

**WASHINGTON STATE  
BUILDING CODE**

**CHAPTER 51-51 WAC**

**INTERNATIONAL RESIDENTIAL CODE  
2006 Third Edition**



**Washington State Building Code Council**

**Effective April 1, 2008**

Copies of the State Building Codes and  
complete copies of the 2006 International Residential Code  
as published by the International Code Council  
may be obtained from:

Washington Association of Building Officials  
Post Office Box 7310  
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or toll free in Washington State at (888) 664-9515

Fourth Edition Titled  
International Residential Code  
Chapter 51-51 WAC  
Effective April 1, 2008  
Fourth Edition based on  
WSR 08-01-102 and 08-01-103

## ***Preface***

**Authority:** The International Residential Code (Chapter 51-51 WAC) is adopted by the Washington State Building Code Council pursuant to Chapters 19.27 and 70.92 RCW. These codes were first adopted by reference by the Washington State Legislature in 1974. In 1985, the Legislature delegated the responsibility of adoption and amendment of these codes to the State Building Code Council.

**Code Precedence:** The State Building Code Act, Chapter 19.27 RCW, establishes the following order of precedence among the documents adopted as parts of the State Building Code:

- International Building Code, Standards and amendments -WAC 51-50;
- International Residential Code, Standards and amendments – WAC 51-51;
- International Mechanical Code, Standards and amendments - WAC 51-52;
- International Fire Code, Standards and amendments - WAC 51-54;
- Uniform Plumbing Code, Standards and amendments - WAC 51-56, 51-57.

Where there is a conflict between codes, an earlier named code takes precedence over a later named code. In the case of conflict between the duct insulation requirements of the International Mechanical Code and the duct insulation requirements of the Energy Code, the Energy Code, or where applicable, a local jurisdiction's energy code, shall govern.

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 conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

**Organization and Numbering:** These rules are written to allow compatible use with the International Residential Code. All sections which are amended, deleted, or added are referenced.

**Enforcement:** The State Building Code Act requires that each local jurisdiction enforce the State Building Code within its jurisdiction. Any jurisdiction can contract with another jurisdiction or an inspection agency to provide the mandated enforcement activities.

### **Amendments to the State Building Code:**

The State Building Code Council has adopted review procedures and approval criteria for local amendments. These procedures and criteria are found in Chapter 51-04 WAC. The Council has exempted from its review any amendments to the administrative provisions of the various codes.

Forms for proposing statewide amendments to the State Building Code are available from the State Building Code Council staff.

- A. **Amendments of Statewide Application:** On a yearly basis the State Building Code Council will consider proposals to amend the State Building Code. Unless directed by the State Legislature, federal mandates or court order, the Council will not enter formal rulemaking until 2009 as part of its consideration of adoption of the 2009 series of codes.

Proposals to amend the State Building Code shall be made on forms provided by the Building Code Council.

Code Change Proposal Submittal Deadline: March 1st of each year.

- B. **Local Amendments:** Any jurisdiction may amend the State Building Code provided the amendments do not reduce the minimum performance standards of the codes. There are areas where local amendments are limited or prohibited:

**Prohibited Amendments:** Residential provisions of the State Energy Code (WAC 51-11), the Ventilation and Indoor Air Quality Code (WAC 51-13); any provision of the International Building Code or International Residential Code affecting accessibility; and standards specifically adopted in Chapters 19.27 and 19.27A RCW cannot be amended by any local jurisdiction.

**Residential Amendments:** Amendments by local jurisdictions which affect the construction of single family and multi-family residential buildings must be reviewed and approved by the State Building Code Council before such amendments can be enforced. The State Building Code Act provides the following definition:

“Multi-family residential building” means common wall residential buildings that consist of four or fewer units, that do not exceed two stories in height, that are less than 5,000 square feet in area, and that have a one-hour fire-resistive occupancy separation between units.

Application forms for Council review of local amendments are available from the State Building Code Council Staff.

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**Printing Format:** This version of the rules is published as a series of insert or replacement pages. Each page provides instructions for installing them in the model code book. Amendments to the model code which are new or revised from the previous edition of this code are indicated by a line in the margin next to the revised portions.

**Effective Date:** These rules were adopted by the State Building Code Council on November 17, 2006, with amendments adopted November 9, 2007. The rules are effective throughout the state on April 1, 2008. (This version of the code is based on WAC 51-51 as published in WSR 08-01-102 and 08-01-103. It is subject to review by the State Legislature during the 2008 session.)

**Building Permit Fees:** The activities of the State Building Code Council are supported by permit fees collected by each city and county. Section 19.27.085 of the State Building Code Act requires that a fee of \$4.50 be imposed on each building permit issued by each city and county. In addition, a fee of \$2.00 per unit shall be imposed for each dwelling unit after the first unit, on each building containing more than one residential unit. For the purpose of this fee, WAC 365-110-035 defines building permits as any permit to construct, enlarge, alter, repair, move, improve, remove, convert or demolish any building or structure regulated by the Building Code. Exempt from the fee are plumbing, electrical, mechanical permits, permits issued to install a mobile/manufactured home, commercial coach or factory built structure, or permits issued pursuant to the International Fire Code.

