1500 Jefferson Street S.E., phone 360-407-2244, email Stoyan.Bumbalov@des.wa.gov, website www.sbcc.wa.gov.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 11, Amended 42, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: November 18, 2022.

Tony Doan  
Chair

## OTS-4036.5

### NEW SECTION

#### **WAC 51-50-0107 Section 107—Construction documents.**

**107.2 Construction documents.** Construction documents shall be in accordance with Sections 107.2.1 through 107.2.9.

**107.2.9 Nonstructural components.** Construction documents shall indicate if structural support and anchoring documentation for nonstruc-

tural components is part of the design submittal or a deferred submittal. The construction documents for nonstructural components shall at a minimum identify the following:

1. All nonstructural components required by ASCE 7 Section 13.1.3 to have an importance factor of,  $I_p$ , of 1.5.
2. All mechanical equipment, fire sprinkler equipment, electrical equipment, and other nonstructural components required by ASCE 7 Section 13.1.3 Item 1 to be operational following a seismic event that require designated seismic systems per ASCE 7 Section 13.2.2 and special inspections per Section 1705.13.4.

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

**WAC 51-50-1604** (~~(Section 1604 General design requirements.)~~)  
Reserved.

~~(Table 1604.5  
 Risk Category of Buildings and Other  
 Structures~~

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure including, but not limited to: <ul style="list-style-type: none"> <li>• Agricultural facilities.</li> <li>• Certain temporary facilities.</li> <li>• Minor storage facilities.</li> </ul>
II	Buildings and other structures except those listed in Risk Categories I, III, and IV.
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure including, but not limited to: <ul style="list-style-type: none"> <li>• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.</li> <li>• Buildings and other structures containing Group E or Group I-4 occupancies with an occupant load greater than 250.</li> <li>• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.</li> <li>• Group I-2 occupancies with an occupant load of 50 or more resident care recipients but not having surgery or emergency treatment facilities.</li> <li>• Group I-3 occupancies.</li> <li>• Any other occupancy with an occupant load greater than 5,000.<sup>a</sup></li> </ul>

RISK CATEGORY	NATURE OF OCCUPANCY
	<ul style="list-style-type: none"> <li>• Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.</li> <li>• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:                             <ul style="list-style-type: none"> <li>Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the <i>International Fire Code</i>; and</li> <li>Are sufficient to pose a threat to the public if released.<sup>b</sup></li> </ul> </li> </ul>
IV	<p>Buildings and other structures designated as essential facilities including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Group I-2 occupancies having surgery or emergency treatment facilities.</li> <li>• Structures that house private emergency power generation, medical gas systems, HVAC systems or related infrastructure systems that support emergency surgery or emergency treatment.</li> <li>• Fire, rescue, ambulance and police stations, and emergency vehicle garages.</li> <li>• Designated earthquake, hurricane, or other emergency shelters.</li> <li>• Designated emergency preparedness, communications and operations centers, and other facilities required for emergency response.</li> <li>• Power-generating stations and other public utility facilities required as emergency backup facilities for Risk Category IV structures.</li> <li>• Buildings and other structures containing quantities of highly toxic materials that:                             <ul style="list-style-type: none"> <li>Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the <i>International Fire Code</i>; and</li> <li>Are sufficient to pose a threat to the public if released.<sup>b</sup></li> </ul> </li> <li>• Aviation control towers, air traffic control centers, and emergency aircraft hangars.</li> <li>• Buildings and other structures having critical national defense functions.</li> <li>• Water storage facilities and pump structures required to maintain water pressure for fire suppression.</li> </ul>

- a For purposes of occupant load calculation, occupancies required by Table 1004.1.2 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.
- b Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.)

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1604, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-1604, filed 12/26/18, effective 7/1/19.]

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

**WAC 51-50-1613 Section 1613—Earthquake loads.**

**1613.4 Amendments to ASCE 7.** The provisions of Section 1613.4 shall be permitted as an amendment to the relevant provisions of ASCE 7. The text of ASCE 7 shall be amended as indicated in Sections 1613.4.1 through ((1613.4.2)) 1613.4.6.

**1613.4.1 ASCE 7 Section 12.2.5.4.** Amend ASCE 7 Section 12.2.5.4 as follows:

**12.2.5.4 Increased structural height limit for steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls, and special reinforced concrete shear walls.** The limits on height,  $h_n$ , in Table 12.2-1 are permitted to be increased from 160 ft (50 m) to 240 ft (75 m) for structures assigned to Seismic Design Categories D or E and from 100 ft (30 m) to 160 ft (50 m) for structures assigned to Seismic Design Category F, provided that the seismic force-resisting systems are limited to steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls, or special reinforced concrete cast-in-place shear walls and all of the following requirements are met:

1. The structure shall not have an extreme torsional irregularity as defined in Table 12.3-1 (horizontal structural irregularity Type 1b).

2. The steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls or special reinforced concrete shear walls in any one plane shall resist no more than 60 percent of the total seismic forces in each direction, neglecting accidental torsional effects.

3. Where floor and roof diaphragms transfer forces from the vertical seismic force-resisting elements above the diaphragm to other vertical force-resisting elements below the diaphragm, these in-plane transfer forces shall be amplified by the overstrength factor,  $\Omega_o$  for the design of the diaphragm flexure, shear, and collectors.

4. The earthquake force demands in foundation mat slabs, grade beams, and pile caps supporting braced frames and/or walls arranged to form a shear-resisting core shall be amplified by 2 for shear and 1.5

for flexure. The redundancy factor,  $\rho$ , applies and shall be the same as that used for the structure in accordance with Section 12.3.4.

~~((5. The earthquake shear force demands in special reinforced concrete shear walls shall be amplified by the over strength factor,  $\Omega_o$ .)~~

**1613.4.2 ASCE 7 Section 12.6.** Amend ASCE 7 Section 12.6 and Table 12.6-1 to read as follows:

**12.6 ANALYSIS PROCEDURE SELECTION**

**12.6.1 Analysis procedure.** The structural analysis required by Chapter 12 shall consist of one of the types permitted in Table 12.6-1, based on the structure's seismic design category, structural system, dynamic properties, and regularity, or with the approval of the authority having jurisdiction, an alternative generally accepted procedure is permitted to be used. The analysis procedure selected shall be completed in accordance with the requirements of the corresponding section referenced in Table 12.6-1.

**Table 12.6-1  
Permitted Analytical Procedures**

Seismic Design Category	Structural Characteristics	Equivalent Lateral Force Procedure, Section 12.8 <sup>a</sup>	Modal Response Spectrum Analysis, Section 12.9.1, or Linear Response History Analysis, Section 12.9.2	Nonlinear Response History Procedures, Chapter 16 <sup>a</sup>
B, C	All structures	P	P	P
D, E, F	Risk Category I or II buildings not exceeding two stories above the base	P	P	P
	Structures of light frame construction	P	P	P
	Structures with no structural irregularities and not exceeding 160 ft in structural height	P	P	P
	Structures exceeding 160 ft in structural height with no structural irregularities and with $T < 3.5T_s$	P	P	P
	Structures not exceeding 160 ft in structural height and having only horizontal irregularities of Type 2, 3, 4, or 5 in Table 12.3-1 or vertical irregularities of Type 4, 5a, or 5b in Table 12.3-2	P	P	P
	All other structures $\leq$ 240 ft in height	NP	P	P
	All structures $>$ 240 ft in height	NP	NP	p <sup>c</sup>

<sup>a</sup> P: Permitted; NP: Not Permitted;  $T_s = S_{D1}/S_{D5}$ .

**1613.4.3 ASCE 7 Section 11.2.** Amend ASCE 7 Section 11.2 to include the following definition:

**USGS SEISMIC DESIGN GEODATABASE:** A U.S. Geological Survey (USGS) database of geocoded values of seismic design parameters and geocoded sets of multiperiod 5%-damped risk-targeted maximum considered earthquake

(MCER) response spectra. The parameters obtained from this database may only be used where referenced by Section 11.4.8.1.

**User Note:** The USGS Seismic Design Geodatabase is intended to be accessed through a USGS Seismic Design web service that allows the user to specify the site location, by latitude and longitude, and the site class to obtain the seismic design data. The USGS web service spatially interpolates between the gridded data of the USGS geodatabase. Both the USGS geodatabase and the USGS web service can be accessed at <https://doi.org/10.5066/F7NK3C76>. The USGS Seismic Design Geodatabase is available at the ASCE 7 Hazard Tool <https://asce7hazardtool.online/> or an approved equivalent.

**1613.4.4 ASCE 7 Section 11.4.8.** Amend ASCE 7 Section 11.4.8 to include the following section:

**11.4.8.1 Multiperiod design response spectrum.** As an alternative to the ground motion hazard analysis requirements of Section 11.4.8, and suitable for all structures other than those designated Site Class F (unless exempted in accordance with Section 20.3.1), a multiperiod design response spectrum may be developed as follows:

1. For exclusive use with the USGS Seismic Design Geodatabase in accordance with this section, the site class shall be determined per Section 20.6.

2. Where a multiperiod design response spectrum is developed in accordance with this section, the parameters  $S_M$ ,  $S_{M1}$ ,  $S_D$ ,  $S_{D1}$ , and  $T_L$  as obtained by the USGS Seismic Design Geodatabase shall be used for all applications of these parameters in this standard.

3. The  $S_S$  and  $S_1$  parameters obtained by the USGS Seismic Design Geodatabase are only permitted to be used in development of the multiperiod design response spectrum and are not permitted to be used in other applications in this standard. The mapped parameters  $S_S$  and  $S_1$  as determined by Section 11.4.2 and peak ground acceleration parameter  $PGA_M$  as determined by Section 11.8.3 shall be used for all other applications in this standard.

4. At discrete values of period,  $T$ , equal to 0.0s, 0.01s, 0.02s, 0.03s, 0.05s, 0.075s, 0.1s, 0.15s, 0.2s, 0.25s, 0.3s, 0.4s, 0.5s, 0.75s, 1.0s, 1.5s, 2.0s, 3.0s, 4.0s, 5.0s, 7.5s, and 10.0s, the 5%-damped design spectral response acceleration parameter,  $S_a$ , shall be taken as 2/3 of the multiperiod 5%-damped MCER response spectrum from the USGS Seismic Design Geodatabase for the applicable site class.

