Chapter 51-50 WAC
STATE BUILDING CODE ADOPTION AND AMENDMENT OF
THE 2009 EDITION OF THE INTERNATIONAL BUILDING
CODE
(Formerly chapter 51-40 WAC)

WAC
51-50-001 Authority.
51-50-002 Purpose.
51-50-003 International Building Code.
51-50-005 International Building Code requirements for barrier-free accessibility.
51-50-007 Exceptions.
51-50-008 Implementation.
51-50-0108 Temporary structures and solid waste storage.
51-50-0108 Chapter 2—Definitions.
51-50-0130 Educational Group E.
51-50-01010 Section 101—General.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
51-50-01010 Section 101—Applicability.
51-50-0101 Section 101—Applicability.
Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 419—Group LC. [Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-0419, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 707—Shaft enclosures. [Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-0707, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-0707, filed 12/17/03, effective 7/1/04.] Decodified and amended by 10-03-097, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074.

Readopted as WAC 51-50-0708.

Section 1010—Ramps. [Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-1010, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.04, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Corridors. [Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1017, filed 12/19/06, effective 7/1/07.] Decodified and amended by 10-03-097, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074. Readopted as WAC 51-50-1018.

Section 1024—Assembly. [Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-1024, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.04, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 1103—Scoping requirements. [Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-1103, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.04, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 1104—Accessible route. [Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-1104, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.04, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 1105—Accessible entrances. [Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-1105, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.04, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 1109—Other features and facilities. [Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. 05-01-014, § 51-50-1109, filed 12/22/04, effective 7/1/05. Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-1109, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.04, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 1605—Load combinations. [Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. 05-01-014, § 51-50-1605, filed 12/22/04, effective 7/1/05.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.04, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 1709—Structural observations. [Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-1709, filed 12/17/03, effective 7/1/04.] Repealed by 07-01-091, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW.

Section 1714—Preconstruction load tests. [Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1714, filed 12/17/03, effective 7/1/07.] Decodified and amended by 10-03-097, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074. Readopted as WAC 51-50-1715.

WAC 51-50-001 Authority. These rules are adopted under the authority of chapter 19.27 RCW.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-001, filed 12/17/03, effective 7/1/04.]

WAC 51-50-002 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.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 04-01-108, § 51-50-002, filed 12/17/03, effective 7/1/04.]


[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-003, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-003, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, [Ch. 51-50 WAC—p. 2] (12/20/11)
WAC 51-50-005 International Building Code requirements for barrier-free accessibility. Chapter 11 and other International Building Code requirements for barrier-free access, including ICC A117.1-2003 and Appendix E, are adopted pursuant to chapters 70.92 and 19.27 RCW.

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

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

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

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

WAC 51-50-008 Implementation. The International Building Code adopted under chapter 51-50 WAC shall become effective in all counties and cities of this state on July 1, 2010.

WAC 51-50-009 Recyclable materials and solid waste storage. For the purposes of this section, the following definition shall apply:

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

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

EXCEPTION: Group R-3 and Group U Occupancies.

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

WAC 51-50-0108 Temporary structures and uses.

108.1 General. The building official is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The building official is authorized to grant extensions for demonstrated cause.

EXCEPTION: The building official may authorize unheated tents and yurts under 500 square feet accommodating an R-1 Occupancy for recreational use as a temporary structure and allow them to be used indefinitely.

WAC 51-50-0200 Chapter 2—Definitions.

SECTION 202—DEFINITIONS.

ADULT FAMILY HOME. See Section 310.2.

AIR-PERMEABLE INSULATION. An insulation having an air permeance equal to or less than 0.02 L/s·m² at 75 Pa pressure differential tested in accordance with ASTM E2178 or ASTM E283.

CHILDB DAY CARE. See Section 310.2.

CHILD DAY CARE HOME, FAMILY. See Section 310.2.

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

PORTABLE SCHOOL CLASSROOM. See Section 902.1.

RESIDENTIAL CARE/ASSISTED LIVING FACILITIES. See Section 310.2. This definition is not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-007, § 51-50-008, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-008, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-008, filed 12/17/03, effective 7/1/04.]
A facility such as the above providing licensed care to clients in one of the categories listed in Section 310.1 licensed by Washington state shall be classified as Group R-2.

308.3.1 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

CHILD CARE FACILITIES. Facilities that provide care on a 24-hour basis to more than five children, 2 1/2 years of age or less, shall be classified as Group I-2.

DETOXIFICATION FACILITY. Facilities that serve patients who are provided treatment for substance abuse on a 24-hour basis and who are incapable of self-preservation or who are harmful to themselves or others.

HOSPITALS AND MENTAL HOSPITALS. A building or portion thereof used on a 24-hour basis for the medical, psychiatric, obstetrical or surgical treatment of inpatients who are incapable of self-preservation.

NURSING HOMES. Nursing homes are long-term care facilities on a 24-hour basis, including both intermediate care facilities and skilled nursing facilities, serving more than five persons and any of the persons are incapable of self-preservation.

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

308.5.2 Child care facility. A facility that provides supervision and personal care on a less than 24-hour basis for more than five children 2 1/2 years of age or less shall be classified as Group I-4.

EXCEPTIONS: 1. A child day care facility that provides care for more than five but no more than 100 children 2 1/2 years or less of age, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.

2. Family child day care homes licensed by Washington state for the care of two or fewer children shall be classified as Group R-3.

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

310.1 Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Insti-
tutional Group I or when not regulated by the International Residential Code in accordance with Section 101.2. Residential occupancies shall include the following:

**R-1** Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:
- Boarding houses (transient)
- Hotels (transient)
- Motels (transient)
- Congregate living facilities (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.

**R-2** Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:
- Apartment houses
- Boarding houses (not transient)
- Boarding homes as licensed by Washington state under chapter 388-78A WAC
- Convents
- Dormitories
- Fraternities and sororities
- Hotels (nontransient)
- Live/work units
- Monasteries
- Motels (nontransient)
- Residential treatment facilities as licensed by Washington state under chapter 246-337 WAC
- Vacation timeshare properties
- Congregate living facilities with sixteen or fewer occupants are permitted to comply with the construction requirements for Group R-3.

**R-3** Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including: Buildings that do not contain more than two dwelling units. Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Congregate living facilities with sixteen or fewer persons. Adult care within a single-family home, adult family homes and family child day care homes are permitted to comply with the International Residential Code.

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

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

**310.2 Definitions.** The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

**ADULT FAMILY HOME.** A dwelling, licensed by Washington state, 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.

**BOARDING HOUSE.** A building arranged or used for lodging for compensation, with or without meals, and not occupied as a single family unit.

**CHILD DAY CARE.** For the purposes of these regulations, is the care of children during any period of a 24-hour day.

**CHILD DAY CARE HOME, FAMILY.** A child day 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.

**CONGREGATE LIVING FACILITIES.** A building or part thereof that contains sleeping units where residents share bathroom and/or kitchen facilities.

**DORMITORY.** A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

**PERSONAL CARE SERVICE.** The care of residents who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for safety of the resident while inside the building.

**RESIDENTIAL CARE/ASSISTED LIVING FACILITIES.** This definition is not adopted.

**TRANSIENT.** Occupancy of a dwelling or sleeping unit for not more than 30 days.

403.5.4 Smokeproof exit enclosures. Every required exit stairway serving floors more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access shall comply with Sections 909.20 and 1022.9.

**EXCEPTION:** Unless required by other sections of this code, portions of such stairways which extend to serve floors below the level of exit discharge need not comply with Sections 909.20 and 1022.9 provided the portion of the stairway below is separated from the level of exit discharge with a 1 hour fire barrier.

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

403.5.4 Smokeproof exit enclosures. Every required exit stairway serving floors more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access shall comply with Sections 909.20 and 1022.9.

**EXCEPTION:** Unless required by other sections of this code, portions of such stairways which extend to serve floors below the level of exit discharge need not comply with Sections 909.20 and 1022.9 provided the portion of the stairway below is separated from the level of exit discharge with a 1 hour fire barrier.

WAC 51-50-0406 Reserved.

WAC 51-50-0407 Reserved.

[Ch. 51-50 WAC—p. 5]
WAC 51-50-0420 Section 420—Groups I-1, R-1, R-2, R-3.

420.4 Subdivision of building spaces—Smoke barriers. Smoke barriers complying with Section 710 shall be installed on floors other than the level of exit discharge of a Group R-2 boarding home or residential treatment facility licensed by Washington state, where a fire-resistance rated corridor is required by Table 1018.1. The smoke barrier shall subdivide the floor into at least two compartments complying with Section 407.4.

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

WAC 51-50-0422 Section 422—Ambulatory health care.

422.1 General. Occupancies classified as ambulatory health care facilities shall comply with the provisions of Sections 422.1 through 422.7 and other applicable provisions of this code by the services provided.

422.2 Separation. Ambulatory health care facilities where four or more care recipients are rendered incapable of self-preservation at any given time shall be separated from adjacent spaces, corridors or tenants with a fire partition installed in accordance with Section 709.

422.3 Smoke compartments. Where the aggregate area of one or more ambulatory health care facility exceeds 10,000 square feet on one story, the story shall be provided with a smoke barrier to subdivide the story into not less than two smoke compartments. Smoke barriers shall be installed in accordance with Section 710. The area of any one such smoke compartment shall not exceed 22,500 square feet (2029 m²). The travel distance from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60,960 mm).

EXCEPTION: Where the ambulatory health care facility is completely surrounded by the required smoke barrier, such smoke barriers shall not be required to be continuous from an outside wall to outside wall.

422.4 Refuge area. At least 15 net square feet (2.8 m²) per occupant shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas and other low-hazard areas on each side of each smoke barrier. Each ambulatory health care facility shall be provided with access to the required refuge areas without passing through or utilizing adjacent tenant spaces.

422.5 Independent egress. A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated.

422.6 Automatic sprinkler systems. Automatic sprinkler systems shall be provided for ambulatory care facilities in accordance with Section 903.2.2.

[Ch. 51-50 WAC—p. 6]
WAC 51-50-0708 Section 708—Shaft enclosures.

708.14.2.12 Hoistway venting. Hoistway venting required by Section 3004 need not be provided for pressurized elevator shafts.

708.14.2.13 Machine rooms. Elevator machine rooms shall be pressurized in accordance with this section unless separated from the hoistway shaft by construction in accordance with Section 707.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, amended and recodified as § 51-50-0708, 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. 07-01-091, § 51-50-0707, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-0707, filed 12/17/03, effective 7/1/04.]

WAC 51-50-0710 Section 710—Smoke barriers.

710.4 Continuity. Smoke barriers shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceiling, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required fire-resistance rating of the wall or floor supported in buildings of other than Type II B, III B, or VB construction.

EXCEPTIONS: 1. Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.

2. Smoke barriers provided to enclose areas of refuge as required by Section 1007.6 are not required to extend from outside wall to outside wall.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-0710, filed 12/20/10, effective 7/1/10.]

WAC 51-50-0902 Section 902—Definitions.

902.1 Definitions.

PORTABLE SCHOOL CLASSROOM. A structure, transportable in one or more sections, which requires a chassis to be transported, and is designed to be used as an educational space with or without a permanent foundation. The structure shall be trailerable and capable of being demounted and relocated to other locations as needs arise.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-0902, filed 12/17/03, effective 7/1/04.]

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

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

903.2.3 Group E. An automatic sprinkler system shall be provided for Group E Occupancies.

EXCEPTIONS: 1. Portable school classrooms, provided aggregate area of any cluster or portion of a cluster of portable school classrooms does not exceed 5,000 square feet (1465 m²); and clusters of portable school classrooms shall be separated as required by the building code.

2. Group E occupancies with an occupant load of 50 or less, calculated in accordance with Table 1004.1.1.

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

1. A Group M fire area exceeds 12,000 square feet (1115 m²).

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

3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²).

4. Where a Group M occupancy that is used for the display and sale of upholstered furniture or mattresses exceeds 5000 square feet (464 m²).

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

EXCEPTION: Group R-1 if all of the following conditions apply:

1. The Group R fire area is no more than 500 square feet and is used for recreational use only.

2. The Group R fire area is only one story.

3. The Group R fire area does not include a basement.

4. The Group R fire area is no closer than 30 feet from another structure.

5. Cooking is not allowed within the Group R fire area.

6. The Group R fire area has an occupant load of no more than 8.

7. A hand held (portable) fire extinguisher is in every Group R fire area.

[Statutory Authority: Chapter 19.27 RCW. 10-24-059, § 51-50-0903, filed 11/29/10, effective 7/1/11. Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-0903, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and Chapters 70.92 and 34.05 RCW. 08-01-110, § 51-50-0903, filed 12/18/07, effective 4/1/08. Statutory Authority: RCW 19.27.074, 19.27.020, and Chapters 70.92 and 34.05 RCW. 07-01-091, § 51-50-0903, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074, and Chapters 19.27 and 34.05 RCW. 05-24-070, § 51-50-0903, filed 12/5/05, effective 7/1/06. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-0903, filed 12/17/03, effective 7/1/04.]

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

[F] 907.2.6 Group I. A manual fire alarm system that activates the occupant notification system shall be installed in Group I occupancies. An automatic smoke detection system that notifies the occupant notification system shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2, 907.2.6.3.3 and 907.2.6.4.

EXCEPTIONS:

1. Manual fire alarm boxes in resident or patient sleeping areas of Group I-1 and I-2 occupancies shall not be required at exits if located at nurses' control stations or other constantly attended staff locations, provided such stations are visible and continually accessible and that travel distances required in Section 907.4.2 are not exceeded.