Each city and county shall remit moneys collected to the state treasury quarterly. No remittance is required until a minimum of \$50.00 has accumulated.

These permit fees are the amounts current in January 2008. Such fees may be changed by the State Legislature.

**Opinions:** Only at the request of local enforcement official, the State Building Code Council may issue interpretations/opinions of those provisions of the State Building Code created by the Council, or provisions of the model codes amended by the Council. Final interpretation authority for any specific permit resides with the local enforcement official.

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**CHAPTER 51-51 WAC  
STATE BUILDING CODE ADOPTION AND AMENDMENT  
OF THE 2006 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE**

**WAC 51-51-001 AUTHORITY**

These rules are adopted under the authority of Chapter 19.27 RCW.

**WAC 51-51-002 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.

**WAC 51-51-003 INTERNATIONAL RESIDENTIAL CODE**

The 2006 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 42 of this code are not adopted. The Energy Code is regulated by chapter 51-11 WAC; the Plumbing Code is regulated by chapters 51-56 and 51-57 WAC; the Electrical Code is regulated by chapter 296-46B WAC or the Electrical Code as adopted by the local jurisdiction. Appendix G, Swimming Pools, Spas and Hot Tubs, is included in adoption of the International Residential Code.

**WAC 51-51-007 EXCEPTIONS**

The exceptions and amendments to the International Residential Code contained in the provisions of Chapter 19.27 RCW shall apply in case of conflict with any of the provisions of these rules.

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

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

Codes referenced which are not adopted through RCW 19.27.031 or RCW 19.27A shall not apply unless specifically adopted by the authority having jurisdiction.

The standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code). All other fuel gas installations shall be regulated by the International Mechanical Code and International Fuel Gas Code.

**WAC 51-51-008 IMPLEMENTATION**

The International Residential Code adopted under Chapter 51-51 WAC shall become effective in all counties and cities of this state on July 1, 2007, with additional amendments effective April 1, 2008.





**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).

**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 (WAC 51-50), the International Mechanical Code (WAC 51-52), the International Fire Code (WAC 51-54), the Uniform Plumbing Code and Standards (WAC 51-56 and 51-57), the Washington State Energy Code (WAC 51-11) and the Washington State Ventilation and Indoor Air Quality Code (WAC 51-13) 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.



**ADULT FAMILY HOME** means a dwelling 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.

**BALCONY, EXTERIOR.** Definition is not adopted.

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**CHILD DAY CARE**, shall, for the purposes of these regulations, mean the care of children during any period of a 24 hour day.

**CHILD DAY CARE HOME, FAMILY** is a child day care facility, licensed by the 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.

**DECK.** Definition is not adopted.

**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 child 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 (46.4m<sup>2</sup>).

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**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, or which has a million dollars or less per year in gross sales, of window products.

**UNUSUALLY TIGHT CONSTRUCTION.** Construction meeting the following requirements:

1. Walls exposed to the outside atmosphere having a continuous water vapor retarder with a rating of 1 perm ( $57 \text{ ng/s}\cdot\text{m}^2\cdot\text{Pa}$ ) or less with openings gasketed or sealed;
2. Openable windows and doors meeting the air leakage requirements of the *International Energy Conservation Code*, Section 502.1.4; and
3. Caulking or sealants are applied to areas such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines, and at other openings; or
4. Buildings built in compliance with the 1986 or later editions of the Washington State Energy Code WAC 51-11, Northwest Energy Code, or Super Good Cents weatherization standards or equivalent.

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**TABLE R301.5**  
**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS**  
**(in pounds per square foot)**

| USE                                          | LIVE LOAD        |
|----------------------------------------------|------------------|
| Attics with limited storage <sup>b,g,h</sup> | 20               |
| Attics without storage <sup>b</sup>          | 10               |
| Decks <sup>e</sup> and exterior balconies    | 40               |
| Fire escapes                                 | 40               |
| Guardrails and handrails <sup>d</sup>        | 200 <sup>i</sup> |
| Guardrails in-fill components <sup>f</sup>   | 50 <sup>i</sup>  |
| Passenger vehicle garages <sup>a</sup>       | 50 <sup>a</sup>  |
| Rooms other than sleeping rooms              | 40               |
| Sleeping rooms                               | 30               |
| Stairs                                       | 40 <sup>c</sup>  |

For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm<sup>2</sup>,  
1 pound = 4.45N.

(Footnotes are not amended and remain as printed)

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**SECTION R302  
LOCATION ON LOT**

**R302.1 Exterior Walls.** Exterior walls with a fire separation distance less than 3 feet (914 mm) shall have not less than a one-hour fire-resistive rating with exposure from both sides. Projections shall not extend to a point closer than 2 feet (610 mm) from the line used to determine the fire separation distance.

**Exception:** Detached garages accessory to a dwelling located within 2 feet of a lot line may have roof eave projections not exceeding 4 inches.

Projections extending into the fire separation distance shall have not less than one-hour fire-resistive construction on the underside. The above provisions shall not apply to walls which are perpendicular to the line used to determine the fire separation distance.

**Exception:** Tool and storage sheds, playhouses and similar structures exempted from permits by R105.2 are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.