5. At each response period,  $T$ , less than 10.0s and not equal to one of the discrete values of period,  $T$ , listed in Item 4 above,  $S_a$ , shall be determined by linear interpolation between values of  $S_a$ , of Item 4 above.

6. At each response period,  $T$ , greater than 10.0s,  $S_a$  shall be taken as the value of  $S_a$  at the period of 10.0s, factored by  $10/T$ , where the value of  $T$  is less than or equal to that of the long-period transition period,  $T_L$ , and shall be taken as the value of  $S_a$  at the period of 10.0s factored by  $10T_L/T^2$ , where the value of  $T$  is greater than that of the long-period transition period,  $T_L$ .

7. Where an MCER response spectrum is required, it shall be determined by multiplying the multiperiod design response spectrum by 1.5.



8. For use with the equivalent lateral force procedure, the spectral acceleration  $S_a$  at  $T$  shall be permitted to replace  $S_{D1}/T$  in Equation (12.8-3) and  $S_{D1} T_L/T^2$  in Equation (12.8-4).

**1613.4.5 ASCE 7 Section 20.6.** Amend ASCE 7 Chapter 20 to include the following section:

**Section 20.6 Site classification procedure for use with Section**

**11.4.8.1.** For exclusive use in determining the multiperiod design response spectrum and associated spectral parameters in accordance with Section 11.4.8.1, the site class shall be determined in accordance with this section. For all other applications in this standard the site class shall be determined per Section 20.1.

**20.6.1 Site classification.** The site soil shall be classified in accordance with Table 20.6-1 and Section 20.6.2 based on the average shear wave velocity parameter,  $\bar{v}_s$ , which is derived from the measured shear wave velocity profile from the ground surface to a depth of 100 ft (30 m). Where shear wave velocity is not measured, appropriate generalized correlations between shear wave velocity and standard penetration test (SPT) blow counts, cone penetration test (CPT) tip resistance, shear strength, or other geotechnical parameters shall be used to obtain an estimated shear wave velocity profile, as described in Section 20.6.3. Where site-specific data (measured shear wave velocities or other geotechnical data that can be used to estimate shear wave velocity) are available only to a maximum depth less than 100 ft (30 m), shall be estimated as described in Section 20.6.3.

Where the soil properties are not known in sufficient detail to determine the site class, the most critical site conditions of Site Class C, Site Class CD and Site Class D, as defined in Section 20.6.2, shall be used unless the authority having jurisdiction or geotechnical data determine that Site Class DE, E or F soils are present at the site. Site Classes A and B shall not be assigned to a site if there is more than 10 ft (3.1 m) of soil between the rock surface and the bottom of the spread footing or mat foundation.

**20.6.2 Site class definitions.** Site class types shall be assigned in accordance with the definitions provided in Table 20.6.2-1 and this section.

**20.6.2.1 Soft clay Site Class E.** Where a site does not qualify under the criteria for Site Class F per Section 20.3.1 and there is a total thickness of soft clay greater than 10 ft (3 m), where a soft clay layer is defined by  $s_u < 500$  psf ( $s_u < 25$  kPa),  $w \geq 40\%$ , and  $PI > 20$ , it shall be classified as Site Class E. This classification is made regardless of  $\bar{v}_s$ , as computed in Section 20.4.

**20.6.2.2 Site Classes C, CD, D, DE and E.** The assignment of Site Class C, CD, D, DE and E soils shall be made based on the average shear wave velocity, which is derived from the site shear wave velocity profile from the ground surface to a depth of 100 ft (30 m), as described in Section 20.4.

**20.6.2.3 Site Classes B and BC (medium hard and soft rock).** Site Class B can only be assigned to a site on the basis of shear wave velocity measured on site. If shear wave velocity data are not available and the site condition is estimated by a geotechnical engineer, engineering geologist, or seismologist as Site Class B or BC on the basis of site geology, consisting of competent rock with moderate fracturing

and weathering, the site shall be classified as Site Class BC. Softer and more highly fractured and weathered rock shall either be measured on site for shear wave velocity or classified as Site Class C.

**20.6.2.4 Site Class A (hard rock).** The hard rock, Site Class A, category shall be supported by shear wave velocity measurement, either on site or on profiles of the same rock type in the same formation with an equal or greater degree of weathering and fracturing. Where hard rock conditions are known to be continuous to a depth of 100 ft (30 m), surficial shear wave velocity measurements to maximum depths less than 100 ft are permitted to be extrapolated to assess  $\bar{v}_s$ .

**Table 20.6.2-1 Site Classification**

<u>Site Class</u>	<u><math>\bar{v}_s</math> Calculated Using Measured or Estimated Shear Wave Velocity Profile (ft/s)</u>
<u>A. Hard Rock</u>	<u><math>\geq 5,000</math></u>
<u>B. Medium Hard Rock</u>	<u><math>&gt; 3,000</math> to <math>5,000</math></u>
<u>BC. Soft Rock</u>	<u><math>&gt; 2,100</math> to <math>3,000</math></u>
<u>C. Very Dense Sand or Hard Clay</u>	<u><math>&gt; 1,450</math> to <math>2,100</math></u>
<u>CD. Dense Sand or Very Stiff Clay</u>	<u><math>&gt; 1,000</math> to <math>1,450</math></u>
<u>D. Medium Dense Sand or Stiff Clay</u>	<u><math>&gt; 700</math> to <math>1,000</math></u>
<u>DE. Loose Sand or Medium Stiff Clay</u>	<u><math>&gt; 500</math> to <math>700</math></u>
<u>E. Very Loose Sand or Soft Clay</u>	<u><math>\leq 500</math></u>

**20.6.3 Estimation of shear wave velocity profiles.** Where measured shear wave velocity data are not available, shear wave velocity shall be estimated as a function of depth using correlations with suitable geotechnical parameters, including standard penetration test (SPT) blow counts, shear strength, overburden pressure, void ratio, or cone penetration test (CPT) tip resistance, measured at the site.

Site class based on estimated values of shall be derived using  $\bar{v}_s$ ,  $\bar{v}_s/1.3$ , and  $1.3\bar{v}_s$  when correlation models are used to derive shear wave velocities. Where correlations derived for specific local regions can be demonstrated to have greater accuracy, factors less than 1.3 can be used if approved by the authority having jurisdiction. If the different average velocities result in different site classes per Table 20.6.2-1, the most critical of the site classes for ground motion analysis at each period shall be used.

Where the available data used to establish the shear wave velocity profile extends to depths less than 100 ft (30 m) but more than 50 ft (15 m), and the site geology is such that soft layers are unlikely to be encountered between 50 and 100 ft, the shear wave velocity of the last layer in the profile shall be extended to 100 ft for the calculation of in Equation (20.4-1). Where the data does not extend to depths of 50 ft (15 m), default site classes, as described in Section 20.6.1, shall be used unless another site class can be justified on the basis of the site geology.

**1613.4.6 ASCE 7 Section 21.3.1.** Amend ASCE 7 Section 21.3 to include the following section:

**Section 21.3.1 Alternate minimum design spectral response accelerations.** As an alternate approach to Section 21.3, the lower limit of  $S_a$  is permitted to be determined according to this section. The design

spectral response acceleration at any period shall not be taken less than 80% of the multiperiod design response spectrum as determined by Section 11.4.8.1.

For sites classified as Site Class F requiring site-specific analysis in accordance with Section 11.4.8, the design spectral response acceleration at any period shall not be less than 80% of  $S_a$  determined for Site Class E.

**EXCEPTION:** Where a different site class can be justified using the site-specific classification procedures in accordance with Section 20.6.2.2, a lower limit of 80% of  $S_a$  for the justified site class shall be permitted to be used.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-1613, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-1613, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-1613, filed 12/26/18, effective 7/1/19; WSR 10-03-097, § 51-50-1613, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. WSR 08-01-110, § 51-50-1613, filed 12/18/07, effective 4/1/08.]

AMENDATORY SECTION (Amending WSR 21-12-075, filed 5/28/21, effective 6/28/21)

#### **WAC 51-50-1615 Tsunami loads.**

~~((1615.1 General. The design and construction of Risk Category III and IV buildings and structures located in the Tsunami Design Zones shall be in accordance with Chapter 6 of ASCE 7, except as modified by this code.~~

**USER NOTE:** The intent of the Washington state amendments to ASCE 7 Chapter 6 (Tsunami Loads and Effects) is to require use of the Washington Tsunami Design maps to determine inundation limits, i.e., when a site is within a tsunami design zone, where those maps are available. If they are not available for a given site, ASCE 7 maps are to be used. For sites where the Washington state department of natural resources has parameters for tsunami inundation depth and flow velocity available, those parameters are required to be used in the energy grade line analysis methodology, and as a basis for comparison in the probabilistic tsunami hazard analysis in this chapter.

~~1615.2 Modifications to ASCE 7. The text of Chapter 6 of ASCE 7 shall be modified as indicated in this section.~~

~~1615.2.1 ASCE 7 Section 6.1.1. Modify the third paragraph and its exception in ASCE 7 Section 6.1.1 to read as follows:~~

The Tsunami Design Zone shall be determined using the Washington Tsunami Design Zone maps (WA-TDZ). The WA-TDZ maps are available at <https://www.dnr.wa.gov/wa-tdz>. For areas not covered by the extent of the WA-TDZ maps, the Tsunami Design Zone shall be determined using the ASCE Tsunami Design Geodatabase of geocoded reference points shown in Fig. 6.1-1. The ASCE Tsunami Design Geodatabase of geocoded reference points of runup and associated inundation Limits of the Tsunami Design Zone is available at <http://asce7tsunami.online>.

**EXCEPTION:** For coastal regions subject to tsunami inundation and not covered by WA-TDZ maps or Fig. 6.1-1, Tsunami Design Zone, inundation limits, and runup elevations shall be determined using the site-specific procedures of Section 6.7, or for Tsunami Risk Category II or III structures, determined in accordance with the procedures of Section 6.5.1.1 using Fig. 6.7-1.