2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the fire code official.

[F] 907.2.6.4 Group I-4 child care facilities. An automatic smoke detection system that activates the occupant notification system in accordance with Sections 907.6 through 907.6.2.3.2 shall be provided and installed in accordance with NFPA 72.

[Ch. 51-50 WAC—p. 7]
WAC 51-50-0908 Section 908—Emergency alarm systems.

[F] 908.7 Carbon monoxide alarms. Group R occupancies shall be provided with carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions.

EXCEPTION: Sleeping units or dwelling units in R-1 occupancies and R-2 college dormitories, hotel, and DSHS licensed boarding home and residential treatment facility occupancies which do not themselves contain a fuel-burning appliance, or a fuel-burning fireplace, or have an attached garage, but which are located in a building with a fuel-burning appliance, or a fuel-burning fireplace, or an attached garage, need not be provided with carbon monoxide alarms provided that:
1. The sleeping unit or dwelling unit is not adjacent to any room which contains a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and
2. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts with a supply or return register in the same room to any room containing a fuel-burning appliance, a fuel-burning fireplace, or to an attached garage; and
3. The building is provided with a common area carbon monoxide alarm system.
4. An open parking garage, as defined in the International Building Code, or enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be deemed to be an attached garage.

908.7.1 Carbon monoxide detection systems. Carbon monoxide detection systems, that include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

[Statutory Authority: RCW 19.27.074 and 19.27.075. 12-01-099, § 51-50-0908, filed 12/20/11, effective 4/1/12.]

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

WAC 51-50-0909 Section 909—Smoke control systems.

909.6.3 Elevator shaft pressurization. Where elevator shaft pressurization is required to comply with Exception 6 of Section 708.14.1, the pressurization system shall comply with and be maintained in accordance with 708.14.2.

909.6.3.1 Activation. The elevator shaft pressurization system shall be activated by a fire alarm system which shall include smoke detectors or other approved detectors located near the elevator shaft on each floor as approved by the building official and fire code official. If the building has a fire alarm panel, detectors shall be connected to, with power supplied by, the fire alarm panel.

909.6.3.2 Power system. The power source for the fire alarm system and the elevator shaft pressurization system shall be in accordance with Section 909.11.

WAC 51-50-0911 Section 911—Fire command center.

911.1.2 Separation. The fire command center shall be separated from the remainder of the building by not less than a 2-hour fire barrier constructed in accordance with Section 707 or horizontal assembly constructed in accordance with Section 712, or both.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-0911, filed 12/20/10, effective 7/1/10.]

WAC 51-50-1005 Section 1005—Egress width.

1005.1 Minimum required egress width. The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components. The width shall not be less than specified elsewhere in this code. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

EXCEPTIONS: 1. Means of egress complying with Section 1028.
2. For other than H and I-2 occupancies, the total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.2 inches (5.1 mm) per occupant for stairways and by 0.15 inches (3.8 mm) per occupant for other egress components in buildings that are provided with sprinkler protection in accordance with 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with 907.5.2.2.

[Statutory Authority: Chapter 19.27 RCW. 10-24-059, § 51-50-1005, filed 11/29/10, effective 7/1/11.]

WAC 51-50-1007 Section 1007—Accessible means of egress.

1007.1 Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1015.1 or 1021.1 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

EXCEPTIONS: 1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with sloped or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in Section 1028.8.
4. In parking garages, accessible means of egress are not required to serve parking areas that do not contain accessible parking spaces.

1007.8 Two-way communication. A two-way communication system shall be provided at the elevator landing on each accessible floor that is one or more stories above or below the story of exit discharge complying with Sections 1007.8.1 and 1007.8.2.

EXCEPTIONS: 1. Two-way communication systems are not required at the elevator landing where two-way communication is provided within the areas of refuge in accordance with section 1007.6.3.
2. Two-way communication systems are not required on floors provided with exit ramps conforming to provisions of section 1010.

1007.8.1 System requirements. Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location approved by the fire department. Where the central control point is not constantly attended, a two-way communication system shall have a timed automatic telephone dial-out capability to a monitoring location. The two-way communication system shall include both audible and visible signals. The two-way communication system shall have a battery backup or an approved alternate source of power that is capable of 90 minutes use upon failure of the normal power source.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1007, filed 1/20/10, effective 7/1/10.]

WAC 51-50-1008 Section 1008—Doors, gates and turnstiles.

1008.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:
1. Places of detention or restraint.
2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
   2.1 The locking device is readily distinguishable as locked;
   2.2 A readily visible sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and
   2.3 The use of the key-operated locking device is revocable by the building official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no door knob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices are openable from the inside without the use of a key or a tool.
5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.
6. Approved, listed locks without delayed egress shall be permitted in Group R-2 boarding homes licensed by Washington state, provided that:
   6.1. The clinical needs of one or more patients require specialized security measures for their safety.
   6.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
   6.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.
   6.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.
   6.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

1008.1.9.6 Special locking arrangements in Group I-2. Approved locks shall be permitted in a Group I-2 Occupancy where the clinical needs of persons receiving care require such locking. Locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below.
1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.
6. Emergency lighting shall be provided at the door.

EXCEPTION: Items 1, 2, 3, and 5 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a Group I-2 mental hospital provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1008, 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. 07-01-091, § 51-50-1008, 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. 05-24-070, § 51-50-1008, filed 12/5/05, effective 7/1/06. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-1008, filed 12/17/03, effective 7/1/04.]

WAC 51-50-1009 Section 1009—Stairways and handrails.

1009.15 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to
areas of 200 square feet (18.6 m²) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1009.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1009, filed 1/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1009, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-1009, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-10100, filed 1/20/10, effective 7/1/10.]

WAC 51-50-10100 Section 1010—Ramps.

1010.1 Scope. The provisions of this section shall apply to ramps used as a component of a means of egress.

EXCEPTIONS:
1. Other than ramps that are part of the accessible routes providing access in accordance with Sections 1108.2 through 1108.2.4 and 1108.2.6, ramped aisles within assembly rooms or spaces shall conform with the provisions in Section 1028.11.
2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections 1010.3 through 1010.9 when they are not an accessible route serving accessible parking spaces or other required accessible elements.
4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections 1010.4, 1010.5, and 1010.8. A landing complying with Sections 1010.6.1 and 1010.6.4 shall be provided at any change of direction in the accessible means of egress.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-10100, filed 1/20/10, effective 7/1/10.]

WAC 51-50-1015 Reserved.

1015.1 Scope. The provisions of this section shall apply to ramps used as a component of a means of egress.

EXCEPTION:
1. Other than ramps that are part of the accessible routes providing access in accordance with Sections 1108.2 through 1108.2.4 and 1108.2.6, ramped aisles within assembly rooms or spaces shall conform with the provisions in Section 1028.11.
2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections 1010.3 through 1010.9 when they are not an accessible route serving accessible parking spaces or other required accessible elements.
4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections 1010.4, 1010.5, and 1010.8. A landing complying with Sections 1010.6.1 and 1010.6.4 shall be provided at any change of direction in the accessible means of egress.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-10100, filed 1/20/10, effective 7/1/10.]
3. Where located within tenant spaces of one thousand square feet (93 m²) or less in area, utilization of corridors for conveying return air is permitted.
4. Incidental air movement from pressurized rooms within health care facilities, provided that a corridor is not the primary source of supply or return to the room.
5. Where such air is part of an engineered smoke control system.
6. Air supplied to corridors serving residential occupancies shall not be considered as providing ventilation air to the dwelling units subject to the following:
   6.1 The air supplied to the corridor is one hundred percent outside air; and
   6.2 The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and
   6.3 For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors which shall be spaced at no more than thirty feet (9,144 mm) on center along the corridor; or
   6.4 For high-rise buildings, corridor smoke detector activation will close required smoke/fire dampers at the supply inlet to the corridor at the floor receiving the alarm.

1018.6 Corridor continuity. Fire-resistance-rated corridors shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.

EXCEPTIONS:
1. Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.
2. In Group R-2 boarding homes and residential treatment facilities licensed by Washington state, seating areas shall be allowed to be open to the corridor provided:
   2.1 The seating area is constructed as required for the corridor;
   2.2 The floor is separated into at least two compartments complying with Section 407.4;
   2.3 Each individual seating area does not exceed 150 square feet, excluding the corridor width;
   2.4 The combined total space of seating areas per compartment does not exceed 300 square feet, excluding the corridor width;
   2.5 Combustible furnishings located within the seating area shall be in accordance with the International Building Code Section 805; and
   2.6 Emergency means of egress lighting is provided as required by Section 1006 to illuminate the area.

[Statutory Authority: RCW 19.27.031 and 19.27.074. Amended 10-03-097, § 51-50-1019, filed 12/19/06, effective 7/1/07.]

WAC 51-50-1019 Reserved.

WAC 51-50-1101 Section 1101—General.

1101.2 Design. Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and ICC A117.1, except those portions of ICC A117.1 amended by this section.

1101.2.1 (ICC A117.1 Section 403) Landings for walking surfaces. The maximum rise for any run is 30 inches (762 mm). Landings shall be provided at the top and bottom of any run. Landings shall be level and have a minimum dimension measured in the direction of travel of not less than 60 inches (1525 mm).

(12/20/11)
shall be located beyond the arc of the door swing and centered on the control switch.

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1101, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074, and chapters 19.27 and 34.05 RCW. 05-24-070, § 51-50-1101, filed 12/5/05, effective 7/1/06; 05-01-014, § 51-50-1101, filed 12/2/04, effective 7/1/05. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-1101, filed 12/17/03, effective 7/1/04.]

WAC 51-50-1106 Section 1106—Parking and passenger loading facilities.

1106.3 Group I-2 outpatient facilities. Ten percent, but not less than one, of patient and visitor parking spaces provided to serve Group I-2 outpatient facilities shall be accessible.

1106.6 Location. Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance. In parking facilities that do not serve a particular building, accessible parking spaces shall be located on the shortest route to an accessible pedestrian entrance to the parking facility. Where buildings have multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances. Wherever practical, the accessible route shall not cross lanes of vehicular traffic. Where crossing traffic lanes is necessary, the route shall be designated and marked as a crosswalk.

EXCEPTION: 1. In multilevel parking structures, van accessible parking spaces are permitted on one level.

2. Accessible parking spaces shall be permitted to be located in different parking facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, parking fee and user convenience.

[Statutory Authority: RCW 19.27.074 and 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1106, filed 12/17/03, effective 7/1/04.]

WAC 51-50-1107 Section 1107—Dwelling units and sleeping units.

1107.6 Group R. Accessible units, Type A units and Type B units shall be provided in Group R Occupancies in accordance with Sections 1107.6.1 through 1107.6.4. Accessible and Type A units shall be apportioned among efficiency dwelling units, single bedroom units and multiple bedroom units, in proportion to the numbers of such units in the building.

1107.6.2.1 Type A units. In Group R-2 Occupancies containing more than 10 dwelling units or sleeping units, at least 5 percent, but not less than one, of the units shall be a Type A unit. All units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units.

EXCEPTIONS: 1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.

2. Existing structures on a site shall not contribute to the total number of units on a site.

1107.6.2.2 Group R-2 other than apartment houses, monasteries and convents. In Group R-2 Occupancies, other than apartment houses, monasteries and convents, Accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.1 and 1107.6.2.2. Accessible units shall be dispersed among the various classes of units.

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1107, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-1107, filed 12/17/03, effective 7/1/04.]

WAC 51-50-1203 Section 1203—Ventilation.

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the International Mechanical Code.

1203.2 Attic spaces. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch (25 mm) of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

EXCEPTIONS: 1. The minimum required net free ventilating shall be 1/300 of the area of the space ventilated, provided a vapor retarder having a transmission rate not exceeding one perm in accordance with ASTM E 96 is installed on the warm side of the attic insulation and provided 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated is at least 3 feet (914 mm) above eave or cornice vents, with the balance of the required ventilation provided by eave or cornice vents.

2. Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all the following conditions are met:

2.1 The unventilated attic space is completely contained within the building thermal envelope.

2.2 No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.

2.3 Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.

2.4 Any air-impermeable insulation shall be a vapor retarder, or shall have a vapor retarder coating or covering in direct contact with the underside of the insulation.

2.5 Either items a, b, or c below shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

a. Air-impermeable insulation only. Insulation shall be applied in direct contact to the underside of the structural roof sheathing.

b. Air-permeable insulation only. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified per WA Climate Zone for condensation control.

i. Climate Zone #1 - R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 - R-25 minimum rigid board or air-impermeable insulation R-value.
1203.4 Natural ventilation. For other than Group R Occupancies, natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants. Group R Occupancies shall comply with the International Mechanical Code.

1203.6 Radon resistive construction standards. The criteria of this section establishes minimum radon resistive construction requirements for Group R Occupancies.

1203.6.1 Application. The requirements of Section 1203.6 shall be adopted and enforced by all jurisdictions of the state according to the following subsections.

1203.6.1.1 All jurisdictions of the state shall comply with Section 1203.6.2.

1203.6.1.2 Clark, Ferry, Okanogan, Pend Oreille, Skamania, Spokane, and Stevens counties shall also comply with Section 1203.6.3.

1203.6.2 State wide radon requirements.

1203.6.2.1 Crawlspace. All crawlspaces shall comply with the requirements of this section.

1203.6.2.2 Ventilation. All crawlspaces shall be ventilated as specified in Section 1203.3.

If the installed ventilation in a crawlspace is less than one square foot for each 300 square feet of crawlspace area, or if the crawlspace vents are equipped with operable louvers, a radon vent shall be installed to originate from a point between the ground cover and soil. The radon vent shall be installed in accordance with Sections 1203.6.3.2.6 and 1203.6.3.2.7.