**R302.2 Openings.** Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance less than 3 feet (914 mm). This distance shall be measured perpendicular to the line used to determine the fire separation distance.

**Exceptions:**

1. Openings shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.
2. Foundation vents installed in compliance with this code are permitted.

**R302.3 Penetrations.** Penetrations located in the exterior wall of a dwelling with a fire separation distance of less than 3 feet (914 mm) shall be protected in accordance with Section R317.3.

**Exception:** Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.

**Table R302.1 is not adopted.**

**R303.8.1 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 US 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.

**R303.8.2 Primary heating source.** Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

**R303.8.3 Solid fuel burning devices.** No used solid fuel burning device shall be installed in new or existing buildings unless such device is United States Environmental Protection Agency certified or a pellet stove either certified or exempt from certification by the United States Environmental Protection Agency.

**Exception:** Antique wood cook stoves and heaters manufactured prior to 1940.





**R311.1 General.** Stairways, ramps, exterior exit balconies, hallways and doors shall comply with this section.

**Exception:** Stairs or ladders within an individual dwelling 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.

**R313.2 Location.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. In napping areas in family child day care homes.

When more than one smoke alarm is required to be installed within an individual dwelling unit, 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 unit.



**R317.2 Townhouses.** Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302 for exterior walls.

**Exception:** A common 2-hour fire-resistance-rated wall is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or

**(Insert Facing Page 58)**

- ⇒ vents in the cavity of the common wall. Penetrations of electrical outlet boxes shall be in accordance with Section R317.3.

**R317.2.1 Continuity.** The fire-resistance-rated wall or assembly separating townhouses 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; or
2. The underside of the exposed floor-ceiling assembly shall be protected as required for projections in Section R302.

**R317.2.4 Structural independence.** Each individual townhouse shall be structurally independent.

**Exceptions:**

1. Foundation supporting exterior walls or common walls.
2. Structural roof and wall sheathing from each unit may be fastened to the common wall framing.
3. Nonstructural wall coverings.
4. Flashing at termination of roof covering over common wall.
5. Townhouses separated by a common 2-hour fire-resistive rated wall as provided in Section R31.7.2.
6. Floor sheathing may fasten to the floor framing of both units.

## SECTION R325 ADULT FAMILY HOMES

**R325.1 General.** This section shall apply to all newly constructed adult family homes and all existing single family homes being converted to adult family homes. This section shall not apply to those adult family homes licensed by the State of Washington Department of Social and Health Services prior to July 1, 2001.

**R325.2 Submittal standards.** In addition to those requirements in Section 106.1, the submittal shall identify the project as a Group R, Division 3 Adult Family Home occupancy. A floor plan shall be submitted identifying the means of egress and the components in the means of egress such as stairs, ramps, platform lifts and elevators. The plans shall indicate the rooms used for clients and the sleeping room classification of each room.

**R325.3 Sleeping room classification.** Each sleeping room in an adult family home shall be classified as:

1. Type S - where the means of egress contains stairs, elevators or platform lifts.
2. Type NS1 - where one means of egress is at grade level or a ramp constructed in accordance with R311.6 is provided.
3. Type NS2 - where two means of egress are at grade level or ramps constructed in accordance with R311.6 are provided.

**R325.4 Types of locking devices.** All bedroom and bathroom doors shall be openable from the outside when locked.

Every closet shall be readily openable from the inside.

**R325.5 Smoke alarm requirements.** All adult family homes shall be equipped with smoke alarms installed as required in Section R313. Alarms shall be installed in such a manner so that the fire warning may be audible in all parts of the dwelling upon activation of a single device.

**R325.6 Escape windows and doors.** Every sleeping room shall be provided with emergency escape and rescue windows as required by Section R310. No alternatives to the sill height such as steps, raised platforms or other devices placed by the openings will be approved as meeting this requirement.

**R325.7 Fire apparatus access roads and water supply for fire protection.** Adult family homes shall be served by fire apparatus access roads and water supplies meeting the requirements of the local jurisdiction.

## SECTION R326 FAMILY CHILD DAY CARE HOMES

**R326 Family child day care homes.** For family child day care homes with more than six children, each floor level used for family child day care purposes shall be served by two remote means of egress. Exterior exit doors shall be operable from the inside without the use of keys or any special knowledge or effort.

Basements located more than 4 feet below grade level shall not be used for family child day care homes unless one of following conditions exist:

1. Stairways from the basement open directly to the exterior of the building without entering the first floor; or
2. One of the two required means of egress discharges directly to the exterior from the basement level, and a self closing door is installed at the top or bottom of the interior stair leading to the floor above; or
3. One of the two required means of egress is an operable window or door, approved for emergency escape or rescue, that opens directly to a public street, public alley, yard or exit court; or
4. A residential sprinkler system is provided throughout the entire building in accordance with National Fire Protection Association Standard 13D.

Floors located more than 4 feet above grade level shall not be occupied by children in family day care homes.