~~1615.2.2 ASCE 7 Section 6.1.1. Add new fifth paragraph and user note to ASCE 7 Section 6.1.1 to read as follows:~~

Whenever a Tsunami Design Zone or Fig. 6.1-1 is referenced in ASCE 7 Chapter 6, it shall include the WA-TDZ maps, within the extent of those maps.

**USER NOTE:** Tsunami inundation depths and flow velocities may be obtained from the Washington state department of natural resources. See <https://www.dnr.wa.gov/wa-tdz>.

~~1615.2.3 ASCE 7 Section 6.2.~~ Modify ASCE 7 Section 6.2 definitions to read as follows:

~~**MAXIMUM CONSIDERED TSUNAMI:**~~ A probabilistic tsunami having a 2% probability of being exceeded in a 50-year period or a 2,475-year mean recurrence, or a deterministic assessment considering the maximum tsunami that can reasonably be expected to affect a site.

~~**TSUNAMI DESIGN ZONE MAP:**~~ The Washington Tsunami Design Zone maps (WA-TDZ) designating the potential horizontal inundation limit of the Maximum Considered Tsunami, or outside of the extent of WA-TDZ maps, the map given in Fig. 6.1-1.

~~1615.2.4 ASCE 7 Section 6.2.~~ Add new definitions to ASCE 7 Section 6.2 to read as follows:

~~**SHORELINE AMPLITUDE:**~~ The Maximum Considered Tsunami amplitude at the shoreline, where the shoreline is determined by vertical datum in North American Vertical Datum (NAVD 88).

~~**WASHINGTON TSUNAMI DESIGN ZONE MAP (WA-TDZ):**~~ The Washington department of natural resources maps of potential tsunami inundation limits for the Maximum Considered Tsunami, designated as follows:

Anacortes-Bellingham area	MS 2018-02 Anacortes Bellingham
Elliott Bay-Seattle	OFR 2003-14
Everett area	OFR 2014-03
Port Angeles and Port Townsend area	MS 2018-03 Port Angeles and Port Townsend
San Juan Islands	MS 2016-01
Southern Washington Coast	MS 2018-01
Tacoma area	OFR 2009-9

~~1615.2.5 ASCE 7 Section 6.5.1.~~ Add new second paragraph to ASCE 7 Section 6.5.1 to read as follows:

~~**6.5.1 Tsunami Risk Category II and III buildings and other structures.**~~ The Maximum Considered Tsunami inundation depth and tsunami flow velocity characteristics at a Tsunami Risk Category II or III building or other structure shall be determined by using the Energy Grade Line Analysis of Section 6.6 using the inundation limit and run-up elevation of the Maximum Considered Tsunami given in Fig. 6.1-1.

Where tsunami inundation depth and flow velocity characteristics are available from the Washington state department of natural resources, those parameters shall be used to determine design forces in the Energy Grade Line Analysis in Section 6.6.

~~1615.2.6 ASCE 7 Section 6.5.1.1.~~ Modify the first paragraph of ASCE 7 Section 6.5.1.1 to read as follows:

~~**6.5.1.1 Runup evaluation for areas where no map values are given.**~~ For Tsunami Risk Category II and III buildings and other structures where no mapped inundation limit is shown in the Tsunami Design Zone map, the ratio of tsunami runup elevation above Mean High Water Level to Offshore Tsunami Amplitude,  $R/HT$ , shall be permitted to be determined using the surf similarity parameter  $\xi \geq 100$ , according to Eqs. (6.5-2a, b, c, d, or e) and Fig. 6.5-1.

~~1615.2.7 ASCE 7 Section 6.5.2.~~ Add new second paragraph to ASCE 7 Section 6.5.2 to read as follows:

~~**6.5.2 Tsunami Risk Category IV buildings and other structures.**~~ The Energy Grade Line Analysis of Section 6.6 shall be performed for

Tsunami Risk Category IV buildings and other structures, and the site-specific Probabilistic Tsunami Hazard Analysis (PTHA) of Section 6.7 shall also be performed. Site-specific velocities determined by site-specific PTHA determined to be less than the Energy Grade Line Analysis shall be subject to the limitation in Section 6.7.6.8. Site-specific velocities determined to be greater than the Energy Grade Line Analysis shall be used.

**EXCEPTIONS:** For structures other than Tsunami Vertical Evacuation Refuge Structures, a site-specific Probabilistic Tsunami Hazard Analysis need not be performed where the inundation depth resulting from the Energy Grade Line Analysis is determined to be less than 12 ft (3.66 m) at any point within the location of the Tsunami Risk Category IV structure. Where tsunami inundation depths and flow velocities are available for a site from the Washington state department of natural resources, those parameters shall be used as the basis of comparison for the PTHA above and to determine whether the exception applies, in lieu of the Energy Grade Line Analysis.

**1615.2.8 ASCE 7 Section 6.6.1.** Add new third paragraph to ASCE 7 Section 6.6.1 to read as follows:

**6.6.1 Maximum inundation depth and flow velocities based on run-up.** The maximum inundation depths and flow velocities associated with the stages of tsunami flooding shall be determined in accordance with Section 6.6.2. Calculated flow velocity shall not be taken as less than 10 ft/s (3.0 m/s) and need not be taken as greater than the lesser of  $1.5(g_{hmax})^{1/2}$  and 50 ft/s (15.2 m/s).

Where the maximum topographic elevation along the topographic transect between the shoreline and the inundation limit is greater than the runup elevation, one of the following methods shall be used:

1. The site-specific procedure of Section 6.7.6 shall be used to determine inundation depth and flow velocities at the site, subject to the above range of calculated velocities.

2. For determination of the inundation depth and flow velocity at the site, the procedure of Section 6.6.2, Energy Grade Line Analysis, shall be used, assuming a runup elevation and horizontal inundation limit that has at least 100% of the maximum topographic elevation along the topographic transect.

Where tsunami inundation depths and flow velocities are available from Washington state department of natural resources, those parameters shall be used to determine design forces in the Energy Grade Line Analysis in Section 6.6.2.

**1615.2.9 ASCE 7 Section 6.7.** Modify ASCE 7 Section 6.7 and add a user note to read as follows:

When required by Section 6.5, the inundation depths and flow velocities shall be determined by site-specific inundation studies complying with the requirements of this section. Site-specific analyses shall use an integrated generation, propagation, and inundation model that replicates the given offshore tsunami waveform amplitude and period from the seismic sources given in Section 6.7.2.

**USER NOTE:** Washington Tsunami Design Zone maps and inundation depths and flow velocities from Washington state department of natural resources are based on an integrated generation, propagation, and inundation model replicating waveforms from the seismic sources specific to Washington state. Model data can be obtained by contacting Washington state department of natural resources. See <https://www.dnr.wa.gov/wa-tdz>.

**1615.2.10 ASCE 7 Section 6.7.5.1, Item 4.** Modify ASCE 7 Section 6.7.5.1, Item 4 to read as follows:

**6.7.5.1 Offshore tsunami amplitude for distant seismic sources.** Offshore tsunami amplitude shall be probabilistically determined in accordance with the following:

4. The value of tsunami wave amplitude shall be not less than 80% of the shoreline amplitude value associated with the Washington state inundation models as measured in the direction of the incoming wave propagation.

~~1615.2.11 ASCE 7 Table 6.7-2.~~ Modify ASCE 7 Table 6.7-2 to read as follows:

~~Table 6.7-2~~

~~Maximum Moment Magnitude~~

<del>Subduction Zone</del>	<del>Moment Magnitude</del>
	<del><math>M_{wmax}</math></del>
<del>Alaskan-Aleutian</del>	<del>9.2</del>
<del>Cascadia</del>	<del>9.0</del>
<del>Chile-Peru</del>	<del>9.5</del>
<del>Izu-Bonin-Mariana</del>	<del>9.0</del>
<del>Kamchatka-Kurile and Japan Trench</del>	<del>9.4</del>

~~1615.2.12 ASCE 7 Section 6.7.5.2.~~ Modify ASCE 7 Section 6.7.5.2 to read as follows:

~~6.7.5.2 Direct computation of probabilistic inundation and runup.~~

~~It shall be permitted to compute probabilistic inundation and runup directly from a probabilistic set of sources, source characterizations, and uncertainties consistent with Section 6.7.2, Section 6.7.4, and the computing conditions set out in Section 6.7.6. The shoreline amplitude values computed shall not be lower than 80% of the shoreline amplitude value associated with the Washington state inundation models as measured in the direction of the incoming wave propagation.~~

~~1615.2.13 ASCE 7 Section 6.7.6.2.~~ Modify ASCE 7 Section 6.7.6.2 and add a user note to read as follows:

~~6.7.6.2 Seismic subsidence before tsunami arrival.~~ Where the seismic source is a local earthquake event, the Maximum Considered Tsunami inundation shall be determined for an overall elevation subsidence value shown in Fig. 6.7-3(a) and 6.7-3(b) or shall be directly computed for the seismic source mechanism. The GIS digital map layers of subsidence are available in the ASCE Tsunami Design Geodatabase at <http://asce7tsunami.online>.

USER NOTE: The WA-TDZ maps include computed subsidence in the inundation. Subsidence data may be obtained from the Washington state department of natural resources. See <https://www.dnr.wa.gov/wa-tdz>.

~~1615.2.14 ASCE 7 Section 6.8.9.~~ Modify the first sentence of ASCE 7 Section 6.8.9 to read as follows:

~~6.8.9 Seismic effects on the foundations preceding maximum considered tsunami.~~ Where designated in the Tsunami Design Zone map as a site subject to a tsunami from a local earthquake, the structure shall be designed for the preceding coseismic effects.))

1615.1 General. The design and construction of Risk Category III and IV buildings and structures located in the Tsunami Design Zones shall be in accordance with Chapter 6 of ASCE 7-22, except as modified by this code. Wherever ASCE 7 is referenced herein, it shall refer to ASCE 7-22, within the extent of ASCE 7 Chapter 6 and WAC 51-50-1615.