1203.6.2.3 Crawlspace plenum systems. In crawlspace plenum systems used for providing supply air for an HVAC system, aggregate, a permanently sealed soil gas retarder membrane and a radon vent pipe shall be installed in accordance with Section 1203.6.3.2. Crawlspace plenums shall not be used for return air plenums.

In addition, an operable radon vent fan shall be installed and activated. The fan shall be located as specified in Section 1203.6.3.2.7. The fan shall be capable of providing at least 100 cfm at 1-inch water column static pressure. The fan shall be controlled by a readily accessible manual switch. The switch shall be labeled "RADON VENT FAN."

1203.6.3 Radon prescriptive requirements.

1203.6.3.1 Scope. This section applies to those counties specified in Section 1203.6.1.2. This section establishes prescriptive construction requirements for reducing the potential for radon entry into all Group R Occupancies, and for preparing the building for future mitigation if desired.

In all crawlspaces, except crawlspace plenums used for providing supply air for an HVAC system, a continuous air barrier shall be installed between the crawlspace area and the occupied area to limit air transport between the areas. If a wood sheet subfloor or other material is utilized as an air barrier, in addition to the requirements of Section 502.1.6.2 of the Washington State Energy Code, all joints between sheets shall be sealed.

1203.6.3.2 Floors in contact with the earth.

1203.6.3.2.1 General. Concrete slabs that are in direct contact with the building envelope shall comply with the requirements of this section.

EXCEPTION: Concrete slabs located under garages or other than Group R Occupancies need not comply with this chapter.

1203.6.3.2.2 Aggregate. A layer of aggregate of 4-inch minimum thickness shall be placed beneath concrete slabs. The aggregate shall be continuous to the extent practical.

1203.6.3.2.3 Gradation. Aggregate shall:
   1. Comply with ASTM Standard C-33 Standard Specification for Concrete Aggregate and shall be size No. 8 or larger size aggregate as listed in Table 2, Grading Requirements for Course Aggregate; or
   2. Meet the 1988 Washington State Department of Transportation Specification 9-03.1 (3) "Coarse Aggregate for Portland Cement Concrete," or any equivalent successor standards. Aggregate size shall be of Grade 8 or larger as listed in Section 9-03.1 (3) C, "Grading"; or
   3. Be screened, washed pea gravel free of deleterious substances in a manner consistent with ASTM Standard C-33 with 100 percent passing a 1/2-inch sieve and less than 5 percent passing a No. 16 sieve. Sieve characteristics shall conform to those acceptable under ASTM Standard C-33.

EXCEPTION: Aggregate shall not be required if a substitute material or system, with sufficient load bearing characteristics, and having approved capability to provide equal or superior air flow, is installed.

1203.6.3.2.4 Soil-gas retarder membrane. A soil-gas retarder membrane, consisting of at least one layer of virgin polyethylene with a thickness of at least 6 mil, or equivalent flexible sheet material, shall be either placed directly under all concrete slabs so that the slab is in direct contact with the membrane, or on top of the aggregate with 2 inches minimum of fine sand or pea gravel installed between the concrete slab and membrane. The flexible sheet shall extend to the foundation wall or to the outside edge of the monolithic slab. Seams shall overlap at least 12 inches. The membrane shall also be fitted tightly to all pipes, wires, and other penetrations of the membrane and sealed with an approved sealant or tape. All punctures or tears shall be repaired with the same or approved material and similarly lapped and sealed.

1203.6.3.2.5 Sealing of penetrations and joints. All penetrations and joints in concrete slabs or other floor systems and walls below grade shall be sealed by an approved sealant to create an air barrier to limit the movement of soil-gas into the indoor air.
Sealants shall be approved by the manufacturer for the intended purpose. Sealant joints shall conform to manufacturer's specifications. The sealant shall be placed and tooled in accordance with manufacturer's specifications. There shall be no gaps or voids after the sealant has cured.

1203.6.3.2.6 Radon vent. One continuous sealed pipe shall run from a point within the aggregate under each concrete slab to a point outside the building. Joints and connections shall be permanently gas tight. The continuous sealed pipe shall interface with the aggregate in the following manner, or by other approved equal method. The pipe shall be permanently connected to a "T" within the aggregate area so that the two end openings of the "T" lie within the aggregate area. A minimum of 5 feet of perforated drain pipe of 3 inches minimum diameter shall join to and extend from the "T." The perforated pipe shall remain in the aggregate area and shall not be capped at the ends. The "T" and its perforated pipe extensions shall be located at least 5 feet horizontally from the exterior perimeter of the aggregate area.

The continuous sealed pipe shall terminate no less than 12 inches above the eave, and more than 10 horizontal feet from a woodstove or fireplace chimney, or operable window. The continuous sealed pipe shall be labeled "radon vent." The label shall be placed so as to remain visible to an occupant.

The minimum pipe diameter shall be 3 inches unless otherwise approved. Acceptable sealed plastic pipe shall be smooth walled, and may include either PVC schedule 40 or ABS schedule of equivalent wall thickness.

The entire sealed pipe system shall be sloped to drain to the subslab aggregate.

The sealed pipe system may pass through an unconditioned attic before exiting the building; but to the extent practicable, the sealed pipe shall be located inside the thermal envelope of the building in order to enhance passive stack venting.

EXCEPTION: A fan for subslab depressurization system includes the following:
1. Soil-gas retarder membrane as specified in Section 1203.6.3.2.4;
2. Sealing of penetrations and joints as specified in Section 1203.6.3.2.5;
3. A 3-inch continuous sealed radon pipe shall run from a point within the aggregate under each concrete slab to a point outside the building;
4. Joints and connections shall be gas tight, and may be of either PVC schedule 40 or ABS schedule of equivalent in wall thickness;
5. A label of "radon vent" shall be placed on the pipe so as to remain visible to an occupant;
6. Fan circuit and wiring as specified in Section 1203.6.3.2.7 and a fan.

If the subslab depressurization system is exhausted through the concrete foundation wall or rim joist, the exhaust terminus shall be a minimum of 6 feet from operable windows or outdoor air intake vents and shall be directed away from operable windows and outdoor air intake vents to prevent radon reentrainment.

1203.6.3.2.7 Fan circuit and wiring and location. An area for location of an in-line fan shall be provided. The location shall be as close as practicable to the radon vent pipe's point of exit from the building, or shall be outside the building shell; and shall be located so that the fan and all downstream piping is isolated from the indoor air.

Provisions shall be made to allow future activation of an in-line fan on the radon vent pipe without the need to place new wiring. A 110 volt power supply shall be provided at a junction box near the fan location.

1203.6.3.2.8 Separate aggregate areas. If the 4-inch aggregate area underneath the concrete slab is not continuous, but is separated into distinct isolated aggregate areas by a footing or other barrier, a minimum of one radon vent pipe shall be installed into each separate aggregate area.

EXCEPTION: Separate aggregate areas may be considered a single area if a minimum 3-inch diameter connection joining the separate areas is provided for every 30 feet of barrier separating those areas.

1203.6.3.2.9 Concrete block walls. Concrete block walls connected to below grade areas shall be considered unsealed surfaces. All openings in concrete block walls that will not remain accessible upon completion of the building shall be sealed at both vertical and horizontal surfaces, in order to create a continuous air barrier to limit the transport of soil-gas into the indoor air.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1203, filed 12/17/03, effective 7/1/04.
Statutory Authority: RCW 19.27.031 and 19.27.074. 11-09-047, § 51-50-1203, filed 12/22/03, effective 7/1/04.
Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1203, filed 12/17/03, effective 7/1/04.]

WAC 51-50-1204 Section 1204—Temperature control.

1204.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining a minimum indoor temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

EXCEPTION: 1. Interior spaces where the primary purpose is not associated with human comfort.
2. Group R-1 Occupancies not more than 500 square feet.

1204.2.1 Definitions. For the purposes of this section only, the following definitions apply.

DESIGNATED AREAS are those areas designated by a county to be an urban growth area in chapter 36.70A RCW and those areas designated by the U.S. Environmental Protection Agency as being in nonattainment for particulate matter.

SUBSTANTIALLY REMODELED means any alteration or restoration of a building exceeding 60 percent of the appraised value of such building within a 12-month period. For the purpose of this section, the appraised value is the estimated cost to replace the building and structure in-kind, based on current replacement costs.

1204.2.2 Primary heating source. Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

1204.2.3 Solid fuel burning devices. No 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.
[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1204, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-1204, filed 12/17/03, effective 7/1/04.]

WAC 51-50-1208 Section 1208—Interior space dimensions.

1208.2 Minimum ceiling heights. Occupiable spaces and habitable spaces shall have a ceiling height of not less than 7 feet 6 inches (2286 mm). Bathrooms, toilet rooms, kitchen, storage rooms and laundry rooms shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).

EXCEPTIONS: 1. In one- and two-family dwellings, beams or girders spaced not less than 4 feet (1219 mm) and projecting not more than 6 inches (152 mm) below the required ceiling height.
2. If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the finished ceiling shall not be included in any computation of the minimum area thereof.
3. Mezzanines constructed in accordance with Section 505.1.

1208.3 Room area. Every dwelling unit shall have at least one room that shall have not less than 120 square feet (13.9 m²) of net floor area. Other habitable rooms shall have a net floor area of not less than 70 square feet (6.5 m²).

EXCEPTION: Kitchens in one- and two-family dwellings.

WAC 51-50-1210 Section 1210—Surrounding materials.

1210.5 Toilet rooms. This section is not adopted.

(The requirements of this section have been moved to Section 2902.2.1.1.)

[Statutory Authority: RCW 19.27.020, 19.27.031, 19.27.074 and chapters 19.27 and 34.05 RCW. 05-01-104, § 51-50-1210, filed 12/2/04, effective 7/1/05.]

WAC 51-50-1403 Section 1403—Performance requirements.

1403.2 Weather protection. Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section 1405.4. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer, as described in Section 1404.2, and a means of draining water that enters the assembly to the exterior. An air space cavity is not required under the exterior cladding for an exterior wall clad with lapped or panel siding made of plywood, engineered wood, hardboard, or fiber cement. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section 1405.3.

EXCEPTIONS:
1. A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapters 19 and 21, respectively.
2. Compliance with the requirements for a means of drainage, and the requirements of Sections 1404.2 and 1405.3, shall not be required for an exterior wall envelope that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
   2.1 Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.
   2.2 Exterior wall envelope test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.
   2.3 Exterior wall envelope assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/m²).
   2.4 Exterior wall envelope assemblies shall be subjected to a minimum test exposure duration of 2 hours. The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.
3. Exterior insulation and finish systems (EIFS) complying with Section 1408.4.1.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1403, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.190, 19.27.020, and chapters 19.27 and 34.05 RCW. 08-01-110, § 51-50-1403, filed 12/17/08, effective 4/1/08.]

WAC 51-50-1405 Section 1405—Installation of wall coverings.

1405.6.2 Seismic requirements. Anchored masonry veneer located in Seismic Design Category C, D, E, or F shall conform to the requirements of Section 6.2.2.10, except Section 6.2.2.10.3.2., of TMS 402/ACI 530/ASCE 5.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1405, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.020, 19.27.020, and chapters 19.27 and 34.05 RCW. 08-01-110, § 51-50-1405, filed 12/17/08, effective 4/1/08.]

WAC 51-50-1602 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1602, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1602, filed 12/19/06, effective 7/1/07.]

WAC 51-50-1607 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-1607, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-1607, filed 12/19/06, effective 7/1/07.]

WAC 51-50-1609 Section 1609—Wind loads.

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance
with Chapter 6 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the basic wind speed and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

EXCEPTIONS:
1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of the A&PA WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AASHTO S230.
5. Designs using TIA-222 for antenna-supporting structures and antennas. In section 2.6.6.2, the extent of Topographic Category 2, escarpments, shall extend 16 times the height of the escarpment.
6. Wind tunnel test in accordance with Section 6.6 of ASCE 7, subject to the limitations in Section 1609.1.1.2.

[Statutory Authority: RCW 19.27.031 and 19.27.074, filed 12/20/07, effective 4/1/08.]

WAC 51-50-1613 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-1613, filed 12/18/07, effective 4/1/08.]

WAC 51-50-1702 Section 1702—Definitions.
1702.1 General.

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 and door products.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-1609, filed 1/20/10, effective 7/1/10.]

WAC 51-50-1715 Section 1715—Preconstruction load tests.

1715.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1715.5.1 or 1715.5.2.

EXCEPTIONS:
1. Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1715.5.1 or 1715.5.2 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.
2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section 1715 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, 10-03-097, amended and recodified 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, 07-01-091, § 51-50-1714, filed 12/19/06, effective 7/1/07.]

WAC 51-50-2104 Section 2104—Construction.

2104.1 Masonry construction. Masonry construction shall comply with the requirements of Sections 2104.1.1 through 2104.6 and with TMS 602/ACI 530.1/ASCE 6 except as modified by Sections 2104.5 and 2104.6.