### Exceptions:

1. Use of toilet facilities while under supervision of an adult staff person.
2. Family child day care homes may be allowed on the second story if one of the following conditions exists:
  - 2.1 Stairways from the second story open directly to the exterior of the building without entering the first floor; or
  - 2.2 One of the two required means of egress discharges directly to the exterior from the second story level, and a self closing door is installed at the top or bottom of the interior stair leading to the floor below; or
  - 2.3 A residential sprinkler system is provided throughout the entire building in accordance with National Fire Protection Association Standard 13D.

Every sleeping or napping room in a family child day care home shall have at least one operable window for emergency rescue.

**Exception:** Sleeping or napping rooms having doors leading to two separate means of egress, or a door leading directly to the exterior of the building.

Rooms or spaces containing a commercial-type cooking kitchen, boiler, maintenance shop, janitor closet, laundry, woodworking shop, flammable or combustible storage, or painting operation shall be separated from the family child day care area by at least one-hour fire-resistive construction.

**Exception:** A fire-resistive separation shall not be required where the food preparation kitchen contains only a domestic cooking range, and the preparation of food does not result in the production of smoke or grease laden vapors.

## **SECTION R327 PROTECTION AGAINST RADON**

**R327.1 Protection against radon.** The radon control provisions of Appendix F of this code shall apply to buildings constructed in High Radon Potential Counties (zone 1) designated in Table AF101(1). The radon control provisions of Appendix F of this code shall also apply to all buildings constructed using the provisions of Section R408.3, Unvented crawl space compliance method.

**R403.1 General.** All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, wood foundations, or other approved structural systems which shall be of sufficient design to accommodate all loads specified in Section R301 and to transmit the resulting loads to the supporting soil within the limitations determined from the characteristics of the soil. Footings shall be supported on undisturbed natural soil or engineered fill. Foundation walls complying with Section R404 or stem walls complying with Section R403.1.3 shall be permitted to support exterior walls, exterior braced wall lines and exterior braced wall panels provided they are supported by continuous footings.

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**Exceptions:**

1. In buildings in Seismic Design Categories  $D_0$  and  $D_1$ , and in one-story buildings in Seismic Design Category  $D_2$ , interior braced wall panels are not required to be supported by foundations, provided no building plan dimension perpendicular to the interior braced wall lines is greater than 50 feet.
2. In two-story buildings in Seismic Design Category  $D_2$ , interior braced wall panels are not required to be supported by foundations, provided all of the following conditions are met:
  - 2.1. No building plan dimension perpendicular to the interior braced wall lines exceeds 50 feet;
  - 2.2. The distances between braced wall lines do not exceed twice the building width measured parallel to the braced wall lines;
  - 2.3. The braced wall panels at the first story are continuously supported by floor joists, blocking or floor beams; and
  - 2.4. The heights of braced wall panels in under-floor spaces do not exceed 48 inches (1219 mm).

**R403.1.2.1 Foundations.** Foundations at braced wall panels shall be constructed of masonry or concrete foundation walls in accordance with Sections R402 and R404, and masonry or concrete footings in accordance with Sections R402 and R403.

**Exceptions:**

1. In under-floor spaces, cripple walls shall be permitted to substitute for masonry or concrete foundation walls provided they comply with the following:
  - a. They are located directly below the interior braced wall panels above;
  - b. They are braced in accordance with Sections R602.10.2 and R602.10.11.4 for cripple wall bracing; and
  - c. They are supported by footings complying with Sections R402 and R403, except that the footing of a foundation supporting an interior braced wall panel is not required to be continuous.
2. Footings of foundations supporting interior braced wall panels are not required to be continuous but shall be constructed beyond the ends of foundation walls, stem walls and cripple walls supporting braced wall panels for a minimum distance of 4 inches and a maximum distance of the footing thickness. The footing extension is not required at intersections with other footings.

**R403.1.3 Seismic reinforcing in Seismic Design**

**Categories  $D_0$ ,  $D_1$  and  $D_2$ .** Concrete footings of buildings assigned to Seismic Design Categories  $D_0$ ,  $D_1$  and  $D_2$  shall comply with this section and have minimum reinforcement as specified by Section R403.1.3.1 or R403.1.3.2. Bottom reinforcement shall be located a minimum of 3 inches (76 mm) from the bottom of the footing.

**R403.1.2 Braced Wall Panels in Seismic Design Categories  $D_0$ ,  $D_1$  and  $D_2$ .** The braced wall panels at exterior and interior walls of buildings located in Seismic Design Categories  $D_0$ ,  $D_1$  and  $D_2$  shall be supported by foundations.

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Where a construction joint is created between a concrete footing and a concrete stem wall, minimum vertical reinforcement of one No. 4 bar shall be provided at not more than 4 feet (1219 mm) on center. The bars shall extend to 3 inches (76 mm) clear of the bottom of the footing, have a standard hook, and extend into the stem wall the lesser of 2 inches (49 mm) clear of the top of the wall and 14 inches (357 mm).

Where a solidly grouted masonry stem wall is supported on a concrete footing, minimum vertical reinforcement of one No. 4 bar shall be provided at not more than 4 feet (1219 mm) on center. The bars shall extend to 3 inches (76 mm) clear of the bottom of the footing, have a standard hook, and extend into the stem wall to 2 inches (49 mm) clear of the top of the wall.

Masonry stem walls without solid grout and vertical reinforcing are not permitted.