USER NOTE: The intent of the Washington state amendments to ASCE 7 Chapter 6 (Tsunami Loads and Effects) is to require use of the Washington Tsunami Design Zone maps to determine inundation limits, i.e., when a site is within a tsunami design zone. The Washington state department of natural resources has parameters for tsunami inundation depth and flow velocity available for all of Washington's coastal waters and tidally influenced riverine systems (WA-TDZ). These parameters are required to be used in lieu of ASCE Tsunami Design Geodatabase, and as a basis for comparison in the probabilistic tsunami hazard analysis in this chapter.

1615.2 Modifications to ASCE 7. The text of Chapter 6 of ASCE 7 shall be modified as indicated in this section.

**1615.2.1 ASCE 7 Section 6.1.1.** Replace the third paragraph of ASCE 7 Section 6.1.1 with the following and remove the associated exception:

The Tsunami Design Zone shall be determined using the Washington Tsunami Design Zone maps (WA-TDZ). The WA-TDZ maps are available at <https://www.dnr.wa.gov/wa-tdz>.

**1615.2.2 ASCE 7 Section 6.1.1.** Add new fifth paragraph and user note to ASCE 7 Section 6.1.1 to read as follows:

Whenever a Tsunami Design Zone or Fig. 6.1-1 is referenced in ASCE 7 Chapter 6, the WA-TDZ maps shall be used.

USER NOTE: Tsunami design zone and design parameters may be obtained from the Washington state department of natural resources. See <https://www.dnr.wa.gov/wa-tdz>.

**1615.2.3 ASCE 7 Section 6.2.** Modify ASCE 7 Section 6.2 definitions to read as follows:

**ASCE TSUNAMI DESIGN GEODATABASE:** Not Adopted.

USER NOTE: The ASCE tsunami design geodatabase is not adopted for design purposes in Washington state.

**MAXIMUM CONSIDERED TSUNAMI:** A probabilistic tsunami having a two percent probability of being exceeded in a 50-year period or a 2,475-year mean recurrence, or a deterministic assessment considering the maximum tsunami that can reasonably be expected to affect a site.

**TSUNAMI DESIGN ZONE MAP:** The Washington Tsunami Design Zone maps (WA-TDZ) designating the potential horizontal inundation limit of the Maximum Considered Tsunami found at [www.dnr.wa.gov/wa-tdz](http://www.dnr.wa.gov/wa-tdz).

**1615.2.4 ASCE 7 Section 6.2.** Add new definitions to ASCE 7 Section 6.2 to read as follows:

**WASHINGTON TSUNAMI DESIGN ZONE MAP (WA-TDZ):** The Washington department of natural resources maps of potential tsunami inundation limits for the Maximum Considered Tsunami, designated as follows:

<u>Columbia River</u>	<u>DOGAMI SP-51 (L1 scenario) adopted by WA DNR</u>
<u>Outer Coast and Strait area</u>	<u>MS 2022-01</u>
<u>Port Townsend</u>	<u>MS 2018-03 (partially superseded by MS 2022-01)</u>
<u>Puget Sound</u>	<u>MS 2021-01 (revised 2022)</u>
<u>San Juan Islands</u>	<u>MS 2016-01 (partially superseded on its eastern edge by MS 2021-01)</u>
<u>Southern Washington Coast</u>	<u>MS 2018-01</u>

The Washington state department of natural resources geodatabase of design parameters for tsunami inundation depth, flow velocity, off-shore tsunami amplitude, predominant period, and tsunami design zone maps for a maximum considered tsunami is available at the Washington TDZ website (<https://www.dnr.wa.gov/wa-tdz>).

**1615.2.5 ASCE 7 Section 6.5.1.** Add new second paragraph to ASCE 7 Section 6.5.1 to read as follows:

**6.5.1 Tsunami Risk Category II and III buildings and other structures.** The Maximum Considered Tsunami inundation depth and tsunami flow velocity characteristics at a Tsunami Risk Category II or III building or other structure shall be determined by the WA-TDZ maps. Those parameters shall be used as the Maximum Considered Tsunami inun-

ation depth and tsunami flow velocity characteristics in lieu of the Energy Grade Line Analysis in Section 6.6.

**1615.2.6 ASCE 7 Section 6.5.1.1.** Modify the first paragraph of ASCE 7 Section 6.5.1.1 to read as follows:

**6.5.1.1 Runup evaluation for areas where no map values are given.**

For Tsunami Risk Category II and III buildings and other structures where no mapped inundation limit is shown in the Tsunami Design Zone map, the ratio of tsunami runup elevation above Mean High Water Level to Offshore Tsunami Amplitude,  $R/HT$ , shall be permitted to be determined using the surf similarity parameter  $\xi \geq 100$ , according to Eqs. (6.5-2a, b, c, d, or e) and Fig. 6.5-1.

**1615.2.7 ASCE 7 Section 6.5.2.** Modify the paragraph and the exception, to read as follows:

**6.5.2 Tsunami Risk Category IV buildings and other structures.**

A site-specific Probabilistic Tsunami Hazard Analysis (PTHA) shall be performed for Tsunami Risk Category IV buildings and other structures. Site-specific velocities determined by site-specific PTHA determined to be less than the design flow velocities determined from the WA-TDZ maps shall be subject to the limitation in Section 6.7.6.8. Site-specific velocities determined to be greater than the WA-TDZ map velocities shall be used.

**EXCEPTION:** For structures other than Tsunami Vertical Evacuation Refuge Structures, a site-specific Probabilistic Tsunami Hazard Analysis need not be performed where the inundation depth determined from the WA-TDZ maps is determined to be less than 12 ft (3.66 m) at any point within the location of the Tsunami Risk Category IV structure.

**1615.2.8 ASCE 7 Section 6.6.1.** Replace ASCE 7 Section 6.6.1 to read as follows:

**6.6.1 Maximum inundation depth and flow velocities.** The maximum inundation depths and flow velocities associated with the stages of tsunami flooding are determined by the WA-TDZ maps. Flow velocity for design purposes shall not be taken as less than 10 ft/s (3.0 m/s) and need not be taken as greater than the lesser of  $1.5(gh_{max})^{1/2}$  and 50 ft/s (15.2 m/s).

**1615.2.9 ASCE 7 Section 6.7.** Replace ASCE 7 Section 6.7 with the following and add a user note:

When required by Section 6.5, the inundation depths and flow velocities shall be determined by site-specific inundation studies complying with the requirements of this section. Site-specific analyses shall use an integrated generation, propagation, and inundation model that replicates the given offshore tsunami waveform amplitude and period from the seismic sources given in Section 6.7.2.

**USER NOTE:** WA-TDZ maps are based on an integrated generation, propagation, and inundation model replicating waveforms from the seismic sources specific to Washington state. See <https://www.dnr.wa.gov/wa-tdz>.

**1615.2.10 ASCE 7 Table 6.7-2.** Modify ASCE 7 Table 6.7-2 to read as follows:

**Table 6.7-2 Maximum Moment Magnitude**

<b><u>Subduction Zone</u></b>	<b><u>Moment Magnitude</u></b>
<u>Alaskan-Aleutian</u>	<u>9.2</u>
<u>Cascadia</u>	<u>9.0</u>
<u>Chile-Peru</u>	<u>9.5</u>
<u>Izu-Bonin-Mariana</u>	<u>9.0</u>
<u>Kamchatka-Kurile and Japan Trench</u>	<u>9.4</u>



**1615.2.11 ASCE 7 Section 6.7.5.1.** Modify ASCE 7 Section 6.7.5.1 Item 4, Item 5, and Item 6 to read as follows:

**6.7.5.1 Offshore tsunami amplitude for distant seismic sources.**

Offshore tsunami amplitude shall be probabilistically determined in accordance with the following:

4. The extent of offshore tsunami amplitude points considered for the site shall include the following:

(a) For outer coast sites, the extent shall include points within at least 40 mi (64.4 km) but not exceeding 50 mi (80.5 km) of projected length along the coastline, centered on the site within a tolerance of plus or minus 6 mi (9.7 km);

(b) Reserved;

(c) For sites within bays or inland waterways (such as the Strait of Juan de Fuca), the designated center of the computed offshore tsunami amplitude points shall be taken offshore of the mouth of the bay or waterway centered in accordance with criteria (a) above;

(d) For island locations where the projected width of the island is less than 40 mi (64.4 km), it shall be permitted to consider the extent of offshore tsunami amplitude points corresponding to the projected width of the island. Shorter extents of offshore tsunami amplitude points shall be permitted for island locations, but shall not be less than 10 mi (16.1 km);

(e) In addition to the above, the tsunami source development and inundation modeling are subject to an independent peer review by a tsunami modeler approved by the Authority Having Jurisdiction, who shall present a written report to the Authority Having Jurisdiction as to the hazard consistency of the modeling with the requirements of Section 6.7.

5. The mean value of the computed offshore tsunami wave amplitudes shall be not less than 100 percent of the mean value for the coinciding offshore tsunami amplitude data given by the WA-TDZ maps.

6. The individual values of the computed offshore tsunami wave amplitude shall be not less than 80 percent of the coinciding offshore tsunami amplitude values given by the WA-TDZ maps.

**1615.2.12 ASCE 7 Section 6.7.5.3.** Modify ASCE 7 Section 6.7.5.3.1(b) and (c) to read as follows:

(b) The mean value of the computed offshore tsunami amplitudes is at least 85 percent of the mean value for the coinciding offshore tsunami amplitude data of the WA-TDZ maps.

(c) The values of the computed offshore tsunami wave amplitude are not less than 75 percent of the coinciding offshore tsunami amplitude values of the WA-TDZ maps.

**1615.2.13 ASCE 7 Section 6.7.6.2.** Modify ASCE 7 Section 6.7.6.2 and add a user note to read as follows:

**6.7.6.2 Seismic subsidence before tsunami arrival.** Where the seismic source is a local earthquake event, the Maximum Considered Tsunami inundation shall be determined for an overall elevation subsidence value directly computed for the seismic source mechanism.