2104.5 TMS 602/ACI 530.1/ASCE 6, Article 3.5 D, grout lift heights. Modify items 1.b, 1.c, and 2.b of Article 3.5 D as follows:

1. D.1.b When the conditions of Articles 3.5 D.1.a.i and 3.5 D.1.a.ii are met but there are intermediate bond beams within the grout pour, limit the grout lift height to the bottom of the lowest bond beam that is more than 5.33 ft. (1.63 m) above the bottom of the lift, but do not exceed a grout lift height of 12.67 ft. (3.86 m).
2. D.1.c When the conditions of Article 3.5 D.1.a.i or Article 3.5 D.1.a.ii are not met, place grout in lifts not exceeding 5.33 ft. (1.63 m).
3. D.2.b When placed in masonry that has not cured for at least 4 hours, place in lifts not exceeding 5.33 ft. (1.63 m).

2104.6 TMS 602/ACI 530.1/ASCE 6, Article 3.2F, cleanouts. Modify the first sentence of Article 3.2F as follows:

Provide cleanouts in the bottom course of masonry for each grout pour when the grout pour height exceeds 5.33 ft. (1.63 m).

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-2104, filed 1/20/10, effective 7/1/10.]

WAC 51-50-2106 Section 2106—Construction.

2107.1 General. The design of masonry structures using allowable stress design shall comply with Sections 2106, 2107.2 and the requirements of Chapters 1 and 2 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107.3 through 2107.5.

2107.2 Load combinations. Structures and portions thereof shall be designed to resist the most critical effects resulting from the load combinations of Section 1605.3. When using the alternative load combinations of Section 1605.3.2 that include wind or seismic loads, allowable stresses are permitted to be increased by one-third.

2107.6 TMS 402/ACI 530/ASCE 5, Section 1.16.1 anchor bolts. Modify the second paragraph of Section 1.16.1 as follows:

Anchor bolts placed in the top of grouted cells and bond beams shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the bolts and the grout unit or 1/2 inch (12.7 mm) of coarse grout between the bolts and the masonry unit. Anchor bolts placed in drilled...
holes in the face shells of hollow masonry units shall be permitted to contact the masonry unit where the bolt passes through the face shell, but the portion of the bolt that is within the grouted cell shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the head or bent leg of the bolt and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the head or bent leg of the bolt and the masonry unit.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-21070, filed 1/20/10, effective 7/1/10.]

WAC 51-50-2108 Section 2108—Strength design of masonry.

2108.4 TMS 402/ACI 530/ASCE 5, Section 3.1.6. Modify Section 3.1.6 as follows:

3.1.6 Headed and bent-bar anchor bolts. All embedded bolts shall be grouted in place, except that 1/4 inch (6.4 mm) diameter bolts are permitted to be placed in bed joints that are at least 1/2 inch (12.7 mm) in thickness.

2108.5 TMS 402/ACI 530/ASCE 5, Section 1.16.1 anchor bolts. Modify the second paragraph of Section 1.16.1 as follows: Anchor bolts placed in the top of grouted cells and bond beams shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the bolts and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the bolts and the masonry unit. Anchor bolts placed in drilled holes in the face shells of hollow masonry units shall be permitted to contact the masonry unit where the bolt passes through the face shell, but the portion of the bolt that is within the grouted cell shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the head or bent leg of the bolt and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the head or bent leg of the bolt and the masonry unit.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-2108, filed 12/20/04, effective 7/1/05.]

WAC 51-50-2111 Section 2111—Masonry fireplaces.

2111.7 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 the Washington State Building Standard 31-2 (WAC 51-50-31200) and IBC Section 2114 (WAC 51-50-2114).

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.

2111.7.1 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. 10-03-097, § 51-50-2111, filed 1/20/10, effective 7/1/10.]

WAC 51-50-2114 Section 2114—Emission standards.

2114.1 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 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.


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.

2114.3 Composite Fireplaces. A composite fireplace shall be certified as a factory-built fireplace.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-2114, filed 12/20/10, effective 7/1/11.]

WAC 51-50-2100 Chapter 24—Glass and glazing.

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...
2902.1 Number of fixtures.

2902.1.1 Private offices. Fixtures only accessible to private offices shall not be counted to determine compliance with this section.

2902.1.2 Occupancy load distribution. The occupant load shall be divided equally between the sexes, unless data approved by the building official indicates a different distribution of the sexes.

2902.1.3 Food preparation areas. In food preparation, serving and related storage areas, additional fixture requirements may be dictated by health codes.

2902.1.4 Other requirements. For other requirements for plumbing facilities, see Section 1210 and Chapter 11.

2902.2 Access to fixtures.

2902.2.1 Location. Plumbing fixtures shall be located in each building or conveniently in a building adjacent thereto on the same property.

2902.2.1.1 Toilet rooms. Toilet rooms shall not open directly into a room used for the preparation of food for service to the public or residents of Group R-2 boarding homes and residential treatment facilities licensed by Washington state.

2902.2.2 Multiple tenants. Access to toilets serving multiple tenants shall be through a common use area and not through an area controlled by a tenant.

2902.2.3 Multistory buildings. Required fixtures shall not be located more than one vertical story above or below the area served.

SECTION 2903—FACILITIES.

2903.3 Facilities.

2903.3.1 Requirements. Separate toilet facilities shall be provided for each sex.

EXCEPTION: In occupancies serving 15 or fewer persons, one toilet facility designed for use by no more than one person at a time shall be permitted for use by both sexes.

2903.3.2 Food service establishments. When customers and employees share the same toilet rooms, customer access to the to the toilet rooms shall not pass through food preparation and unpackaged food storage areas.

2903.4 Pay facilities. Required facilities shall be free of charge. Where pay facilities are installed, they shall be in addition to the minimum required facilities.

2903.5 is not adopted.

SECTION 2904—SPECIAL PROVISIONS.

2904.1 Dwelling units. Dwelling units shall be provided with a kitchen sink.

2904.2 Water closet space requirements. The water closet stool in all occupancies shall be located in a clear space not less than 30 inches (762 mm) in width, with a clear space in front of the stool of not less than 24 inches (610 mm).
2904.3 Water. Each required sink, lavatory, bathtub and shower stall shall be equipped with hot and cold running water necessary for its normal operation.

2904.4 Drinking fountains.

2904.4.1 Number. Occupant loads over 30 shall have one drinking fountain for the first 150 occupants, then one per each additional 500 occupants.

EXCEPTIONS: 1. Sporting facilities with concessions serving drinks shall have one drinking fountain for each 1000 occupants.

2. A drinking fountain need not be provided in a drinking or dining establishment.

2904.4.2 Multistory buildings. Drinking fountains shall be provided on each floor having more than 30 occupants in schools, dormitories, auditoriums, theaters, offices and public buildings.

2904.4.3 Penal institutions. Penal institutions shall have one drinking fountain on each cell block floor and one on each exercise floor.

2904.4.4 Location. Drinking fountains shall not be located in toilet rooms.

<table>
<thead>
<tr>
<th>TYPE OF BUILDING OR OCCUPANCY</th>
<th>WATER CLOSETS (fixtures per person)</th>
<th>LAVATORIES (fixtures per person)</th>
<th>BATHTUB OR SHOWER (fixtures per person)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MALE</td>
<td>FEMALE</td>
<td>MALE</td>
</tr>
<tr>
<td>For the occupancies listed below, use 30 square feet (2.79 m²) per occupant for the minimum number of plumbing fixtures.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A Assembly places—</td>
<td>1:1-25</td>
<td>1:1-25</td>
<td>One per 2 water closets</td>
</tr>
<tr>
<td>Conference rooms, dining</td>
<td>2:26-75</td>
<td>2:26-75</td>
<td></td>
</tr>
<tr>
<td>rooms, drinking establish-</td>
<td>3:76-125</td>
<td>3:76-125</td>
<td></td>
</tr>
<tr>
<td>ments, exhibit rooms, gym-</td>
<td>4:126-200</td>
<td>4:126-200</td>
<td></td>
</tr>
<tr>
<td>nasi ums, lounges, stages and</td>
<td>5:201-300</td>
<td>5:201-300</td>
<td></td>
</tr>
<tr>
<td>similar uses including res-</td>
<td>6:301-400</td>
<td>6:301-400</td>
<td></td>
</tr>
<tr>
<td>taurants classified as Group B Occupancies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly places—</td>
<td>1:1-100</td>
<td>One per 25</td>
<td></td>
</tr>
<tr>
<td>Theaters, auditoriums, con-</td>
<td>2:101-200</td>
<td>Up to 400</td>
<td></td>
</tr>
<tr>
<td>vention halls, dance floors,</td>
<td>3:201-400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lodge rooms, casinos, and</td>
<td>Over 400, add one fixture for each additional 250 males or 50 females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>such places which have lim-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ited time for fixture use (inter-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>missions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly places—</td>
<td>1:1-100</td>
<td>One per 50</td>
<td></td>
</tr>
<tr>
<td>Stadiums, arena and other</td>
<td>2:101-200</td>
<td>Up to 400</td>
<td></td>
</tr>
<tr>
<td>sporting facilities where</td>
<td>3:201-400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fixture use is not limited to</td>
<td>Over 400, add one fixture for each additional 300 males or 100 females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>intermissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly places—</td>
<td>1:1-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal assembly area</td>
<td>2:16-35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational &amp; activity unit</td>
<td>3:36-55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One per 150</td>
<td>One per 75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One per 125</td>
<td>One per 75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the occupancies listed below, use 200 square feet (18.58 m²) per occupant for the minimum number of plumbing fixtures.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group B and other clerical or administrative employee accessory use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group E Schools - for staff use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All schools (One staff per 20 students)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools - for student use</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 2902.1—MINIMUM PLUMBING FIXTURES

Worship places

Educational & activity unit

Group B

and other clerical or administrative employee accessory use

Group E

Schools - for staff use

All schools (One staff per 20 students)

Schools - for student use

For the assembly occupancies listed below, use the number of fixed seating or, where no fixed seating is provided, use 15 square feet (1.39 m²) per occupant for the minimum number of plumbing fixtures.

For the assembly occupancies listed below, use the number of fixed seating or, where no fixed seating is provided, use 30 square feet (2.79 m²) per occupant for the minimum number of plumbing fixtures.

For the assembly occupancies listed below, use 30 square feet (2.79 m²) per occupant for the minimum number of plumbing fixtures.

For the assembly occupancies listed below, use 100 square feet (9.3 m²) per student for the minimum number of plumbing fixtures.
For the occupancies listed below, use 50 square feet (4.65 m²) per occupant for the minimum number of plumbing fixtures.

**Education facilities other than Group E**
- Others (colleges, universities, adult centers, etc.): One per 40, one per 25, one per 2 water closets

For the occupancies listed below, use 2,000 square feet (185.8 m²) per occupant for the minimum number of plumbing fixtures.

**Group F and Group H**
- Workshop, foundries and similar establishments, and hazardous occupancies: One per 2 water closets
- For persons exposed to excessive heat or to skin contamination with irritating materials: One shower for each 15 persons

For the occupancies listed below, use the designated application and 200 square feet (18.58 m²) per occupant of the general use area for the minimum number of plumbing fixtures.

**Group I**
- Hospital waiting rooms: One per room (usable by either sex)
- Hospital general use areas: One per 2 water closets
- Hospital patient rooms:
  - Single Bed: One adjacent to and directly accessible from
  - Isolation: One adjacent to and directly accessible from
  - Multibed: One per 4 patients
  - Long-term: One per 4 patients
- Jails and reformatories:
  - Cell: One per cell
  - Exercise room: One per exercise room
- Other institutions (on each occupied floor): One per 2 water closets

For the occupancies listed below, use 200 square feet (18.58 m²) per occupant for the minimum number of plumbing fixtures.

**Group M**
- Retail or wholesale stores: One per 2 water closets

For Group R Occupancies containing dwelling units or guest rooms, use the table below. For dormitories, use 200 square feet (18.58 m²) per occupant for the minimum number of plumbing fixtures.

**Group R**
- Dwelling units: One per dwelling unit
- Hotel, motel, and boarding house guest rooms: One per guest room
### TYPE OF BUILDING OR OCCUPANCY<sup>5</sup> | WATER CLOSETS<sup>3</sup> (fixtures per person) | LAVATORIES<sup>5</sup> (fixtures per person) | BATHTUB OR SHOWER (fixtures per person)
---|---|---|---
Boarding homes licensed by the department of social and health services | One per 8 | One per 8 | One per 12
Dormitories | One per 8 | One per 8 | One per 8
Over 10, add one fixture for each additional 25 males and over 8, add one for each additional 20 females | One per 12 | One per 12 | One per 8
For females, add one additional unit per each additional 30. Over 150 persons, add one additional unit per each additional 20 persons

For the occupancies listed below, use 5,000 square feet (464.5 m²) per occupant for the minimum number of plumbing fixtures.

<table>
<thead>
<tr>
<th>Group S</th>
<th>Warehouses</th>
<th>One per 8</th>
<th>One per 8</th>
<th>One per 8</th>
<th>One per 8</th>
<th>One per 8</th>
<th>One per 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1-10</td>
<td>1:1-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:11-25</td>
<td>2:11-25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:26-50</td>
<td>3:26-50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:51-75</td>
<td>4:51-75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:76-100</td>
<td>5:76-100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 100, add one for each 30 persons</td>
<td>One per 40 occupants of each sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The figures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction thereof.<sup>2</sup>

3. Where urinals are provided, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced to less than one quarter (25%) of the minimum specified. For men's facilities serving 26 or more persons, not less than one urinal shall be provided.<sup>4</sup>

4. For drinking fountains, see Section 2904.4.<sup>5</sup>

5. Twenty-four inches (610 mm) of wash sink or 18 inches (457 mm) of a circular basin, when provided with water outlets for such space, shall be considered equivalent to one lavatory.