Concrete and masonry stem walls shall comply with the requirements of Section R404 for foundation walls.

**Exception:** In detached one- and two-family dwellings of light-framed construction and three stories or less above grade, plain concrete footings supporting walls, columns or pedestals are permitted.

**R403.1.3.1 Foundation stem walls.** Foundation stem walls shall have installed a minimum of one No. 4 bar

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within 12 inches (305 mm) of the top of the stem wall and one No. 4 bar located 3 inches (76 mm) to 4 inches (102 mm) from the bottom of the footing.

**R403.1.4 Minimum depth.** All exterior footings shall be placed at least 12 inches (305 mm) below the undisturbed ground surface. Where applicable, the depth of footings shall also comply with Sections R403.1.4.1 through R403.1.4.2.

**R403.1.4.1 Frost protection.** Except where otherwise protected from frost, foundation walls, piers and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extend below the frost line specified in Table R301.2(1);
2. Construct in accordance with Section R403.3;
3. Construct in accordance with ASCE 32; or
4. Erect on solid rock.

**Exceptions:**

1. Protection of freestanding accessory structures with an area of 600 square feet (56 m<sup>2</sup>) or less and an eave height of 10 feet (3048 mm) or less shall not be required.
2. Protection of freestanding accessory structures with an area of 400 square feet (37 m<sup>2</sup>) or less, of other than light-framed construction, with an eave height of 10 feet (3048 mm) or less shall not be required.
3. Decks not supported by a dwelling need not be provided with footings that extend below the frost line.

Footings shall not bear on frozen soil unless such frozen condition is of a permanent character.

2. Walls 24 inches (610 mm) in total length or shorter connecting offset braced wall panels shall be anchored to the footing or foundation with a minimum of one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels as specified in Figure R602.10.5 at the corners.
3. Walls 12 inches (305 mm) in total length or shorter connecting offset braced wall panels shall be permitted to be connected to the footing or foundation without anchor bolts. The wall shall be attached to adjacent braced wall panels as specified in Figure R602.10.5 at the corners.

**R403.1.6.1 Foundation anchorage in Seismic Design**

**Categories C, D<sub>0</sub>, D<sub>1</sub> and D<sub>2</sub>.** In addition to the requirements of Section R403.1.6, the following requirements shall apply to wood light-frame structures in Seismic Design Categories D<sub>0</sub>, D<sub>1</sub> and D<sub>2</sub> and wood light-frame townhouses in Seismic Design Category C.

1. Bearing walls and interior braced wall sill plates shall be anchored to footings or foundations with anchor bolts spaced at not more than 6 feet (1829 mm) on center and located within 12 inches (305 mm) from the ends of each plate section when supported on a continuous foundation.
2. The maximum anchor bolt spacing shall be 4 feet (1219 mm) for buildings over two stories in height.
3. Plate washers complying with Section R602.11.1 shall be provided for all anchor bolts over the full length of required braced wall lines. Properly sized cut washers shall be permitted for anchor bolts in wall lines not containing braced wall panels or in braced wall lines.
4. Stepped cripple walls shall conform to Section R602.11.3.
5. Where wood foundations in accordance with Sections R402.1 and R404.2 are used, the force transfer shall have a capacity equal to or greater than the connections required by Section R602.11.1 or the braced wall panel shall be connected to the wood foundations in accordance with the braced wall panel-to-floor fastening requirements of Table 602.3(1).

**R403.1.6 Anchorage at braced wall panels.** Where braced wall panels are supported by monolithic slabs, footings or foundations, the wood sole plates, wood sill plates or cold-formed steel bottom tracks shall be anchored to the slab cast monolithically with a footing, footing or foundation in accordance with Section R403.1.6.

The wood sole or sill plate shall be anchored to the monolithic slab, footing or foundation with anchor bolts spaced a maximum of 6 feet (1829 mm) on center. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches (305 mm) and not less than seven bolt diameters from each end of the plate section. Bolts shall be at least 1/2 inch (13 mm) in diameter and shall extend a minimum of 7 inches (178 mm) into masonry or concrete. A nut and washer shall be tightened to a snug-tight condition on each bolt to the plate.

Cold-formed steel framing systems shall be fastened to wood sill plates or anchored directly to the foundation in accordance with Section R505.3.1 or R603.3.1.

**Exceptions:**

1. Foundation anchorage, spaced as required to provide equivalent anchorage to 1/2-inch-diameter (13 mm) anchor bolts.



**R404.1 Concrete and masonry foundation walls.**

Concrete and masonry foundation walls shall be selected and constructed in accordance with the provisions of Section R404 or in accordance with ACI 318, ACI 332, NCMA TR68-A or ACI 530/ASCE 5/TMS 402 or other approved structural standards. When ACI 318, ACI 332 or ACI 530/ASCE 5/TMS 402 or the provisions of Section R404 are used to design concrete or masonry foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for the design, unless otherwise required by the state law of the jurisdiction having authority.

**(The remainder of Section R404.1 is not adopted)**

**Tables R404.1(1), R404.1(2) and R404.1(3) are not adopted.**

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**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.