USER NOTE: WA-TDZ maps include computed subsidence and uplift (where applicable) in the inundation results. See <https://www.dnr.wa.gov/wa-tdz>.

**1615.2.14 ASCE 7 Figure 6.7-3.** Remove Figure 6.7-3 and the associated note.

**1615.2.15 ASCE 7 Section 6.8.9.** Modify the first sentence of ASCE 7 Section 6.8.9 to read as follows:

**6.8.9 Seismic effects on the foundations preceding maximum considered tsunami.** Where designated in the Tsunami Design Zone map as a site subject to a tsunami from a local earthquake, the structure shall be designed for the preceding coseismic effects.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-12-075, § 51-50-1615, filed 5/28/21, effective 6/28/21.]

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

**WAC 51-50-1702 ((Section 1702—Definitions.)) Reserved.**

~~((1702.1 Definitions. The following terms are defined in Chapter 2:~~

~~Approved agency  
Approved fabricator  
Certificate of compliance  
Designated seismic system  
Fabricated item  
Intumescent fire-resistant coatings  
Main wind-force resisting system  
Mastic fire-resistant coatings  
**SMALL BUSINESS:**  
Special inspection  
    Continuous special inspection  
    Periodic special inspection  
Special inspector  
Sprayed fire-resistant materials  
Structural observation))~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1702, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1702, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1702, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 04-01-108, § 51-50-1702, filed 12/17/03, effective 7/1/04.]

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

**WAC 51-50-1705 Section 1705—Required special inspections and tests.**

~~((1705.5.3 Mass timber construction. Special inspections of mass timber elements in Types IV-A, IV-B and IV-C construction shall be in accordance with Table 1705.5.3.~~

**~~Table 1705.5.3  
Required Special Inspections of Mass  
Timber Construction~~**

Type	Continuous Special Inspection	Periodic Special Inspection
1. Inspection of anchorage and connections of mass timber construction to timber deep foundation systems.		X
2. Inspect erection and sequence of mass timber construction.		X
3. Inspection of connections where installation methods are required to meet design loads.		
3.1. Threaded fasteners.		
3.1.1. Verify use of proper installation equipment.		X
3.1.2. Verify use of predrilled holes where required.		X
3.1.3. Inspect screws, including diameter, length, head type, spacing, installation angle, and depth.		X
3.2. Adhesive anchors installed in horizontal or upwardly inclined orientation to resist sustained tension loads.	X	
3.3. Adhesive anchors not defined in 3.2		X
3.4. Bolted connections.		X
3.5. Concealed connections.		X

**1705.11.1 Structural wood.** ~~Continuous special inspection is required during field gluing operations of elements of the main windforce-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of elements of the main windforce-resisting system, including wood shear walls, wood diaphragms, drag struts, braces and hold-downs.~~

EXCEPTION: *Special inspections* are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the main windforce-resisting system, where the lateral resistance is provided by sheathing of wood structural panels, and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

**1705.12.2 Structural wood.** For the seismic force-resisting systems of structures assigned to *Seismic Design Category C, D, E, or F*:

1. ~~Continuous special inspection shall be required during field gluing operations of elements of the seismic force-resisting system.~~

2. ~~Periodic special inspection shall be required for nailing, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs.~~

EXCEPTION: *Special inspections* are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the seismic force-resisting system, where the lateral resistance is provided by sheathing of wood structural panels, and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

**1705.12.6) 1705.13.6 Plumbing, mechanical and electrical components.**

Periodic special inspection of plumbing, mechanical and electrical components shall be required for the following:

1. Anchorage of electrical equipment for emergency and standby power systems in structures assigned to Seismic Design Category C, D, E or F.
2. Anchorage of other electrical equipment in structures assigned to Seismic Design Category E or F.
3. Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to Seismic Design Category C, D, E or F.
4. Installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to Seismic Design Category C, D, E or F.
5. Installation and anchorage of vibration isolation systems in structures assigned to Seismic Design Category C, D, E or F where the approved construction documents require a nominal clearance of .25 inch (6.4 mm) or less between the equipment support frame and restraint.
6. Installation of mechanical and electrical equipment, including ductwork, piping systems and their structural supports, where automatic fire sprinkler systems are installed in Risk Category IV structures assigned to Seismic Design Category C, D, E or F to verify one of the following:

6.1. Minimum clearances have been provided as required by Section 13.2.3 ASCE/SEI 7.

6.2. A nominal clearance of not less than 3 inches (76 mm) has been provided between ((fire protection)) automatic sprinkler system drops and sprigs and: Structural members not used collectively or independently to support the sprinklers; equipment attached to the building structure; and other systems' piping.

Where flexible sprinkler hose fittings are used, special inspection of minimum clearances is not required.

~~((1705.19 Sealing of mass timber. Periodic special inspections of sealants or adhesives shall be conducted where sealant or adhesive required by Section 703.9 is applied to mass timber building elements as designated in the approved construction documents.))~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-1705, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-1705, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-1705, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1705, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-17090 Preconstruction load tests.**

**1709.5 Exterior window and door assemblies.** The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1709.5.1 or 1709.5.2. For ~~((the purposes of this section, the required design pressure shall be determined using the~~

~~allowable stress design load combinations of Section 1605.3)) exterior windows and doors tested in accordance with Section 1709.5.1 or 1709.5.2, required design wind pressures determined from ASCE 7 shall be permitted to be converted to allowable stress design by multiplying by 0.6.~~

## EXCEPTIONS:

1. Structural wind load design pressures for window (~~units smaller than the size tested in accordance with Section 1709.5.1 or 1709.5.2 shall be permitted to be higher than the design value of the tested unit provided such higher pressures are determined by accepted engineering analysis. All components of the small unit shall be the same as the tested unit. Where such calculated design pressures are used, they shall be validated by an additional test of the window unit having the highest allowable design pressure)) or door assemblies other than the size tested in accordance with Section 1709.5.1 or 1709.5.2 shall be permitted to be different than the design value of the tested assembly, provided that such pressures are determined by accepted engineering analysis or validated by an additional test of the window or door assembly to the alternative allowable design pressure in accordance with Section 1709.5.2. Components of the alternate size assembly shall be the same as the tested or labeled assembly. Where engineering analysis is used, it shall be performed in accordance with the analysis procedures of AAMA 2502.~~
2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section 1709 of the *International Building Code* provided they meet the applicable provisions of Chapter 24 of the *International Building Code*.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-17090, filed 1/19/16, effective 7/1/16.]

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

**WAC 51-50-1710 ((Section 1710—) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1710, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1710, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-1715 ((Section 1715—) Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1715, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, amended and re-codified as § 51-50-1715, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-1714, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-1901 ((Section 1901—) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1901, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1901, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-1903 ((Section 1903—) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1903, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1903, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-1904 ((Section 1904—) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1904, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1904, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-1905 ((Section 1905—) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1905, filed 1/19/16, effective 7/1/16; WSR 13-20-119, § 51-50-1905, filed 10/1/13, effective 11/1/13. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1905, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-1908 ((Section 1908—) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1908, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1908, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-1909 ((Section 1909—) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-1909, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW

19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-1909, filed 2/1/13, effective 7/1/13.]

NEW SECTION

**WAC 51-50-2103 Section 2103—Mortar.**

**2103.2.4 Mortar for adhered masonry veneer.** Mortar for use with adhered masonry veneer shall conform to ASTM C270 for Type N or S, or shall comply with ANSI A118.4 or A118.15 for modified dry-set cement mortar. The cementitious bond coat shall comply with ANSI A118.4 or A118.15.

[ ]

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

**WAC 51-50-2104 ((Section 2104—) Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-2104, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-2104, filed 1/20/10, effective 7/1/10.]

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

**WAC 51-50-21070 ((Section 2107—Allowable stress design.)) Reserved.**

~~((2107.1 General. The design of masonry structures using allowable stress design shall comply with Sections 2106 and the requirements of Chapters 1 through 8 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107.2 through 2107.3.~~

~~**2107.2 TMS 402/ACI 530/ASCE 5, Section 2.1.8.7.1.1, lap splices.** In lieu of Section 2.1.8.7.1.1, it shall be permitted to design lap splices in accordance with Section 2107.2.1.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-21070, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-21070, filed 12/12/19, effective 7/1/20; WSR 16-03-064, § 51-50-21070, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-21070, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-21070, filed 1/20/10, effective 7/1/10.]

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

**WAC 51-50-2111 Section 2111—Masonry fireplaces.**

**2111.8 Fireplaces.** Fireplaces shall be provided with each of the following:

1. Tightly fitting flue dampers, operated by a readily accessible manual or approved automatic control.

EXCEPTION: Fireplaces with gas logs shall be installed in accordance with the International Mechanical Code Section 901, except that the standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code).

2. An outside source for combustion air ducted into the firebox. The duct shall be at least 6 square inches, and shall be provided with an operable outside air duct damper.

EXCEPTION: Washington certified fireplaces shall be installed with the combustion air systems necessary for their safe and efficient combustion and specified by the manufacturer in accordance with IBC Section ((2114 (WAC 51-50-2114))) 2115 (WAC 51-50-2115).

3. Site built fireplaces shall have tight fitting glass or metal doors, or a flue draft induction fan or as approved for minimizing back-drafting. Factory built fireplaces shall use doors listed for the installed appliance.

**2111.8.1 Lintel and throat.** Masonry over a fireplace opening shall be supported by a lintel of noncombustible material. The minimum required bearing length on each end of the fireplace opening shall be 4 inches (102 mm). The fireplace throat or damper shall be located a minimum of 8 inches (203 mm) above the top of the fireplace opening.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-2111, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-2111, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-2111, filed 1/20/10, effective 7/1/10.]

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

**WAC 51-50-2303 Section 2303—Minimum standards and quality.**

~~((2303.1.4 Structural glued cross-laminated timber. Cross-laminated timbers shall be manufactured and identified in accordance with ANSI/APA PRG 320. Cross-laminated timbers in Construction Types IV-A, IV-B, and IV-C shall be manufactured and identified in accordance with ANSI/APA PRG 320 - 18.))~~ **2303.1.1.3 Used solid-sawn lumber.** Used solid-sawn dimensional lumber in good condition and devoid of areas of decay, not meeting the requirements of Section 2303.1.1, 2303.1.1.1, or 2303.1.1.2, that has a nominal thickness of 2 inches with a nominal width of 6 inches or less, shall be assumed to be spruce-pine-fir stud grade and shall have structural properties assigned in accordance with current adopted standards. All other dimensional lumber shall be assumed to be hem-fir No. 2 grade and shall have structural properties assigned in accordance with current adopted standards.