6. For when a facility may be usable by either sex, see Section 2903.3.1.

7. See WAC 246-320 for definitions, other fixtures and equipment for hospitals.

8. When a space is accessory to or included as a part of a different occupancy group per Chapter 3, the area per occupant for the minimum plumbing fixture number is to be determined by its own specific use or purpose, not by that of the building's occupancy group.<sup>8</sup>

9. In multiplex movie theaters, where shows are scheduled at different times, the number of occupants for toilet fixture use may be based upon one-half (50%) of the total in all the auditoriums, but no less than the number in the largest auditorium.

---

**2009 International Building Code**

**WAC 51-50-3004 Section 3004—Hoistway venting.**

#### 3004.3 Area of vents. Except as provided for in Section 3004.3, the area of the vents shall not be less than 3 1/2 percent of the area of the hoistway nor less than 3 square feet (0.28 m²) for each elevator car, and not less than 3 1/2 percent nor less than 0.5 square feet (0.047 m²) for each dumbwaiter car in the hoistway, whichever is greater. The total required vent area shall be equipped with dampers that remain powered closed until activated open by the fire alarm system panel. The dampers shall open upon loss of power.

**WAC 51-50-3006 Section 3006—Machine rooms.**

#### 3006.2 Venting. Machinery spaces, machine rooms, control spaces, and control rooms that contain solid-state equipment for elevator operation shall be provided with an independent ventilation or air-conditioning system to protect against the overheating of the electrical equipment. Ventilation systems shall use outdoor make up air. The system shall service the equipment space only, and shall be capable of maintaining the temperature and humidity within the range established by the manufacturer's specifications. Where no manufacturer specifications are available, the equipment space temperature shall be maintained at no less than fifty-five degrees Fahrenheit and no more than ninety degrees Fahrenheit.
The cooling load for the equipment shall include the BTU output of the elevator operation equipment as specified by the manufacturer based on one hour of continuous operation. The outdoor design temperature for ventilation shall be

\[ \text{CFM} = \frac{\text{BTU output of elevator machine room equipment}}{[1.08 \times \text{(acceptable machine room temp - make up air temp)}]} \]

**EXCEPTION:** For buildings four stories or less, natural or mechanical means may be used in lieu of an independent ventilation or air-conditioning system to keep the equipment space ambient air temperature and humidity in the range specified by the elevator equipment manufacturer.

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-3006, filed 12/19/06, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-3006, filed 12/17/03, effective 7/1/04.]

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

**WAC 51-50-3103** Temporary structures.

**3103.1 General.** The provisions of this section shall apply to structures erected for a period of less than one hundred eighty days. Tents and other membrane structures erected for a period of less than one hundred eighty days shall comply with the International Fire Code. Those erected for a longer period of time shall comply with applicable sections of this code.

**EXCEPTION:** The building official may authorize unheated tents and yurts under five hundred square feet accommodating an R-1 Occupancy for recreational use as a temporary structure and allow them to be used indefinitely.

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-3103, filed 12/19/06, effective 7/1/07.]

**WAC 51-50-3108** Section 3108—Telecommunications and broadcast towers.

**3108.1 General.** Towers shall be designed and constructed in accordance with the provisions of TIA-222. In Section 2.6.6.2, the extent of Topographic Category 2, escarpments, shall extend 16 times the height of the escarpment. Towers shall be designed for seismic loads. The exceptions to the requirements of seismic design listed in Section 2.7.3 shall not apply. Class I structures per Table 2-1 of the standard may be exempted from seismic design, if approved by the building official.

**EXCEPTION:** Single free-standing poles used to support antennas not greater than 75 feet (22,860 mm), measured from the top of the pole to grade, shall not be required to be noncombustible.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-3103, filed 12/20/10, effective 7/1/10.]

**WAC 51-50-3109** Section 3109—Swimming pool enclosures and safety devices.

**3109.3 Public swimming pools.** This section is not adopted. Public swimming pool barriers are regulated by WAC 246-260-031(4).

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-3109, filed 12/19/06, effective 7/1/07.]

**[Ch. 51-50 WAC—p. 22]**
CALIBRATION GAS is a known concentration of carbon dioxide (CO₂), carbon monoxide (CO), or oxygen (O₂) in nitrogen (N₂).

CERTIFICATION OR AUDIT TEST is the completion of at least one, three-fuel-load test-burn cycle in accordance with Section 31.202.

FIREBOX is the chamber in the fireplace in which a test-fuel charge(s) is placed and combusted.

FIREPLACE is a wood burning device which is exempt from U.S. EPA 40 CFR Part 60, Subpart AAA and:
1. Is not a cookstove, boiler, furnace, or pellet stove as defined in 40 CFR Part 60, Subpart AAA; and
2. Is not a masonry heater as defined in Section 31.201.

FACTORY-BUILT FIREPLACE is a listed assembly of a fire chamber, its chimney and related factory-made parts designed for unit assembly without requiring field construction. Factory-built fireplaces are not dependent on mortar-filled joints for continued safe use.

MASONRY FIREPLACE is a hearth and fire chamber of solid masonry units such as bricks, stones, masonry units or reinforced concrete provided with a suitable chimney.

FIREPLACE, CERTIFIED, is a fireplace that meets the emission performance standards when tested according to Washington State Building Code Standard 31-2.

FIREPLACE, NONCERTIFIED, (masonry or concrete) is any fireplace that is not a certified fireplace. A noncertified fireplace will be subject to applicable burn ban restrictions.

FIREPLACE DESIGN is the construction and/or fabrication specifications including all dimensions and materials required for manufacturing or building fireplaces with identical combustion function and particulate emissions factors.

FIREPLACE MODEL LINE is a series of fireplace models which all have the same internal assembly. Each model in a model line may have different facade designs and external decorative features.

INTERNAL ASSEMBLY is the core construction and firebox design which produces the same function and emissions factor for a fireplace model line.

MASONRY HEATER is a heating system of predominantly masonry construction having a mass of at least 800 kg (1760 lbs), excluding the chimney and foundation, which is designed to absorb a substantial portion of the heat energy from a rapidly burned charge of solid fuel by:
1. Routing of exhaust gases through internal heat exchange channels in which the flow path downstream of the firebox includes at least one 180 degree change in flow direction, usually downward, before entering the chimney; and
2. Being constructed of sufficient mass such that under normal operating conditions the external surface of the heater, except in the region immediately surrounding the fuel loading door(s), does not exceed 110°C (230°F).

Masonry heaters shall be listed or installed in accordance with ASTM-E1602.

RESPONSE TIME is the amount of time required for the measurement system to display 95 percent of a step change in gas concentration.

SAMPLING SYSTEM BIAS is the difference between the gas concentrations exhibited by the analyzer when a known concentration gas is introduced at the outlet of the sampling probe and when the sample gas is introduced directly to the analyzer.

SPAN is the upper limit of the gas concentration measurement range (25 percent for CO₂, O₂, and 5 percent for CO).

TEST FACILITY is the area in which the fireplace is installed, operated, and sampled for emissions.

TEST FUEL LOADING DENSITY is the weight of the as-fired test-fuel charge per unit area of usable firebox floor (or hearth).

TEST-BURN is an individual emission test which encompasses the time required to consume the mass of three consecutively burned test-fuel charges.

TEST-FUEL CHARGE is the collection of test fuel pieces placed in the fireplace at the start of certification test.

USABLE FIREBOX AREA is the floor (or hearth) area, within the fire chamber of a fireplace upon which a fire may be, or is intended to be built. Usable firebox area is calculated using the following definitions:
1. Length. The longest horizontal fire chamber dimension along the floor of the firebox that is parallel to a wall of the fire chamber.
2. Width. The shortest horizontal fire chamber dimension along the floor of the firebox that is parallel to a wall of the fire chamber.
3. For angled or curved firebox walls and/or sides, the effective usable firebox area shall be determined by calculating the sum of standard geometric areas or subareas of the firebox floor.

If a fireplace has a floor area within the fire chamber which is larger than the area upon which it is intended that fuel be placed and burned, the usable firebox area shall be calculated as the sum of standard geometric areas or subareas of the area intended for fuel placement and burning. For fireplace grates which elevate the fuel above the firebox floor, usable firebox area determined in this manner shall be multiplied by a factor of 1.5. The weight of test-fuel charges for fireplace-grate usable-firebox-area tests, shall not exceed the weight of test-fuel charges determined for the entire fireplace floor area.

ZERO DRIFT is the difference in the analyzer reading from the initial calibration response at the zero concentration level after a stated period of operation during which no unscheduled maintenance, repair, or adjustment took place.

SECTION 31.202—TESTING.

31.202.1 Applicability. This method is applicable for the certification and auditing of fireplace particulate emission factors. This method describes the test facility, fireplace installation requirements, test-fuel charges, and fireplace
operation as well as procedures for determining burn rates and particulate emission factors.

31.202.2 Principle. Particulate matter emissions are measured from a fireplace burning prepared test-fuel charges in a test facility maintained at a set of prescribed conditions.

31.202.3 Test apparatus.

31.202.3.1 Fireplace temperature monitors. Devices capable of measuring flue-gas temperature to within 1.5 percent of expected absolute temperatures.

31.202.3.2 Test facility temperature monitor. A thermocouple located centrally in a vertically oriented pipe shield 6 inches (150 mm) long, 2 inches (50 mm) diameter that is open at both ends, capable of measuring air temperature to within 1.5 percent of expected absolute temperatures.

31.202.3.3 Balance. Balance capable of weighing the test-fuel charge(s) to within 0.1 lb (0.05 kg).

31.202.3.4 Moisture meter. Calibrated electrical resistance meter for measuring test-fuel moisture to within 1 percent moisture content (dry basis).

31.202.3.5 Anemometer. Device capable of detecting air velocities less than 20 ft/min (0.10 m/sec), for measuring air velocities near the fireplace being tested.

31.202.3.6 Barometer. Mercury, aneroid or other barometer capable of measuring atmospheric pressure to within 0.1 inch Hg (2.5 mm Hg).

31.202.3.7 Draft gauge. Electromanometer or other device for the determination of flue draft (i.e., static pressure) readable to within 0.002 inches of water column (0.50 Pa).

31.202.3.8 Combustion gas analyzer. Combustion gas analyzers for measuring carbon dioxide (CO₂), carbon monoxide (CO), and oxygen (O₂) in the fireplace exhaust-gas stream must meet all of the following measurement system performance specifications:

1. Analyzer calibration error. Shall be less than ±2 percent of the span value for the zero, mid-range, and high-range calibration gases.
2. Sampling system bias. Shall be less than ±5 percent of the span value for the zero, mid-range, and high-range calibration gases.
3. Zero Drift. Shall be less than ±3 percent of the span over the period of each run.
4. Calibration drift. Shall be less than ±3 percent of the span value over the period of each run.
5. Response time. Shall be less than 1.5 minutes.

31.202.4 Emissions sampling method. Use the emission sampler system (ESS) as described in Section 31.203.12 or an equivalent method as determined by the application of the U.S. EPA Method 301 Validation Procedure (Federal Register, December 12, 1992, Volume 57, Number 250, page 11,998) and upon approval of DOE.

31.202.5 Fireplace installation and test facility requirements. The fireplace being tested must be constructed, if site-built, or installed, if manufactured, in accordance with the designer's/manufacturer's written instructions. The chimney shall have a total vertical height above the base of the fireplace of not less than 15 feet (4 600 mm). The fireplace chimney exit to the atmosphere must be freely communicating with the fireplace combustion makeup-air source. There shall be no artificial atmospheric pressure differential imposed between the chimney exit to the atmosphere and the fireplace makeup-air inlet.

31.202.6 Fireplace aging and curing. A fireplace of any type shall be aged before certification testing begins. The aging procedure shall be conducted and documented by the testing laboratory.

31.202.6.1 Catalyst-equipped fireplaces. Operate the catalyst-equipped fireplace using fuel described in Section 31.203. Operate the fireplace with a new catalytic combustor in place and in operation for at least 50 hours. Record and report hourly catalyst exit temperatures, the hours of operation, and the weight of all fuel used.

31.202.6.2 Noncatalyst-equipped fireplaces. Operate the fireplace using the fuel described in Section 31.203 for at least 10 hours. Record and report the hours of operation and weight of all fuel used.

31.202.7 Pretest preparation. Record the test-fuel charge dimensions, moisture content, weights, and fireplace (and catalyst if equipped) descriptions.

The fireplace description shall include photographs showing all externally observable features and drawings showing all internal and external dimensions needed for fabrication and/or construction. The drawings must be verified as representing the fireplace being tested and signed by an authorized representative of the testing laboratory.

31.202.8 Test facility conditions. Locate the test facility temperature monitor on the horizontal plane that includes the primary air intake opening for the fireplace. Locate the temperature monitor 3 to 6 feet (1 000 to 2 000 mm) from the front of the fireplace in the 90° sector in front of the fireplace. Test facility temperatures shall be maintained between 65° and 90°F (18° and 32°C). Use an anemometer to measure the air velocity. Measure and record the room-air velocity within 2 feet (600 mm) of the test fireplace before test initiation and once immediately following the test-burn completion. Air velocity shall be less than 50 feet/minute (250 mm/second) without the fireplace operating.

SECTION 31.203—TEST PROTOCOL.

31.203.1 Test fuel. Fuel shall be air dried Douglas fir dimensional lumber or cordwood without naturally associated bark. Fuel pieces shall not be less than 1/2 nor more than 5/6 of the length of the average fire chamber width. Fuel shall be split or cut into pieces with no cross-sectional dimension greater than 6 inches (152 mm). Spacers, if used, shall not exceed 3/4 inches (19 mm) in thickness and 15 percent of the test-fuel charge weight. Fuel moisture shall be in the range of 16 to 20 percent (wet basis) or 19 to 25 percent (dry basis) meter reading.