**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. In addition, a ground cover that meets the requirements of Section 502.1.6.7 of the Washington State Energy Code (chapter 51-11 WAC) shall be installed. One ventilating opening shall be within 3 feet (914 mm) of each corner of the building, except one side of

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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):

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).

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**R602.3 Design and construction.** Exterior walls of wood light-framed construction shall be designed and constructed in accordance with the provisions of this chapter and Figures R602.3(1) and R602.3(2) or in accordance with AF&PA's NDS. Components of exterior walls shall be fastened in accordance with Table R602.3(1) through R602.3(4). Exterior walls covered with foam plastic sheathing shall be braced in accordance with Section R602.10. Structural sheathing shall be fastened directly to structural framing members.

**R602.3.4 Bottom (sole) plate.** Studs shall have full bearing on a 2-inch nominal (38 mm) or larger plate or sill having a width at least equal to the width of the studs.

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**R602.9 Foundation cripple walls.** Foundation cripple walls shall be framed of studs not smaller than the studding above. When exceeding 4 feet (1219 mm) in height, such walls shall be framed of studs having the size required for an additional story.

Cripple walls supporting exterior walls or interior braced wall panels as required in Section R403.1.2 and R403.1.2.1 with a stud height less than 14 inches (365 mm) shall be sheathed on at least one side with a wood structural panel that is fastened to both the top and bottom plates in accordance with Table R602.3(1), or the cripple walls shall be constructed of solid blocking. Cripple walls supporting exterior walls or interior braced wall panels as required in Section R403.1.2 and R403.1.2.1 shall be supported on foundations.

**R602.10 Wall bracing.** All exterior walls shall be braced in accordance with this section. In addition, interior braced wall lines shall be provided in accordance with Section R602.10.1.1. For buildings in Seismic Design Categories  $D_0$ ,  $D_1$  and  $D_2$ , walls shall be constructed in accordance with the additional requirements of Sections R602.10.11 through R602.11.3.

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**R602.10.2.1 Seismic Design Categories Other than D<sub>2</sub>.**

In Seismic Design Categories other than D<sub>2</sub>, cripple walls supporting exterior walls or interior braced wall panels as required in Section R403.1.2 and R403.1.2.1 shall be braced with an amount and type of bracing as required for the wall above in accordance with Table R602.10.1 with the following modifications for cripple wall bracing:

1. The percent bracing amount as determined from Table R602.10.1 shall be increased by 15 percent; and
2. The wall panel spacing shall be decreased to 18 feet (5486 mm) instead of 25 feet (7620 mm).

**R602.10.2.2 Seismic Design Category D<sub>2</sub>.** In Seismic Design Category D<sub>2</sub>, cripple walls supporting exterior walls or interior braced wall panels as required in Section R403.1.2 and R403.1.2.1 shall be braced in accordance with Table R602.10.1.

**R602.10.5 Continuous wood structural panel sheathing.** When continuous wood structural panel sheathing is provided in accordance with Method 3 of Section R602.10.3 on all sheathable areas of all exterior walls including areas above and below openings, braced wall panel lengths are not required to be in  
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**Footnotes for Table R602.10.5:**

- a. Linear interpolation shall be permitted.
- b. Full-height sheathed wall segments on either side of garage openings that support roofs of light-framed construction only, with roof covering dead loads of 3 psf or less shall be permitted to have a 4:1 height-to-width ratio.
- c. Walls on either or both sides of openings in garages attached to fully sheathed dwellings shall be permitted to be built in accordance with Section R602.10.6.2 and Figure R602.10.6.2 except that a single sill plate shall be permitted and two anchor bolts shall be placed at 1/3 points. In addition, tie-down devices shall not be required and the vertical wall segment shall have a maximum 6:1 height-to-width ratio (with height being measured from top of header to the bottom of the sill plate). This option shall be permitted for the first story of two-story applications in Seismic Design Categories A through C.

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accordance with Section R602.10.4 provided they are in accordance with Table R602.10.5. Wood structural panel sheathing shall be installed at corners in accordance with Figure R602.10.5. The bracing percentages in Table R602.10.1 for Method 3 shall be permitted to be multiplied by a factor of 0.9 for exterior walls with a maximum opening height that does not exceed 85 percent of the wall height or a factor of 0.8 for exterior walls with a maximum opening height that does not exceed 67 percent of the wall height.

2. In the first story of two-story buildings, each braced wall panel shall be in accordance with Item 1 above, except that the following:
  - 2.1 The wood structural panel sheathing shall be provided on both faces;
  - 2.2 Sheathing edge nailing spacing shall not exceed 4 inches on center; and
  - 2.3 Anchor bolts shall be placed at the center of the panel width and in from each end of the panel a horizontal distance of one-fifth the panel width (three total).

**R602.10.6.1 Alternate braced wall panels.** Alternate braced wall panels constructed in accordance with one of the following provisions shall be permitted to replace each 4 feet (1219 mm) of braced wall panel as required by Section R602.10.4. The maximum height and minimum width of each panel shall be in accordance with Table R602.10.6.