**2303.6 Nails and staples.** Nails and staples shall conform to requirements of ASTM F1667, including Supplement 1. Nails used for framing and sheathing connections shall have minimum average bending yield



strengths as follows: 80 kips per square inch (ksi) (551 MPa) for shank diameters larger than 0.177 inch (4.50 mm) but not larger than 0.254 inch (6.45 mm), 90 ksi (620 MPa) for shank diameters larger than 0.142 inch (3.61 mm) but not larger than 0.177 inch (4.50 mm) and 100 ksi (689 MPa) for shank diameters of not less than 0.099 inch (2.51 mm) but not larger than 0.142 inch (3.61 mm). Staples used for framing and sheathing connections shall have minimum average bending moments as follows: 3.6 in.-lbs (0.41 N-m) for No. 16 gage staples, 4.0 in.-lbs (0.45 N-m) for No. 15 gage staples, and 4.3 in.-lbs (0.49 N-m) for No. 14 gage staples. Staples allowable bending moments shall be listed on the construction documents.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-2303, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-2303, filed 12/26/18, effective 7/1/19.]

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

**WAC 51-50-2304 Section 2304—General construction requirements.**

~~((2304.10 Connectors and fasteners. Connectors and fasteners shall comply with the applicable provisions of Sections 2304.10.1 through 2304.10.8.~~

~~**2304.10.8 Connection fire-resistance rating.** Fire-resistance ratings for connections in Type IV-A, IV-B, or IV-C construction shall be determined by one of the following:~~

~~1. Testing in accordance with Section 703.2 where the connection is part of the fire-resistance test.~~

~~2. Engineering analysis that demonstrates that the temperature rise at any portion of the connection is limited to an average temperature rise of 250°F (139°C), and a maximum temperature rise of 325°F (181°C), for a time corresponding to the required fire-resistance rating of the structural element being connected. For the purposes of this analysis, the connection includes connectors, fasteners, and portions of wood members included in the structural design of the connection.)~~

**2304.11.2.1 Exterior walls.** Exterior walls shall be permitted to be cross-laminated timber not less than 3.5 inches (88 mm) in actual thickness meeting the requirements of Section 2303.1.4.

**2304.11.2.2 Interior walls and partitions.** Interior walls and partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction 3.5 inches (88 mm) in actual thickness, or of 1-hour fire-resistance-rated construction.

**2304.11.3.1 Cross-laminated timber floors.** Cross-laminated timber shall be not less than 3.5 inches (88 mm) in actual thickness. Cross-laminated timber shall be continuous from support to support and mechanically fastened to one another. Cross-laminated timber shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

**2304.11.4.1 Cross-laminated timber roofs.** *Cross-laminated timber roofs shall be not less than 2.5 inches (63 mm) in actual thickness and shall be continuous from support to support and mechanically fastened to one another.*

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-2304, filed 10/9/20, effective 11/9/20.]

AMENDATORY SECTION (Amending WSR 10-03-097, filed 1/20/10, effective 7/1/10)

**WAC 51-50-2400** (~~Chapter 24—Glass and glazing.~~) **Reserved.**

(~~Section 2405—Sloped glazing and skylights.~~)

~~**2405.3 Screening.** Where used in monolithic glazing systems, heat-strengthened glass and fully tempered glass shall have screens installed below the glazing material. The screens and their fastenings shall:~~

- ~~(1) Be capable of supporting twice the weight of the glazing;~~
- ~~(2) Be firmly and substantially fastened to the framing members;~~

and

~~(3) Be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Heat strengthened glass, fully tempered glass and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.~~

EXCEPTIONS:

In monolithic and multiple-layer sloped glazing systems, the following applies:

1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.
2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.
4. Screens shall not be required within individual dwelling units in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:
  - 4.1. Each pane of the glass is 16 square feet (1.5 m<sup>2</sup>) or less in area.
  - 4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.
  - 4.3. The glass thickness is 3/16 inch (4.8 mm) or less.
5. Screens shall not be required for laminated glass with a 15 mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer within the following limits:
  - 5.1. Each pane of glass is 16 square feet (1.5 m<sup>2</sup>) or less in area.
  - 5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.)

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-2400, filed 1/20/10, effective 7/1/10.]

NEW SECTION

**WAC 51-50-2405** **Section 2405—Sloped glazing and skylights.**

**2405.3 Screening.** Where used in monolithic glazing systems, annealed, heat strengthened, fully tempered and wired glass shall have broken

glass retention screens installed below the glazing material. The screens and their fastenings shall be:

1. Capable of supporting twice the weight of the glazing;
2. Firmly and substantially fastened to the framing members; and
3. Installed within 4 inches (102 mm) of the glass.

The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Annealed, heat strengthened, fully tempered and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.

EXCEPTION:

- In monolithic and multiple-layer sloped glazing systems, the following applies:
1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.
  2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
  3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.
  4. Screens shall not be required within individual dwelling units in Groups R-2, R-3, and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:
    - 4.1. Each pane of the glass is 16 square feet (1.5 m<sup>2</sup>) or less in area.
    - 4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.
    - 4.3. The glass thickness is 3/16 inch (4.8 mm) or less.
  5. Screens shall not be required for laminated glass with a 15 mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer within the following limits:
    - 5.1. Each pane of glass is 16 square feet (1.5 m<sup>2</sup>) or less in area.
    - 5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.

[]

AMENDATORY SECTION (Amending WSR 22-13-094, filed 6/14/22, effective 7/1/23)

**WAC 51-50-3500 Chapter 35—Referenced standards.** Add the reference standards as follows:

Standard reference number	Title	Referenced in code section number
<u>ACI 561-21</u>	<u>Assessment, Repair, and Rehabilitation of Existing Concrete Structures</u>	<u>405.1.1</u>
<u>ASCE/SEI 7-16</u>	<u>Minimum Design Loads and Associated Criteria for Buildings and Other Structures with Supplement No. 1, Supplement No. 2, and Supplement No. 3.</u>	
<u>ASCE/SEI 7-22</u>	<u>Minimum Design Loads and Associated Criteria for Buildings and Other Structures</u>	<u>1615.1</u>
<u>NFPA 130-20</u>	<u>Standard for Fixed Guideway Transit and Passenger Rail Systems</u>	<u>3101.1, 3116</u>

Standard reference number	Title	Referenced in code section number
NFPA 13-16	Standard for the Installation of Sprinkler Systems (except 8.15.5.3(5))	403.3.3, 712.1.3.1, 903.3.1.1, 903.2, 903.3.8.2, 903.8.5, 904.13, 905.3.4, 907.6.4, 1019.3

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 22-13-094, § 51-50-3500, filed 6/14/22, effective 7/1/23; WSR 20-21-021, § 51-50-3500, filed 10/9/20, effective 11/9/20; WSR 20-01-090, § 51-50-3500, filed 12/12/19, effective 7/1/20; WSR 19-02-038, § 51-50-3500, filed 12/26/18, effective 7/1/19; WSR 16-03-064, § 51-50-3500, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-3500, filed 2/1/13, effective 7/1/13.]

**INTERNATIONAL EXISTING BUILDING CODE  
( (2018) ) 2021 EDITION**

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

**WAC 51-50-480102 ((Section 102)) Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-480102, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-480102, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-480102, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-480102, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-480200 Section 201.3—Definitions.**

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in the other International Codes and the Uniform Plumbing Code, such terms shall have the meanings ascribed to them in those codes.

**202 General definitions.**

**ADULT FAMILY HOME.** A dwelling, licensed by the state of Washington department of social and health services, in which a person or persons provide personal care, special care, room and board to more than one but

not more than six adults who are not related by blood or marriage to the person or persons providing the services. An existing adult family home may provide services to up to eight adults upon approval from the department of social and health services in accordance with RCW 70.128.066.

**SUBSTANTIAL DAMAGE.** For the purpose of determining compliance with the flood provisions of this code, damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the value determined by one of the following methods:

1. Values developed for property tax assessment, adjusted to the approximate market value where the land is appraised separately from the structure.

2. Through a professional appraiser using estimates of a structure's actual cash value, including depreciation and improvements.

3. The latest building valuation data published by the International Code Council.

4. Qualified estimates based on the professional judgment of the building official. However, when the ratio falls between 40 and 60 percent, the building official may require the applicant to provide a detailed list of costs.

**SUBSTANTIAL IMPROVEMENT.** For the purpose of determining compliance with the flood provisions of this code, any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the value determined by one of the following methods:

1. Values developed for property tax assessment, adjusted to the approximate market value where the land is appraised separately from the structure.

2. Through a professional appraiser using estimates of a structure's actual cash value, including depreciation and improvements.

3. The latest building valuation data published by the International Code Council.

4. Qualified estimates based on the professional judgment of the building official. However, when the ratio falls between 40 and 60 percent, the building official may require the applicant to provide a detailed list of costs.

If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either of the following:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the code official and that is the minimum necessary to ensure safe living conditions.

2. Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-12-103, § 51-50-480200, filed 6/2/21, effective 7/3/21; WSR 20-21-021, § 51-50-480200, filed 10/9/20, effective 11/9/20.]

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

**WAC 51-50-480302 Section 302—General provisions.**

~~((302.3))~~ **302.2 Additional codes.** Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in this code and the Washington State Energy Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, Uniform Plumbing Code, and International Residential Code. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-480302, filed 10/9/20, effective 11/9/20; WSR 10-03-097, § 51-50-480302, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-480302, filed 12/19/06, effective 7/1/07.]

NEW SECTION

**WAC 51-50-480306 Section 306—Structural.**

**306.6 Additions.** Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements in Section 306.7.1. Limited-use/limited-application elevators installed in accordance with ASME A17.1 shall be permitted as a component of an accessible route connecting the existing construction to the addition.