31.203.2 Test-fuel loading density. The wet (with moisture) minimum weight of each test-fuel charge shall be calculated by multiplying the hearth area in square feet by 7.0 pounds.
Three test-fuel charges shall be prepared for each test-burn.

31.203.3 Kindling. The initial test-fuel charge of the three test-fuel charge test-burn shall be started by using a kindling-fuel charge which is up to 50 percent of the first test-fuel charge weight. Kindling-fuel pieces can be any size needed to start the fire or whatever is recommended in the manufacturer's (builder's) instructions to consumers. The kindling-fuel charge weight is not part of the initial test-fuel charge weight but is in addition to it.

31.203.4 Test-burn ignition. The fire can be started with or without paper. If used, the weight of the paper must be included in test-fuel charge weight. The remainder of the test-fuel charge may be added at any time after kindling ignition except that the entire first test-fuel charge must be added within 10 minutes after the start of the test (i.e., the time at which the flue-gas temperature at the 8-foot (2 440 mm) level is over 25°F (14°C) greater than the ambient temperature of the test facility).

31.203.5 Test initiation. Emissions and flue-gas sampling are initiated immediately after the kindling has been ignited and when flue-gas temperatures in the center of the flue at an elevation of 8 feet (2 440 mm) above the base (floor) of the fire chamber reach 25°F (14°C) greater than the ambient temperature of the test facility.

31.203.6 Sampling parameters. Sampling (from the 8-foot (2 440 mm) flue-gas temperature measurement location) must include:

1. Particulate emissions
2. Carbon dioxide (CO$_2$)
3. Carbon monoxide (CO)
4. Oxygen (O$_2$)
5. Temperature(s)

These gases shall be measured on-line (real-time) and recorded at a frequency of not less than once every 5 minutes. These 5-minute readings are to be arithmetically averaged over the test-burn series or alternatively, a gas bag sample can be taken at a constant sample rate over the entire test-burn series and analyzed for the required gases within one hour of the end of the test-burn.

If a fireplace is equipped with an emissions control device which is located downstream from the 8-foot (2 440 mm) flue-gas temperature measurement location, a second temperature, particulate, and gaseous emissions sampling location must be located downstream from the emissions control device but not less than 4 flue diameters upstream from the flue exit to the atmosphere. The two sampling locations must be sampled simultaneously during testing for each fireplace configuration being tested.

31.203.7 Test-fuel additions and test completion. The second and third test-fuel charges for a test-burn may be placed and burned in the fire chamber at any time deemed reasonable by the operator or when recommended by the manufacturer's and/or builder's instructions to consumers.

No additional kindling may be added after the start of a test-burn series and the flue-gas temperature at the 8-foot (2 440 mm) level above the base of the hearth must always be 25°F (14°C) greater than the ambient temperature of the test facility for a valid test-burn series. Each entire test-fuel charge must be added within 10 minutes from the addition of the first piece.

A test (i.e., a three test-fuel charge test-burn series) is completed and all sampling and measurements are stopped when all three test-fuel charges have been consumed (to more than 90 percent by weight) in the firebox and the 8-foot (2 440 mm) level flue-gas temperature drops below 25°F (14°C) greater than the ambient temperature of the test facility. Within 5 minutes after the test-burn is completed and all measurements and sampling has stopped, the remaining coals and/or unburned fuel, shall be extinguished with a carbon dioxide fire extinguisher. All of the remaining coals, unburned fuel, and ash shall be removed from the firebox and weighted to the nearest 0.1 pound (0.05 kg). The weight of these unburned materials and ash shall be subtracted from the total test-burn fuel weight when calculating the test-burn burn rate. A test-burn is invalid if less than 90 percent of the weight of the total test-fuel charges plus the kindling weight have been consumed in the fireplace firebox.

31.203.8 Test-fuel charge (load) adjustments. Test-fuel charges may be adjusted (i.e., repositioned) once during the burning of each test-fuel charge. The time used to make this adjustment shall be less than 15 seconds.

31.203.9 Air supply adjustment. Air supply controls, if the fireplace is equipped with controls, may not be adjusted during any test-burn series after the first 10 minutes of startup of each fuel load. All air supply settings must be set to the lowest level at the start of a test and shall remain at the lowest setting throughout a test-burn.

31.203.10 Auxiliary fireplace equipment operation. Heat exchange blowers (standard or optional) sold with the fireplace shall be operated during all test-burns following the manufacturer's written instructions. If no manufacturer's written instructions are available, operate the heat exchange blower in the "high" position. (Automatically operated blowers shall be operated as designed.) Shaker grates, by-pass controls, afterburners, or other auxiliary equipment may be adjusted only once per test-fuel charge following the manufacturer's written instructions. Record and report all adjustments on a fireplace operational written-record.

31.203.11 Fireplace configurations. One, 3 test-fuel charge test-burn shall be conducted for each of the following fireplace operating configurations:

1. Door(s) closed, with hearth grate;
2. Door(s) open, with hearth grate;
3. Door(s) closed, without hearth grate;
4. Door(s) open, without hearth grate; and
5. With no door(s), and draft inducer on.

No test-burn series is necessary for any configuration the appliance design cannot or is not intended to accommodate. If a configuration is not tested, the reason must be submitted with the test report and the appliance label must state that the appliance cannot be used in that configuration by consumer users.

One emission factor result, or one emission factor average, as provided in Section 31.203.11.2, from each fireplace
configuration tested shall be compiled into an arithmetic average of all the configurations tested for determining compliance with the requirements of Section 31.204.2.

31.203.11.1 Closed-door(s) testing. For all closed-door test configurations, the door(s) must be closed within 10 minutes from the addition of the first test-fuel piece of each test-fuel charge in a test-burn. During a test-burn, the door(s) cannot be reopened except during test-fuel reload and adjustment as referenced in Sections 31.203.7 and 31.203.8.

31.203.11.2 Additional test-burn. The testing laboratory may conduct more than one test-burn series for each of the applicable configurations specified in Section 31.203.11. If more than one test-burn is conducted for a specified configuration, the results from at least 2/3 of the test-burns for that configuration shall be used in calculating the arithmetic average emission factor for that configuration. The measurement data and results of all tests conducted shall be reported regardless of which values are used in calculating the average emission factor for that configuration.

31.203.12 Emissions sampling system (ESS).

31.203.12.1 Principle. Figure 31-2-1 shows a schematic of an ESS for sampling solid-fuel-fired fireplace emissions. Except as specified in Section 31.202.4, an ESS in this configuration shall be used to sample all fireplace emissions. The ESS shall draw flue gases through a 15-inch (380 mm) long, 3/8-inch (10 mm) O.D. stainless steel probe which samples from the center of the flue at an elevation which is 8 feet (2440 mm) above the floor of the firebox (i.e., the hearth). A flue-gas sample shall then travel through a 3/8-inch (10 mm) O.D. Teflon® tube, and a heated U.S. EPA Method 5-type glass-fiber filter (40 CFR Part 60, Appendix A) for collection of particulate matter. The filter shall be followed by an in-line flow-through cartridge containing 20 grams of XAD-2 sorbent resin for collecting semivolatilie hydrocarbons. Water vapor shall then be removed from the sampled gas by a silica-gel trap. Flue-gas oxygen concentrations, which shall be used to determine the ratio of flue-gas volume to the amount of fuel burned, are measured within the ESS system by an electrochemical cell meeting the performance specifications presented in Section 31.202.3.8(1).

The ESS shall use a critical orifice to maintain a nominal flue-gas sampling rate of 0.035 cfm (0.0167 liters per second). The actual flow rate through each critical orifice shall be determined to within 0.000354 cubic feet (0.01 liters) per second before and after each test-burn with a bubble flow meter to document exact sampling rates. The posttest-burn critical-orifice flow-rate determinations shall be performed before the ESS is dismantled for sample recovery and clean-up. Pretest-burn and posttest-burn critical-orifice flow-rate measurements shall be within 0.0000117 cubic feet (0.00033 liters) per second of each other or the test-burn emissions results shall be invalid. Temperatures shall be monitored using type K ground-isolated, stainless steel-sheathed thermocouples.

The ESS unit shall return particle-free and dry exhaust gas to the flue via a 1/4-inch (6 mm) Teflon® line and a 15-inch (380 mm) stainless steel probe inserted into the flue. A subsample aliquot of the flue-gas sample-gas stream exiting the ESS unit, shall be pumped into a 1 cubic foot (29 liter) Tedlar® bag for measuring the average carbon dioxide, carbon monoxide, and confirmation of average oxygen concentrations for the test period. Flow to the subsample gas bag shall be controlled by a solenoid valve connected to the main pump circuit and a fine-adjust needle-controlled flow valve. The solenoid valve shall be open only when the pump is activated, allowing the subsample gas to be pumped into the gas bag at all times when the ESS pump is on. The rate of flow into the bag shall be controlled by the fine-adjust metering needle-valve which is adjusted at setup so that 4.7 to 5.2 gal (18 to 20 liters) of gas is collected over the entire 3 test-fuel charge test-burn without over-pressurizing the gas sample bag.

31.203.12.2 The data acquisition and control system. The data acquisition and control system for the ESS is shown in Figure 31-2-2. This system consists of a personal computer (PC) containing an analog-to-digital data processing board (12-bit precision), a terminal (connection) box, and specialized data acquisition and system control software (called CONLOG). For fireplace testing, the CONLOG software is configured to control, collect, and store the following data:

1. Test-period starting and ending times and dates, and total length of sampling period;
2. Pump-cycle on/off, cycle length and thermocouple (TC) cycle recording interval (frequency);
3. Temperature records, including flue-gas and ambient temperatures, averaged over preselected intervals;
4. Date, times, and weights of each added fuel load; and
5. Flue-gas oxygen measurements taken during each sample cycle.

During testing, instantaneous readings of real-time data shall be displayed on the system status screen. These data shall include the date, time, temperatures for each of the TCs, and flue-gas oxygen concentrations. The most recent 15 sets of recorded data shall also be displayed.

Flue-gas sampling and the recording of flue-gas oxygen concentrations shall only occur when flue-gas temperatures are above 25°F (14°C) greater than the ambient temperature of the test facility. Temperatures and fueling shall always be recorded at five-minute intervals regardless of flue-gas temperature. The ESS sampling-pump operating cycle shall be adjustable as described in Section 31.203.12.3.
31.203.12.3 ESS sampling-pump operating cycle. The ESS sampling-pump operating cycle shall be adjusted to accommodate variable test-fuel charge sizes, emission factors, and the length of time needed to complete a test-burn series. The sampler-pump operation shall be adjustable from 1 second to 5 minutes (100 percent) "on" for every 5-minute test-burn data-recording interval. This will allow adjustment for the amount of anticipated emissions materials that will be sampled and deposited on the ESS filter, XAD-2, and the other system components. It is recommended that the minimum sample quantities stipulated in Section 31.203.12.4 be used to calculate the appropriate pump cycle "on" and "off" periods. It should be noted that if the sampler collects too much particulate material on the filter and in the XAD-2 cartridge, the unit may fail the sample flow calibration check required at the end of each test-burn.

31.203.12.4 Minimum sample quantities. For each complete 3 test-fuel charge test-burn, the ESS must catch a minimum total particulate material mass of at least 0.231 grains (15 mg). Alternatively, the ESS must sample a minimum of 10 cubic feet (283 liters) during each 3 test-fuel charge test-burn. If this volume cannot be sampled in the test-burn time
period, two ESS samplers must be utilized to sample fireplace emissions simultaneously during each test-burn. If emissions results from the two ESSs are different by more than 10 percent of the lower emissions-factor result, the test-burn results are invalid. An arithmetic average is calculated for test-burn results when two ESSs are utilized.

31.203.12.5 Equipment preparation and sample processing procedures.

31.203.12.5.1. Prior to emissions testing, the ESS unit shall be prepared with a new, tared glass-fiber filter and a clean XAD-2 sorbent-resin cartridge. Within 3 hours after testing is completed, the stainless steel sampling probe, Teflon® sampling line, filter holder, and XAD-2 cartridge(s) shall be removed from the test site and transported to the laboratory for processing. Each component of the ESS sampler shall be processed as follows:

1. Filter: The glass fiber filter (4 inches (102 mm) in diameter) shall be removed from the ESS filter housing and placed in a petri dish for desiccation and gravimetric analysis.
2. XAD-2 sorbent-resin cartridge: The sorbent-resin cartridge shall be extracted in a Soxhlet extractor with dichloromethane for 24 hours. The extraction solution shall be transferred to a tared glass beaker and evaporated in an ambient-air dryer. The beaker with dried residue shall then be desiccated to constant weight (less than ± 0.5 mg change within a 2-hour period), and the extractable residue shall be weighed.
3. ESS hardware: All hardware components which are in the flue-gas sample stream (stainless steel probe, Teflon® sampling line, stainless steel filter housing, and all other Teflon® and stainless steel fittings) through the top of the sorbent-resin cartridge, shall be cleaned with a solvent mixture of 50 percent dichloromethane and 50 percent methanol. The cleaning solvent solutions shall be placed in tared glass beakers, evaporated in an ambient-air dryer, desiccated to constant weight (less than ± 0.5 mg change within a 2-hour period), and the extractable residue shall be weighed.

EPA Method 5H procedures (40 CFR Part 60, Appendix A) for desiccation and weighing time intervals shall be followed for steps 1 through 3 above.