1. In one-story buildings, each panel shall be sheathed on one face with 3/8-inch-minimum-thickness (9.5 mm) wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Table R602.3(1) and blocked at all wood structural panel sheathing edges. Two anchor bolts installed in accordance with Figure R403.1(1) shall be provided in each panel. Anchor bolts shall be placed in from each end of the panel a horizontal distance of one-fourth the panel width. Each panel end stud shall have a tie-down device fastened to the foundation, capable of providing an uplift capacity in accordance with Table R602.10.6. The tie-down device shall be installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation or on floor framing supported directly on a foundation which is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. When the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.





**R602.10.7 Panel joints.** All vertical joints of panel sheathing shall occur over, and be fastened to, common studs. Horizontal joints in braced wall panels shall occur over, and be fastened to, common blocking of a minimum 2 inches in nominal thickness.

**Exception:** Blocking is not required behind horizontal joints in Seismic Design Categories A and B and detached dwellings in Seismic Design Category C when constructed in accordance with Section R602.10.3, braced-wall-panel construction Method 3 and Table R602.10.1, Method 3, or where permitted by the manufacturer's installation requirements for the specific sheathing material.

**R602.10.8 Connections.** Braced wall panel bottom (sole) plates shall be fastened to the floor framing and top plates shall be connected to the framing above in accordance with Table R602.3(1). Sill plates shall be fastened to the footing, foundation or slab in accordance with Sections R403.1.6 and R602.11. Where joists are perpendicular to the braced wall lines above, blocking shall be provided under and in line with the braced wall panels. Where joists are perpendicular to braced wall lines below, blocking shall be provided over and in line with the braced wall panels. Where joists are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at the wall to permit fastening per Table R602.3(1). For buildings in Seismic Design Categories D<sub>0</sub>, D<sub>1</sub> and D<sub>2</sub>, braced wall panels shall also be fastened in accordance with Section R602.11.2.

**R602.10.9 Interior braced wall support.** This section is not adopted. See Section R403.1.2.

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**R602.10.10 Design of structural elements.** Where a building, or portion thereof, does not comply with one or more of the bracing requirements in Sections R602.10 through R602.10.9, those portions shall be designed and constructed in accordance with accepted engineering practice.

**R602.10.11.1 Braced wall line spacing.** Spacing between braced wall lines in each story shall not exceed 25 feet (7620 mm) on center in both the longitudinal and transverse directions.

**Exception:** In one- and two-story buildings two adjacent braced wall lines shall not exceed 35 feet (10,663 mm) on center in order to accommodate an area not exceeding 900 square feet (84 m<sup>2</sup>) in each dwelling unit. Spacing between all other braced wall lines shall not exceed 25 feet (7620 mm).

**R602.10.11.2 Braced wall panel location.** Exterior braced wall lines shall be provided with a braced wall panel located at each end of the braced wall line.

**Exception:** For braced wall panel construction Method 3 of Section R602.10.3, the braced wall panel shall be permitted to begin no more than 8 feet (2438 mm) from each end of the braced wall line provided one of the following is satisfied:

1. A minimum 24-inch-wide (610 mm) panel is applied to each side of the building corner and the two 24-inch-wide (610 mm) panels at the corner shall be attached to framing in accordance with Figure R602.10.5; or
2. The end of each braced wall panel closest to the corner shall have a tie-down device fastened to the stud at the edge of the braced wall panel closest to the corner and to the foundation or framing below. The tie-down device shall be capable of providing an uplift allowable design value of at least 1,800 pounds (8 kN). The tie-down device shall be installed in accordance with the manufacturer's recommendations.

**R602.10.11.4 Cripple wall bracing.** In addition to the requirements of Section R602.10.2, where interior braced wall panels occur without a foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the length required by Table R602.10.1. Where cripple walls braced using Method 3 of Section R602.10.3 cannot provide this additional length, the capacity of the sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) on center.

**R602.11.1 Wall anchorage.** Braced wall line sill plates shall be anchored to concrete or masonry foundations in accordance with Sections R403.1.6 and R602.11. For all buildings in Seismic Design Categories D<sub>0</sub>, D<sub>1</sub> and D<sub>2</sub> and townhouses in Seismic Design Category C, plate washers, a

minimum of 0.229 inch by 3 inches by 3 inches (5.8 mm by 76 mm by 76 mm) in size, shall be installed between the foundation sill plate and the nut. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16 inch (5 mm) larger than the bolt diameter and a slot length not to exceed 1-3/4 inches (44 mm), provided a standard cut washer is placed between the plate washer and the nut.

**R602.11.2 Interior braced wall panel connections.**

Interior braced wall panels shall be fastened to floor and roof framing in accordance with Table R602.3(1), to required foundations in accordance with Section R602.11.1, and in accordance with the following requirements:

1. Floor joists parallel to the top plate shall be toe-nailed to the top plate with at least 8d nails spaced a maximum of 6 inches (152 mm) on center.
2. Top plate laps shall be face-nailed with at least eight 16d nails on each side of the splice.