**306.7.1 Alterations affecting an area containing a primary function.** Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. Toilet facilities and drinking fountains serving the area of primary function, including the route from the area of primary function to these facilities, shall be accessible. Priority shall be given to the improvements affecting the accessible route to the primary function area.

EXCEPTIONS:

1. The cumulative costs of providing the accessible route of travel, toilet facilities, and drinking fountains are not required to exceed 20 percent of the costs of the alterations affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets, and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of a facility.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

**306.7.8 Platform lifts and limited-use/limited-application elevators.** Vertical and inclined platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

Limited-use/Limited-application elevators installed in accordance with ASME A17.1 shall be permitted as a component of an accessible route.

[ ]

NEW SECTION**WAC 51-50-480401 Section 401—General.**

**401.2 Compliance.** The work shall not make the building less complying than it was before the repair was undertaken. 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 requirements for alterations.

**401.4 Demolition and replacement.** Where a building or structure is effectively demolished by damage or where the intended method of repair is demolition and replacement, the replaced building, including its replaced foundation, shall comply with requirements for new construction in the *International Building Code*.

EXCEPTION: Existing foundations are permitted to remain and be reused where approved by the code official.

[ ]

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

**WAC 51-50-480405 Section 405—((Reserved)) Structural.**

**405.1 General.** Structural repairs shall be in compliance with this section and Section 401.2.

**405.1.1 Structural concrete repairs.** Repair of structural concrete is permitted to comply with ACI 562 Section 1.7, except where Section 405.2.2, 405.2.3, or 405.2.4.1 requires compliance with Section 304.3.

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-480405, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-480405, filed 12/19/06, effective 7/1/07.]

NEW SECTION**WAC 51-50-480503 Section 503—Alterations.**

**503.13 Voluntary lateral force-resisting system alterations.** Structural alterations that are intended exclusively to improve the lateral force resisting system and are not required by other sections of this code, shall not be required to meet the requirements of Section 1609 or 1613 of the *International Building Code*, provided that all of the following apply:

1. The capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

2.1 Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate"

where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:

2.1.1 The selected design criteria is the International Building Code.

2.1.2 The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.

4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

**503.19 Seismic requirements for alterations with increased occupant load of unreinforced masonry or hollow clay tile buildings.** In addition to the requirements in Sections 503.4 through 503.11, alterations meeting all of the following conditions shall comply with the applicable requirements in Sections 503.19.1 through 503.19.4.

1. The occupant load of a building increases by more than 20 percent for occupancy groups A, I, E, R, M, B, H, or S used for storage of hazardous materials.

2. Buildings assigned to Seismic Design Category C, D, E, or F.

3. The building's structural system includes unreinforced masonry and hollow clay tile bearing walls.

Where there is a change of occupancy with the alteration, the most restrictive seismic requirements in accordance with Section 506 and this section shall apply. The cumulative effect of alterations compared with the original occupant load that have an increase in occupant load over time exceeding 20 percent shall comply with these provisions.

EXCEPTIONS:

1. A cumulative increase in the occupant load of less than 50 for occupancy categories A or I.
2. A cumulative increase in the occupant load of less than 25 for E occupancies.
3. R-3 occupancies, and all other R occupancies with an increase of 5 dwelling or sleeping units or less.
4. A cumulative increase in occupant load of less than 100 for occupancy categories M or B.
5. A cumulative increase in the occupant load of less than 10 for H occupancies or S occupancies using hazardous materials.

**503.19.1 Large buildings.** Buildings four or more stories or buildings more than 12,000 square feet shall be required to perform seismic evaluation in accordance with IEBC 304.3. Any lateral resisting elements shall be required to comply with design requirements for reduced seismic forces in accordance with Section 304.3.2 where found to be deficient.

**503.19.2 Parapet bracing.** Buildings with parapets constructed of unreinforced masonry where the parapet height to thickness ratio exceeds 1.5:1 shall be required to have parapets anchored, removed, or altered to resist out-of-plane seismic forces unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

**503.19.3 Floor and roof wall anchors.** The alteration work shall include the installation of wall anchors at the floor and roof lines unless an evaluation demonstrates compliance of existing wall anchorage. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

**503.19.4 Bracing of partitions and nonstructural walls.** Unreinforced masonry partitions and nonstructural walls within the alteration area and adjacent to egress paths from the alteration area shall be anchored, removed, or altered to resist out-of-plane seismic forces unless



an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

[]

NEW SECTION

**WAC 51-50-480603 Section 603—Alteration-Level 2.**

**603.1 Scope.** Level 2 alterations include the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, and shall apply where the work is below the threshold of a Level 3 alteration.

EXCEPTION: The movement or addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height shall not be considered a Level 2 alteration.

[]

NEW SECTION

**WAC 51-50-480604 Section 604—Alteration-Level 3.**

**604.1 Scope.** Level 3 alterations apply where one of the criteria is exceeded:

1. The work meets or exceeds the threshold of either substantial improvement or substantial damage; or
2. The alteration area exceeds 50 percent of the building area.

[]

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

**WAC 51-50-480702 Section 702—Building elements and materials.**

**((702.6)) 702.7 Materials and methods.** New work shall comply with the materials and methods requirements in the *International Building Code*, *Washington State Energy Code*, *International Mechanical Code*, and *Uniform Plumbing Code*, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-480702, filed 10/9/20, effective 11/9/20.]

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

**WAC 51-50-480704 ((Section 704—)) Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-480704, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-480704, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-480711 ((Section 711—)Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-480711, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-480711, filed 1/20/10, effective 7/1/10.]

NEW SECTION

**WAC 51-50-480805 Section 805—Structural.**

**805.4 Voluntary lateral force-resisting system alterations.** Structural alterations that are intended exclusively to improve the lateral force resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or Section 1613 of the *International Building Code*, provided that the following conditions are met:

1. The capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

2.1 Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:

2.1.1 The selected design criteria is the *International Building Code*.

2.1.2 The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.

4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

**805.5 Seismic requirements for Level 2 alterations with increased occupant load of unreinforced masonry or hollow clay tile buildings.** In addition to the requirements in IEBC 805.3, Level 2 alterations meeting all of the following conditions shall comply with the applicable requirements in Sections 805.5.1 through 805.5.4.

1. The occupant load of a building increases by more than 20 percent for occupancy groups A, I, E, R, M, B, H, or S used for storage of hazardous materials.

2. Buildings assigned to Seismic Design Category C, D, E or F.

3. The building's structural system includes unreinforced masonry and hollow clay tile bearing walls.

Where there is a change of occupancy with the alteration, the most restrictive seismic requirements in accordance with IEBC 1006 and this section shall apply. The cumulative effect of alterations compared with the original occupant load that have an increase in occupant load over time exceeding 20 percent shall comply with these provisions.

**EXCEPTIONS:**

1. An increase in the occupant load of less than 50 for occupancy categories A or I.
2. An increase in the occupant load of less than 25 for E occupancies.
3. R-3 occupancies, and all other R occupancies with an increase of 5 dwelling or sleeping units or less.
4. An increase in occupant load of less than 100 for occupancy categories M or B.
5. A cumulative increase in the occupant load of less than 10 for H occupancies or S occupancies using hazardous materials.

**805.5.1 Large buildings.** Buildings four or more stories or buildings more than 12,000 square feet shall be required to perform seismic evaluation in accordance with IEBC 304.3. Any lateral resisting elements shall be required to comply with design requirements for reduced seismic forces in accordance with Section 304.3.2 where found to be deficient.

**805.5.2 Parapet bracing.** Buildings with parapets constructed of unreinforced masonry where the parapet height to thickness ratio exceeds 1.5:1 shall be required to have parapets anchored, removed or altered to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

**805.5.3 Floor and roof wall anchors.** The alteration shall include the installation of wall anchors at the floor and roof lines, unless an evaluation demonstrates compliance of existing wall anchorage. Use of reduced seismic forces in accordance with IEBC 304.3.2 shall be permitted.

**805.5.4 Bracing of partitions and nonstructural walls.** Unreinforced masonry partitions and nonstructural walls within the work area and adjacent to egress paths from the alteration area shall be anchored, removed or altered to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

[ ]

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

**WAC 51-50-480807 ((Section 807)) Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-480807, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-480807, filed 1/20/10, effective 7/1/10. Statutory Authority:

RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.  
WSR 07-01-091, § 51-50-480807, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-480808 ((Section 808—)) Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW.  
WSR 13-04-067, § 51-50-480808, filed 2/1/13, effective 7/1/13. Statu-  
tory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, §  
51-50-480808, filed 1/20/10, effective 7/1/10.]

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

**WAC 51-50-480809 Section 809—((Plumbing)) Energy conservation.**

**809.1 Minimum ((fixtures. Where the occupant load of the story is in-  
creased by more than 20 percent, plumbing fixtures for the story shall  
be provided in quantities specified in the International Building Code  
based on the increased occupant load.)) requirements. Level 2 altera-  
tions to existing buildings or structures shall comply with the Wash-  
ington State Energy Code (chapter 51-11C WAC).**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, §  
51-50-480809, filed 10/9/20, effective 11/9/20.]

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

**WAC 51-50-480810 ((Energy conservation.)) Reserved.**

**((810.1 Minimum requirements. Level 2 alterations to existing build-  
ings or structures shall comply with the Washington State Energy Code  
(chapter 51-11C WAC).))**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 21-06-035, §  
51-50-480810, filed 2/23/21, effective 3/26/21.]