31.203.12.5.2 The ESS shall be serviced both at the start and end of a fireplace test period. During installation, leak checks shall be performed; the thermocouples, fuel-weighing scale, and oxygen-cell shall be calibrated, and the data logger shall be programmed. At the end of the test period, final calibration, and leak-check procedures shall again be performed, and the ESS sampling line, filter housing, XAD-2 cartridge, sampling probe, and Tedlar® bag shall be removed, sealed, and transported to the laboratory for analysis. If the pretest and posttest leak checks of the ESS system exceed 0.00033 liters per second, the test-burn emission results shall be invalid.

31.203.12.6 Data processing and quality assurance.

31.203.12.6.1 Upon returning to the laboratory facilities, the data file (computer disk) shall be reviewed to check for proper equipment operation. The data-logger data files, log books, and records maintained by field staff shall be reviewed to ensure sample integrity.

The computer-logged data file shall be used in conjunction with the ESS particulate samples and sample-gas bag analyses to calculate the emission factor, emission rate, and fireplace operational parameters. An example ESS results report is presented in Table 31-2-A.

31.203.12.6.2 Burning period. The total burning period is calculated by:

\[ \text{Total Burning Period} = (\text{Length of each sample cycle}) \times (\text{Number of flue temperature readings over } 25^\circ F (14^\circ C) \text{ greater than the ambient temperature of the test facility}). \]

WHERE:

1. Length of each sample cycle: The time between each temperature recording as configured in the CONLOG software settings (standardized at 5 minutes).
2. Number of flue temperature readings during fireplace use: The total number of temperature readings when the calibrated temperature value was more than 25°F (14°C) greater than the ambient temperature of the test facility.

31.203.12.6.3 Particulate emissions.

31.203.12.6.3.1 ESS particulate emission factor. The equation for the total ESS particulate emission factor for each test-burn presented below produces reporting units of grams per dry kilogram of fuel burned (g/kg):

\[ \text{Particulate emission factor (g/kg)} = \frac{(\text{Particulate Catch}) \times (\text{Stoichiometric Volume}) \times (\text{Flue-gas Dilution Factor})}{(\text{Sampling Time}) \times (\text{Sampling Rate})} \]

WHERE:

1. Particulate Catch: The total mass, in grams, of particulate material caught on the filter, in the XAD-2 resin cartridge (semivolatile compounds); and in the probe clean-up and rinse solutions.
2. Stoichiometric Volume: Stoichiometric volume is the volume of dry air needed to completely combust one dry kilogram of fuel with no "excess air." This value is determined by using a chemical reaction balance between the specific fuel being used and the chemical components of air. The stoichiometric volume for Douglas fir is 86.78 cubic feet per pound (5 404 liters per dry kilogram) at 68°F (20°C) and 29.92 inches (760 mm) of mercury pressure.
3. Flue-gas Dilution Factor: The degree to which the sampled combustion gases have been diluted in the flue by air in excess of the stoichiometric volume (called excess air). The dilution factor is obtained by using the average sampled carbon dioxide and carbon monoxide values obtained from the sample gas bag analyses and the following equation:

\[ \text{Flue-Gas Dilution Factor} = 18.53 + \left( \frac{\varphi 1 - \varphi_{CO_2} + \frac{1}{2} \varphi_{CO}}{18.53 \mu \mu \times 2.37} \right) \]

\[ (\text{CO}_2 + \frac{1}{2} \text{CO}) \]
Note: Multiplying the g/kg emission factor by the burn rate (dry kg/hr) yields particulate emissions in grams per hour (g/hr). Burn rate is calculated by the following equation:

\[
\text{Burn Rate (kg/hr)} = \frac{\text{Total Fuel (kg)}}{\text{Total Burn Period (hours)}}
\]

WHERE:
Total Fuel is the total fuel added during the entire test-burn minus the remaining unburned materials at the end of the test-burn.

4. Sampling Time: The number of minutes the sampler pump operated during the total test-burn period.
5. Sampling Rate: Sampling rate is controlled by the critical orifice installed in the sampler. The actual calibrated sampling rate is used here.

31.203.12.6.3.2 EPA Method 5H particulate emissions.
ESS-measured emissions factors submitted to DOE for approval must first be converted to U.S. EPA Method 5H equivalents. The ESS particulate emissions factor results obtained in Section 31.203.12.6.1 are converted to be equivalent to the U.S. EPA Method 5H emissions factor results by the following equation:

\[
1.254 + (0.302 \times \text{PEF}) + (1.261 \times 10^{-\text{PEF}})
\]

WHERE:
PEF is the ESS-measured particulate emission factor for a test-burn.

31.203.12.6.4 CO emissions. The carbon monoxide (CO) emission factor equation produces grams of CO per dry kilogram of fuel burned. The grams per kilogram equation includes some equation components described above.

\[
\text{CO emission factor (g/kg)} = \left(\frac{\text{Fraction CO}}{100}\right) \times \left(\frac{\text{Stoichiometric Volume}}{24.45 \text{ L/mole}}\right) \times \left(\frac{\text{Dilution Factor}}{1}\right) \times \left(\frac{\text{Molecular Weight of CO}}{28 \text{ pounds per pound-mole}}\right)
\]

WHERE:
1. Fraction CO: The fraction of CO measured in the gas sampling bag.
   Note: Percent CO divided by 100 gives the fraction CO.
2. Molecular Weight of CO: The gram molecular weight of CO, 28 pounds per pound-mole (28.0 g/g-mole).
   Multiplying the results of the above equation by the burn rate (dry kg/hr) yields the grams per hour (g/hr) CO emission rate.

Table 31-2-A Example ESS Data Results Format

<table>
<thead>
<tr>
<th>ESS Emission Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Facility Location: xxxx</td>
</tr>
<tr>
<td>Test Laboratory: xxxx</td>
</tr>
<tr>
<td>Test-Burn Number: xxxx</td>
</tr>
<tr>
<td>Start Time/Date: xxxx</td>
</tr>
<tr>
<td>End Time/Date: xxxx</td>
</tr>
<tr>
<td>Fireplace Model: xxxx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Test Period 152.3 hours</td>
</tr>
<tr>
<td>Total Burn Time 64.6 hours</td>
</tr>
<tr>
<td>Flue &gt; 25 Degrees F above ambient temperature 42.4 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESS SETTINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS Sample Rate 1.004 l/min</td>
</tr>
<tr>
<td>Sample Cycle 5.0 min</td>
</tr>
<tr>
<td>Sample Time/Sample Cycle 0.443 min</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST FUEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fuel Used (wet weight) 101.3 kg</td>
</tr>
<tr>
<td>Ave. Fuel Moisture (dry basis) 17.7 %</td>
</tr>
<tr>
<td>Total Fuel Used (dry weight) 86.1 kg</td>
</tr>
<tr>
<td>Average Test-Fuel Charge 14.5 kg</td>
</tr>
<tr>
<td>Average Burn Rate 1.33 dry kg/hr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO emission factor (g/kg) = (Fraction CO) x (Stoichiometric Volume) x (Dilution Factor) x (Molecular Weight of CO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(24.45 L/mole)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PARTICULATE EMISSIONS (U.S. EPA Method 5H EQUIVALENTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram/Kilogram 2.6 g/kg</td>
</tr>
<tr>
<td>Gram/Hour 3.4 g/hr</td>
</tr>
<tr>
<td>Gram/Cubic Meter 0.06 g/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARBON MONOXIDE EMISSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram/Kilogram 48.0 g/kg</td>
</tr>
<tr>
<td>Gram/Hour 64.0 g/hr</td>
</tr>
<tr>
<td>Gram/Cubic Meter 1.25 g/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AVERAGE TEMPERATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel-Gas Temperature 135°C 275°F</td>
</tr>
<tr>
<td>Flue Exit Temperature 154°C 308°F</td>
</tr>
<tr>
<td>Test Facility Ambient Temperature 19°C 66°F</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AVERAGE FLUE-GAS CONCENTRATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flue Oxygen (SE) 18.15 %</td>
</tr>
<tr>
<td>Flue Oxygen (gas bag or analyzer) 18.05 %</td>
</tr>
<tr>
<td>Flue CO (gas bag or analyzer) 0.10 %</td>
</tr>
<tr>
<td>Flue CO₂ (gas bag or analyzer) 2.60 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BREAKDOWN OF ESS PARTICULATE SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rinse 25.5 mg</td>
</tr>
<tr>
<td>XAD 6.3 mg</td>
</tr>
<tr>
<td>Filter 15.7 mg</td>
</tr>
<tr>
<td>Blank 0.0 mg</td>
</tr>
<tr>
<td>TOTAL 47.4 mg</td>
</tr>
</tbody>
</table>

Notes: NM = Not Measured, NA = Not Applicable, NU = Not Used
Total time flue temperature greater than 25°F over ambient temperature.

31.203.13 Calibrations.

31.203.13.1 Balance. Before each certification test, the balance used for weighing test-fuel charges shall be audited by weighing at least one calibration weight (Class F) that corresponds to 20 percent to 80 percent of the expected test-fuel charge weight. If the scale cannot reproduce the value of the calibration weight within 0.1 lb (0.05 kg) or 1 percent of the expected test-fuel charge weight, whichever is greater, recalibrate the scale before use with at least five calibration weights spanning the operational range of the scale.

31.203.13.2 Temperature monitor. Calibrate the Temperature Monitor before the first certification test and semiannually thereafter.

31.203.13.3 Fuel moisture meter. Calibrate the Fuel Moisture Meter as per the manufacturer's instructions before each certification test.

31.203.13.4 Anemometer. Calibrate the anemometer as specified by the manufacturer's instructions before the first certification test and semiannually thereafter.

31.203.13.5 Barometer. Calibrate the barometer against a mercury barometer before the first certification test and semiannually thereafter.

31.203.13.6 Draft gauge. Calibrate the draft gauge as per the manufacturer's instructions; a liquid manometer does not require calibration.

31.203.13.7 ESS. The ESS shall be calibrated as specified in Section 31.203.12.1.

31.203.14 Reporting criteria. Submit both raw and reduced data for all fireplace tests. Specific reporting requirements are as follows:


31.203.14.3 Test equipment calibration and audit information. Report calibration and audit results for the test-fuel balance, test-fuel moisture meter, analytical balance, and sampling equipment including volume metering systems and gaseous analyzers.

31.203.14.4 Pretest information and conditions. Report all pretest conditions including test-fuel charge weight, fireplace temperatures, and air supply settings.

31.203.14.5 Particulate emission data. Report a summary of test results for all test-burns conducted and the arithmetically averaged emission factor for all test-burns used for certification. Submit copies of all data sheets and other records collected during the testing. Submit examples of all calculations.

31.203.14.6 Required test report information and suggested format. Test report information requirements to be provided to DOE for approval/certification of fireplaces are presented in this standard. The requirements are presented here in a recommended report format.

31.203.14.6.1 Introduction.

1. Purpose of test: Certification or audit.
2. Fireplace identification: Manufacturer, model number, catalytic/noncatalytic, and options. Include a copy of fireplace installation and operation manuals.
3. Laboratory: Name, location, and participants.
4. Test information: Date fireplace was received, date of tests, sampling methods used, and number of test-burns.

31.203.14.6.2 Summary and discussion of results.

1. Table of results: Test-burn number, burn rate, particulate emission factor (in U.S. EPA Method 5H equivalents), efficiency (if determined), and averages (indicate which test-burns are used).
2. Summary of other data: Test facility conditions, surface temperature averages, catalyst temperature averages, test-fuel charge weights, and test-burn times.
3. Discussion: Specific test-burn problems and solutions.


1. Fireplace dimensions: Volume, height, width, lengths (or other linear dimensions), weight, and hearth area.
2. Firebox configuration: Air supply locations and operation, air supply introduction location, refractory location and dimensions, catalyst location, baffle and by-pass location and operation (include line drawings and photographs).
4. Test fuel: Test fuel properties (moisture and temperature), test fuel description (include line drawings or photograph), and test fuel charge density.

31.203.14.6.4 Sampling locations. Describe sampling location relative to fireplace. Include line drawings and photographs.

31.203.14.6.5 Sampling and analytical procedures.

1. Sampling methods: Brief reference to operational and sampling procedures, and optional and alternative procedures used.
2. Analytical methods: Brief description of sample recovery and analysis procedures.

31.203.14.6.6 Quality control and assurance procedures and results.

1. Calibration procedures and results: Certification, sampling, and analysis procedures.
2. Test method quality control procedures: Leak-checks, volume-meter checks, stratification (velocity) checks, and proportionality results.

31.203.14.6.7 Appendices.

1. Results and Example Calculations. Include complete summary tables and accompanying examples of all calculations.
2. Raw Data. Include copies of all uncorrected data sheets for sampling measurements, temperature records, and sample recovery data. Include copies of all burn rate and fireplace temperature data.
3. Sampling and Analytical Procedures. Include detailed description of procedures followed by laboratory personnel in conducting the certification test, emphasizing particularly, parts of the procedures differing from the prescribed methods (e.g., DOE approved alternatives).

4. Calibration Results. Summary of all calibrations, checks, and audits pertinent to certification test results including dates.

5. Participants. Test personnel, manufacturer representatives, and regulatory observers.

6. Sampling and Operation Records. Copies of uncorrected records of activities not included on raw data sheets (e.g., fireplace door open times and durations).

7. Additional Information. Fireplace manufacturer's written instructions for operation during the certification test and copies of the production-ready (print-ready) temporary and permanent labels required in Section 31.208 shall be included in the test report prepared by the test laboratory.