**R602.11.3 Stepped foundations.** Where stepped foundations occur, the following requirements apply:

1. Where the height of a required braced wall panel that extends from foundation to floor above varies more than 4 feet (1220 mm), the braced wall panel shall be constructed in accordance with Figure R602.11.3.
2. Where the lowest floor framing rests directly on a sill bolted to a foundation not less than 8 feet (2440 mm) in length along a line of bracing, the line shall be considered as braced. The double plate of the cripple stud wall beyond the segment of footing that extends

to the lowest framed floor shall be spliced by extending the upper top plate a minimum of 4 feet (1219 mm) along the foundation. Anchor bolts shall be located a maximum of 1 foot and 3 feet (305 and 914 mm) from each end of the plate section at the step in the foundation.

3. Where cripple walls occur between the top of the foundation and the lowest floor framing, the bracing requirements for a story shall apply.
4. Where only the bottom of the foundation is stepped and the lowest floor framing rests directly on a sill bolted to the foundations, the requirements of Section R602.11.1 shall apply.

**R613.4 Testing and labeling.** Exterior windows and sliding doors shall be tested by an approved independent  
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laboratory, and bear a label identifying manufacturer, performance characteristics and approved inspection agency to indicated compliance with AAMA/WDMA/CSA 101/I.S.2/A440. Exterior side-hinged doors shall be tested and labeled as conforming to AAMA/WDMA/CSA 101/I.S.2/A440 or comply with Section R613.6.

**Exceptions:**

1. Decorative glazed openings.
2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section R613 of the International Residential Code provided they meet the applicable provisions of Chapter 24 of the International Building Code.

**R703.1 General.** Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section R703.8. 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.

**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 R703.7 or R703.8.
2. Compliance with the requirements for a means of drainage, and the requirements of Section R703.2 and R703.8, 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 siding made of plywood, engineered wood, hardboard, or fiber cement. A water-resistive barrier as required by Section R703.2 and Table R703.4 will be required on exterior walls.

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**R806.4 Conditioned attic assemblies.** This section is not adopted.

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**R1004.1.1 Emission standards for factory-built**

**fireplaces.** After January 1, 1997, no new or used factory-built fireplace shall be installed in Washington State unless it is certified and labeled in accordance with procedures and criteria specified in the Washington State Building Code Standard 31-2.

To certify an entire fireplace model line, the internal assembly shall be tested to determine its particulate matter emission performance. Retesting and recertifying is required if the design and construction specifications of the fireplace model line internal assembly change. Testing for certification shall be performed by a Washington State Department of Ecology (DOE) approved and U. S. Environmental Protection Agency (EPA) accredited laboratory.

**R1004.1.2 Emission standards for certified masonry and concrete fireplaces.**

After January 1, 1997, new certified masonry or concrete fireplaces installed in Washington State shall be tested and labeled in accordance with procedures and criteria specified in the Washington State Building Code Standard 31-2.

To certify an entire fireplace model line, the internal assembly shall be tested to determine its particulate matter emission performance. Retesting and recertifying is required if the design and construction specifications of the fireplace model line internal assembly change. Testing for certification shall be performed by a Washington State Department of Ecology (DOE) approved and U. S. Environmental Protection Agency (EPA) accredited laboratory.



**M1201.1 Scope.** The provisions of Chapters 12 through 24 shall regulate the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions within buildings. These chapters shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed in this code.

**Exception:** The standards for liquefied petroleum gas installations shall be the 2004 Edition of NFPA 58 (Liquefied Petroleum Gas Code) and the 2006 Edition of ANSI Z223.1/NFPA 54 (National Fuel Gas Code).



**M1501 Outdoor discharge.** The air removed by every mechanical exhaust system shall be discharged to the outdoors. Air shall not be exhausted into an attic, soffit, ridge vent or crawlspace.

**Exception:** Whole-house cooling attic fans that discharge into the attic space of dwelling units having private attics shall be permitted.



**Sections M2001-Boilers, M2002-Operating And Safety Controls, and M2003-Expansion Tanks,** are not adopted.

Boilers and Unfired Pressure Vessels are regulated by Chapter 70.79 RCW and Chapter 296-104 WAC.



**G2439.5.3 Protection required.** Plates or clips shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Plates or clips shall be placed on the finished face of all framing members where there is less than 1 1/4 inches (32 mm) between the duct and the finished face of the framing material. The plate or clip shall be steel not less than 1/16 inch (1.59 mm) in thickness and of sufficient width to protect the duct.

WAC 51-51-4300 Chapter 43  
Referenced Standards

Add the following standard:

Washington State  
Building Code Standard

| Standard<br>reference<br>number | Title                                                                                                                                               | Referenced<br>in code<br>section number |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 31-2                            | Standard Test Method for Particulate Emissions from Fireplaces.....<br>(Standard is located in the <i>International Building Code</i> , Chapter 35) | R1004.1                                 |

(Insert Following Page 565)





**AF101.1 General.** This appendix contains requirements for new construction in jurisdictions where radon-resistant construction is required.

Inclusion of this appendix by jurisdictions shall be required in high radon potential counties as determined in Figure AF101 and as listed in Table AF101(1).

Unvented crawl spaces are not permitted in any high radon potential county. In other areas, requirements of this appendix apply to any structure constructed with unvented crawl spaces as specified in R408.3.

**AF103.1 General.** The following construction techniques are intended to resist radon entry and prepare the building for post-construction radon mitigation, if necessary (see Figure AF102). These techniques are required in high radon potential counties designated in Table AF101(1).

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