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

**WAC 51-50-480912 ((Section 912—)) Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW.  
WSR 13-04-067, § 51-50-480912, filed 2/1/13, effective 7/1/13. Statu-  
tory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27,

and 34.05 RCW. WSR 07-01-091, § 51-50-480912, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-481002 Section 1002—Special use and occupancy.**

~~((1002.1 Compliance with the building code. Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*:~~

- ~~1. Covered and open mall buildings;~~
- ~~2. Atriums;~~
- ~~3. Motor vehicle-related occupancies;~~
- ~~4. Aircraft-related occupancies;~~
- ~~5. Motion picture projection rooms;~~
- ~~6. Stages and platforms;~~
- ~~7. Special amusement buildings;~~
- ~~8. Incidental use areas;~~
- ~~9. Hazardous materials;~~
- ~~10. Ambulatory care facilities;~~
- ~~11. Group I-2 occupancies;~~
- ~~12. Group I-1, Condition 2, for licensure as an assisted living facility under chapter 388-78A WAC or residential treatment facility under chapter 246-337 WAC.)~~

**1002.3 Change of occupancy in health care.** Where a change of occupancy occurs to a Group I-2 or I-1 facility, the work area with the change of occupancy shall comply with the *International Building Code*.

The *International Building Code* shall apply to Group I-1, Condition 2, for licensure as an assisted living facility under chapter 388-78A WAC or residential treatment facility under chapter 246-337 WAC.

**EXCEPTION:**

A change in use or occupancy in the following cases shall not be required to meet the *International Building Code*:

1. Group I-2, Condition 2 to Group I-2, Condition 1.
2. Group I-2 to ambulatory health care.
3. Group I-2 to Group I-1.
4. Group I-1, Condition 2 to Group I-1, Condition 1.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-481002, filed 12/12/19, effective 7/1/20.]

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

**WAC 51-50-481103 ((Section 1103—)) Reserved.**

~~((1103.9 Reserved.))~~

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-481103, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27,

and 34.05 RCW. WSR 07-01-091, § 51-50-481103, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-481105 ((Section 1105)) Reserved.**

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-481105, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-481105, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-481201 Section 1201—Historic buildings—General.**

**1201.1 Scope.** ((It is the intent of)) This chapter is intended to provide means for the preservation of historic buildings. It is the purpose of this chapter to encourage cost-effective preservation of original or restored architectural elements and features and to provide a historic building that will result in a reasonable degree of safety, based on accepted life and fire safety practices, compared to the existing building. Historical buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

**SECTION 1202—Reserved.**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-481201, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-481201, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-481201, filed 1/20/10, effective 7/1/10.]

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

**WAC 51-50-481205 Reserved.**

**((1205.1 General.))**

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-01-090, § 51-50-481205, filed 12/12/19, effective 7/1/20. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-481205, filed 2/1/13, effective 7/1/13.]

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

**WAC 51-50-481301 ((Relocated or moved buildings—General.)) Reserved.**

~~((1301.1 Scope. This chapter provides requirements for relocated or moved structures, including relocatable buildings as defined in Chapter 2.~~

~~**1301.2 Conformance.** Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code, the *International Residential Code* (chapter 51-51 WAC), the *International Mechanical Code* (chapter 51-52 WAC), the *International Fire Code* (chapter 51-54 WAC), the *Uniform Plumbing Code and Standards* (chapters 51-56 and 51-57 WAC), the Washington State Energy Code (chapter 51-11 WAC) and the Washington State Ventilation and Indoor Air Quality Code (chapter 51-13 WAC) for new buildings or structures.~~

EXCEPTION: Group R-3 buildings or structures are not required to comply if:  
 1. The original occupancy classification is not changed; and  
 2. The original building is not substantially remodeled or rehabilitated.

~~For the purposes of this section, a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.)~~

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-481301, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-481301, filed 2/1/13, effective 7/1/13. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 10-03-097, § 51-50-481301, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-481301, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-481302 ((Requirements.)) Reserved.**

~~((This section is not adopted.))~~

[Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-067, § 51-50-481302, filed 2/1/13, effective 7/1/13.]

NEW SECTION

**WAC 51-50-481401 Relocated or moved buildings—General.**

**1401.2 Conformance.** Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code, the *International Residential Code* (chapter 51-51 WAC), the *International Mechanical Code* (chapter 51-52 WAC), the *International Fire Code* (chapter 51-54A WAC), the *Uniform Plumbing Code* (chapter 51-56 WAC), the

Washington State Energy Code - Commercial (chapter 51-11C WAC), and the Washington State Energy Code - Residential (chapter 51-11R WAC) for new buildings or structures.

EXCEPTION: Group R-3 buildings or structures are not required to comply if:  
 1. The original occupancy classification is not changed; and  
 2. The original building is not substantially remodeled or rehabilitated.

For the purposes of this section, a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.

[]

NEW SECTION

**WAC 51-50-481402 Section 1402—Requirements.** This section is not adopted.

[]

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

**WAC 51-50-481500 Section 1501—General.**

**~~((1501.1))~~ 1501.7 Facilities required.** Sanitary facilities shall be provided during construction or demolition activities in accordance with the Uniform Plumbing Code.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-021, § 51-50-481500, filed 10/9/20, effective 11/9/20; WSR 10-03-097, § 51-50-481500, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. WSR 07-01-091, § 51-50-481500, filed 12/19/06, effective 7/1/07.]

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

**WAC 51-50-490000 (~~Appendix N—Solar readiness~~) Reserved.**

~~((The provisions contained in this appendix are not mandatory unless specifically referenced in the local adopting ordinance.~~

~~**490101.1 General.** A solar zone shall be provided on nonresidential buildings of any size that are 5 stories or less in height above grade plane, and shall be located on the roof of the building or on another structure elsewhere on the site. The solar zone shall be in accordance with Sections 490101.3 through 490101.9 and the *International Fire Code*.~~

EXCEPTION: A solar zone is not required where the solar exposure of the building's roof area is less than 75 percent of that of an unshaded area, as measured by one of the following:  
 a. Incident solar radiation expressed in kWh/ft<sup>2</sup> per year using typical meteorological year (TMY) data;  
 b. Annual sunlight exposure expressed in cumulative hours per year using TMY data;



e. Shadow studies indicating that the roof area is more than 25 percent in shadow, on September 21 at 10:00 a.m., 11:00 a.m., 12:00 p.m., 1:00 p.m., and 2:00 p.m. solar time.

**490101.2 Definitions.** The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *International Building Code* for general definitions.

**SOLAR ZONE.** A clear area or areas reserved solely for current and future installation of photovoltaic or solarwater heating systems.

**490101.3 Minimum area.** The minimum area of the *solar zone* shall be determined by one of the following methods, whichever results in the smaller area:

1. 40 percent of roof area. The roof area shall be calculated as the horizontally-projected gross roof area, less the area covered by skylights, occupied roof decks and planted areas.

2. 20 percent of electrical service size. The electrical service size shall be the rated capacity of the total of all electrical services to the building. The required *solar zone* size shall be based upon 10 peak watts of PV per square foot.

**EXCEPTION:** Subject to the approval of the *building official*, buildings with extensive rooftop equipment that would make full compliance with this section impractical shall be permitted to reduce the size of the *solar zone* required by Section N101.3 to the maximum practicable area.

**490101.4 Contiguous area.** The *solar zone* is permitted to be comprised of smaller separated subzones. Each subzone shall be at least 5 feet wide in the narrowest dimension.

**490101.5 Obstructions.** The *solar zone* shall be free of pipes, vents, ducts, HVAC equipment, skylights and other obstructions, except those serving photovoltaics or solar water heating systems within the *solar zone*. Photovoltaics or solar water heating systems are permitted to be installed within the *solar zone*. The *solar zone* is permitted to be located above any such obstructions, provided that the racking for support of the future system is installed at the time of construction, the elevated *solar zone* does not shade other portions of the *solar zone*, and its height is permitted by the *International Building Code* and other applicable codes.

**490101.6 Shading.** The *solar zone* shall be set back from any existing or new object on the building or site that is located south, east, or west of the *solar zone* a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings. No portion of the *solar zone* shall be located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

**490101.7 Access.** Areas contiguous to the *solar zone* shall provide access pathways and provisions for emergency smoke ventilation as required by the *International Fire Code*.

**490101.8 Structural integrity.** The as-designed dead load and live load for the *solar zone* shall be clearly marked on the record drawings, and shall accommodate future photovoltaic or solar water heating arrays at an assumed dead load of 4 pounds per square foot in addition to other required live and dead loads. For photovoltaic systems, a location for future inverters shall be designated either within or adjacent to the *solar zone*, with a minimum area of 2 square feet for each 1,000 square feet of *solar zone* area, and shall accommodate an assumed dead load of 175 pounds per square foot. Where photovoltaic or solar water heating

systems are installed in the *solar zone*, structural analysis shall be based upon calculated loads, not upon these assumed loads.

**~~490101.9 Photovoltaic or solar water heating interconnection provisions.~~** Buildings shall provide for the future interconnection of either a photovoltaic system in accordance with Section 490101.9.1 or a solar water heating system in accordance with Section 490101.9.2.

**~~490101.9.1 Photovoltaic interconnection.~~** A capped roof penetration sleeve shall be provided in the vicinity of the future inverter, sized to accommodate the future photovoltaic system conduit. Interconnection of the future photovoltaic system shall be provided for at the main service panel, either ahead of the service disconnecting means or at the end of the bus opposite the service disconnecting means, in one of the following forms:

a. A space for the mounting of a future overcurrent device, sized to accommodate the largest standard rated overcurrent device that is less than 20 percent of the bus rating;

b. Lugs sized to accommodate conductors with an ampacity of at least 20 percent of the bus rating, to enable the mounting of an external overcurrent device for interconnection.

The electrical construction documents shall indicate the following:

a. *Solar zone* boundaries and access pathways;

b. Location for future inverters and metering equipment; and

c. Route for future wiring between the photovoltaic panels and the inverter, and between the inverter and the main service panel.

**~~N101.9.2 Solar water heating interconnection.~~** Two capped pipe tees shall be provided upstream of the domestic water heating equipment to provide plumbing interconnections between a future solar water heating system and the domestic water heating system. Two roof penetration sleeves shall be provided in the vicinity of the *solar zone*, capable of accommodating supply and return piping for a future solar water heating system. The plumbing construction documents shall indicate the following:

a. *Solar zone* boundaries and access pathways;

b. Location for future hot water storage tanks; and

c. Route for future piping between the *solar zone* and the plumbing interconnection point, following the shortest feasible pathway.))

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-064, § 51-50-490000, filed 1/19/16, effective 7/1/16.]