31.203.14.7 References.


SECTION 31.204—APPROVAL PROCEDURE FOR FIREPLACES.

On or after the effective date of this regulation, a manufacturer or builder of a fireplace who wishes to have a fireplace model line or fireplace design designated as an approved (or certified) fireplace, shall submit to DOE for its review the following information:

31.204.1 Manufacturer name and street address, model or design identification, construction specifications, and drawings of the firebox and required chimney system.

31.204.2 A test report prepared in accordance with Section 31.203.14.6 showing that testing has been conducted by a DOE approved and U.S. EPA accredited laboratory, and that the arithmetic averaged particulate emission factors for that fireplace model line or design, tested in accordance with Washington State Building Code Standard 31-2, Section 31.202, does not exceed 7.3 g/kg (U.S. EPA Method 5H equivalent as determined in Section 31.203.12.6.3.2) for factory-built fireplace model lines or designs or 12.0 g/kg (U.S. EPA Method 5H equivalent as determined in Section 31.203.12.6.3.2) for new certified masonry fireplace model lines or designs. After January 1, 1999, particulate emission factors for factory-built and new certified masonry fireplace model lines or designs shall not exceed 7.3 g/kg (U.S. EPA Method 5H equivalents as determined in Section 31.203.12.6.3.2).

SECTION 31.205—APPROVAL OF NONTESTED FIREPLACES.

On or after the effective date of this regulation, DOE may grant approval for a fireplace model line or design that has not been tested pursuant to Section 31.204 upon submission of the following by the applicant:

31.205.1 Manufacturer name and street address, model or design identification, construction specifications, and drawings of the internal assembly system.

31.205.2 Documentation from an EPA accredited laboratory that the model is a fireplace within the definition of this regulation, has substantially the same core construction as a model already tested by a DOE approved and EPA accredited laboratory, and is substantially similar to the approved model in internal assembly design, combustion function, and probable emissions performance as listed in Section 31.204.2.

SECTION 31.206—APPROVAL THROUGH ALTERNATIVE TEST PROTOCOL.

As provided in Section 31.202.4, an alternative testing protocol may be submitted by a DOE approved and EPA accredited laboratory for acceptance by DOE as equivalent to Washington State Building Code Standard 31-2.

SECTION 31.207—APPROVAL TERMINATION.

All fireplace model line or design approvals shall terminate five years from the approval date. Previously approved fireplace model line and/or design may be granted reapproval (recertification) upon application to and review by DOE. No testing shall be required for fireplace model line or design reapprovals unless DOE determines that design changes have been incorporated into the fireplace that could adversely affect the emissions factor, or testing is otherwise stipulated by DOE.

DOE may revoke a fireplace model line or design approval certification if it is determined that the fireplaces being produced in a specific model line do not comply with the requirements of Section 31.200. Such a determination shall be based on all available evidence, including:

1. Test data from a retesting (audit test) of the original unit on which the certification test was conducted or a sample unit from the current model line;

2. A finding that the certification test was not valid;

3. A finding that the labeling of the fireplace does not comply with the requirements of Section 31.200;

4. Failure by the fireplace manufacturer (builder) to comply with reporting and recordkeeping requirements under Section 31.200;

5. Physical examination showing that a significant percentage of production units inspected are not similar in all material respects to the fireplace submitted for testing; or

6. Failure of the manufacturer to conduct a quality assurance program in conformity with Section 31.208.

Revocation of certification under this section shall not take effect until the manufacturer (builder) concerned has been given written notice by DOE setting forth the basis for
the proposed determination and an opportunity to request a hearing.

SECTION 31.208—QUALITY CONTROL.

Once within 30 days of each annual anniversary after the initial approval/certification, a DOE approved and U.S. EPA accredited laboratory shall inspect the most recently produced fireplace of an approved model line or design at its manufacturing location (site, if site-built) to document adherence to the approved/certified fireplace design specifications. If no fireplaces of an approved model line or design were produced (built) during the previous 12 months, no inspection is required.

An inspection report for each approved fireplace model line or design must be submitted to DOE within 30 days after the inspection date. The inspection report shall include, as a minimum, the model identification and serial number of the fireplace inspected, the location where the model was inspected, the names of the manufacturer's and/or builder's representatives present, the date of inspection, and a description of any changes made to the approved fireplace model line or design since the last inspection. The U.S. EPA accredited laboratory which conducts the annual quality control inspection is responsible for auditing the content and format of all labels to be applied to approved fireplaces as stipulated in 31.209.

A fireplace model line or design shall be retested in accordance with Section 31.202 if it is determined during inspection that design changes have been incorporated into the approved/certified fireplace design which adversely affect the fireplace particulate emissions factor. Design elements which can affect fireplace particulate emissions include:

1. Grate placement and height;
2. Air supply minimum and maximum controls;
3. Usable hearth area; and
4. Firebox height, width, and length dimensions.

SECTION 31.209—PERMANENT LABEL, TEMPORARY LABEL AND OWNER'S MANUAL.

31.209.1 Labels and the owner's manual. Labels and owner's manual shall be prepared and installed in all certified "FOR SALE" fireplaces as specified in U.S. EPA 40 CFR Part 60, Section 60.536. Information that shall be presented on all labels includes:

1. Manufacturer's or builder's name, address, and phone number;
2. Model number and/or name;
3. Month and year of manufacture;
4. Starting and ending dates for the 5-year approval period;
5. If a fireplace was tested and approved with an emissions control device which is not an integral part of the fireplace structure, the label shall state "The fireplace cannot be sold or installed without the specified emissions control device in place and operational";
6. On certified fireplaces the statement: "This appliance has been tested and has demonstrated compliance with Washington state amendment to the Washington State Building Code Standard 31-2 requirements."

DOE shall maintain a list of approved fireplace model lines and designs, and that list shall be available to the public.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 04-01-108, § 51-50-31200, filed 12/17/03, effective 7/1/04.]

WAC 51-50-3401 Section 3401—General.

3401.5 Alternative compliance. Work performed in accordance with the 2009 International Existing Building Code as amended in WAC 51-50-480000 shall be deemed to comply with the provisions of this chapter.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-3401, filed 1/20/10, effective 7/1/10.]

WAC 51-50-3404 Section 3404—Alterations.

3404.1 General. Except as provided by Section 3401.4 or this section, alterations to any building or structure shall comply with the requirements of the Code for new construction. Alterations shall be such that the existing building or structure is no less conforming with the provisions of this Code than the existing building or structure was prior to the alteration.

EXCEPTIONS: 1. An existing stairway shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1009.12 shall not be required to comply with the requirements of Section 1012.6 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.
3. In buildings considered existing structures on July 1, 2010, dwelling units shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-3404, filed 1/20/10, effective 7/1/10.]

WAC 51-50-3410 Section 3410—Moved structures.

3410.1 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. 10-03-097, amended and recodified as § 51-50-3410, filed 1/20/10, effective 7/1/10; 04-01-108, § 51-50-3408, filed 12/17/03, effective 7/1/04.]
WAC 51-50-3411 Section 3411—Accessibility for existing buildings.

3411.7 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. The accessible route to the primary function area shall include toilet facilities, telephones or drinking fountains serving the area of primary function.

EXCEPTIONS: 1. The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alteration 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 an existing building, facility or element.

3411.8.11 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing facilities to be accessible, an accessible family or assisted use toilet or bathing facility constructed in accordance with Section 1109.2.1 is permitted. The family or assisted use facility shall be located on the same floor and in the same area as the existing facility. The number of toilet facilities and water closets required by the State Building Code is permitted to be reduced by one, in order to provide accessible features.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-480000, filed 1/20/10, effective 7/1/07. Statutory Authority: RCW 19.27.031 and 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-480000, filed 1/20/10, effective 7/1/07. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-480000, filed 1/20/10, effective 7/1/07.]


[Statutory Authority: RCW 19.27.031 and 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-480000, filed 12/19/06, effective 7/1/07.]

INTERNATIONAL EXISTING BUILDING CODE 2009 EDITION

WAC 51-50-480101 Section 101—General.

101.4 Applicability. When requested by the permit applicant, this code shall apply to the repair, alteration, change of occupancy and relocation of buildings existing on the date of adoption of this code, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2. When compliance with this code has not been requested, compliance with the State Building Code as adopted in Title 51 WAC shall be demonstrated.

101.4.1 Buildings not previously occupied. A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall comply with the provisions of the State Building Code adopted in Title 51 WAC, for new construction or with any current permit for such occupancy.

101.4.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the International Fire Code, or as deemed necessary by the code official to mitigate an unsafe building. For the purpose of this section, "unsafe building" is not to be construed as mere lack of compliance with the current code.

101.7 Appendices. The code official is authorized to require rehabilitation and retrofit of buildings, structures, or individual structural members in accordance with the appendices of this code if such appendices have been individually adopted. Appendix A, Guidelines for the Seismic Retrofit of Existing Buildings, is hereby adopted as part of this code without any specific adoption by the local jurisdiction.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-480101, 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. 07-01-091, § 51-50-480101, filed 12/19/06, effective 7/1/07.]

WAC 51-50-480102 Section 102—Applicability.

102.4.1 Fire prevention. The provisions of the International Fire Code shall apply to matters affecting or relating to structures, processes and premises regarding: The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and the construction, extension, repair, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation except as specifically provided for in this Code.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 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. 07-01-091, § 51-50-480102, filed 12/19/06, effective 7/1/07.]

WAC 51-50-480302 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 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. 07-01-091, § 51-50-480302, filed 12/19/06, effective 7/1/07.]

WAC 51-50-480305 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-480305, 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. 07-01-091, § 51-50-480305, filed 12/19/06, effective 7/1/07.]

WAC 51-50-480307 Section 307—Change of occupancy.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-480307, 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. 07-01-091, § 51-50-480307, filed 12/19/06, effective 7/1/07.]

(12/20/11)
building is allowed to be occupied for purposes in other groups without conforming to all the requirements of the International Building Code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use. The hazard tables of Chapter 9 may be used to demonstrate the relative fire and life risk of the existing and the new proposed uses.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-480307, filed 1/20/10, effective 7/1/10.]

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

WAC 51-50-480405 Section 405—Alteration—Level 3.

405.1 Scope. Level 3 alterations apply where the work area exceeds 50% of the floor area of the building.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-480506, 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. 07-01-091, § 51-50-480506, filed 12/19/06, effective 7/1/07.]

WAC 51-50-480506 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-480506, 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. 07-01-091, § 51-50-480506, filed 12/19/06, effective 7/1/07.]

WAC 51-50-480607 Section 607—Energy conservation.

607.1 Minimum requirements. Level 1 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11 WAC).

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-480607, filed 1/20/10, effective 7/1/10.]

WAC 51-50-480704 Section 704—Fire protection.

704.1 Scope. The requirements of this section shall be limited to work areas in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.

EXCEPTION: For Level 2 alteration projects in which the fire protection requirements constitute an excessive burden, the fire protection requirements may be modified or waived by the fire code official.

704.2 Automatic sprinkler systems. Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 704.2.1 through 704.2.5. Installation requirements shall be in accordance with the International Fire Code and NFPA 13 or NFPA 13R.

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-480704, filed 12/19/06, effective 7/1/07.]

WAC 51-50-480711 Section 711—Energy conservation.

711.1 Minimum requirements. Level 2 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11 WAC).

[Ch. 51-50 WAC—p. 34]

[Statutory Authority: RCW 19.27.031 and 19.27.074. 10-03-097, § 51-50-480711, filed 1/20/10, effective 7/1/10.]
ter 2. 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.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481101, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481102, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481103, filed 12/20/10, effective 7/1/10.]

WAC 51-50-481102 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481102, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481103, filed 12/20/10, effective 7/1/10.]

WAC 51-50-481103 Section 1103—Fire safety.

1103.7 One-hour fire-resistant assemblies. Where one-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath or metal lath and plaster;

1103.9 Stairway railings. Historically significant stairways shall be accepted without complying with the handrail and guard requirements. Existing handrails and guards at all stairs shall be permitted to remain, provided they are not structurally dangerous.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481103, filed 12/20/10, effective 7/1/10/7.]

WAC 51-50-481104 Alterations.

1104.1 Accessibility requirements. The provisions of Sections 605 and 706 shall apply to buildings and facilities designated as historic structures that undergo alterations, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the professional responsible for the historical documentation of the project, the alternative requirements of Sections 1104.1.1 through 1104.1.4 for that element shall be permitted.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481104, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481104, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481104, filed 12/20/10, effective 7/1/10.]

WAC 51-50-481105 Section 1105—Change of occupancy.

1105.10 One-hour fire-resistant assemblies. Where one-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath or metal lath and plaster.

1105.14 Natural light. When it is determined by the professional responsible for the historical documentation of the project that compliance with the natural light requirements of Section 911.1 will lead to loss of historic light requirements of Section 911.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered acceptable.

[Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-481105, filed 12/19/06, effective 7/1/07.]

WAC 51-50-481106 Reserved.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481106, filed 12/20/10, effective 7/1/10. Statutory Authority: RCW 19.27.074, 19.27.020, and chapters 70.92, 19.27, and 34.05 RCW. 07-01-091, § 51-50-481106, filed 12/19/06, effective 7/1/07.]

WAC 51-50-481201 Section 1201—General.

1201.1 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.

SECTION 1202—REQUIREMENTS. This section not adopted.

[Statutory Authority: RCW 19.27.031 and 19.27.074, 10-03-097, § 51-50-481201, filed 12/20/10, effective 7/1/10.]