WASHINGTON STATE BUILDING CODE

CHAPTER 51-50 WAC

INTERNATIONAL BUILDING CODE 2018 Edition

Includes adoption of and amendments to the 2018 International Existing Building Code and ICC/ANSI A117.1-2009

Washington State Building Code Council
Effective July 1, 2020

Copies of the State Building Codes and
complete copies of the 2018 International Building Code
as published by the International Code Council
may be obtained from:

Washington Association of Building Officials
Post Office Box 7310
Olympia, Washington 98507-7310
(360) 628-8669 www.wabobookstore.org
or toll free in Washington State at (888) 664-9515

The 2018 International Building Code,
as published by the International Code Council,
may be viewed at the following website:
https://codes.iccsafe.org/content/IBC2018P4

First Edition Titled
International Building Code
Chapter 51-50 WAC

Effective July 1, 2020

Preface

Authority: The International Building Code (Chapter 51-50 WAC) is adopted by the Washington State Building Code Council pursuant to Chapters 19.27 and 70.92 RCW. These codes were first adopted by reference by the Washington State Legislature in 1974. In 1985, the Legislature delegated the responsibility of adoption and amendment of these codes to the State Building Code Council.

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

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

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

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

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

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

Amendments to the State Building Code:

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

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

A. **Amendments of Statewide Application**: On a yearly basis the State Building Code Council will consider proposals to amend the State Building Code. Unless directed by the State Legislature, federal mandates or court order, the Council will not enter formal rulemaking until 2018 as part of its consideration of adoption of the 2018 series of codes.

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

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

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

Prohibited Amendments: Residential provisions of the State Energy Code (WAC 51-11R and WAC 51-11C), Ventilation provisions in Section 408 of the Mechanical Code (WAC 51-52) and Section M1507 of the IRC (WAC 51-51); any provision of the International Building Code or International Residential Code affecting accessibility; and standards specifically adopted in Chapters 19.27 and 19.27A RCW cannot be amended by any local jurisdiction.

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

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

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

Washington State Building Code Council
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Printing Format: This version of the rules is published as a series of insert or replacement pages and is intended to be printed as a two-sided document. Each page provides instructions for installing them in the model code book. Amendments to the model code, are indicated by a double line in the margin next to the revised portions. Any portion of the model code that has been deleted in the amendment will be will be marked with (**<**) symbol.

Effective Date: These rules were adopted by the State Building Code Council on November 13, 2015. The rules are effective throughout the state on July 1, 2016. (This version of the code is based on WAC 51-50 as published in WSR 16-03-069.

Building Permit Fees: The activities of the State Building Code Council are supported by permit fees collected by each city and county. Section 19.27.085 of the State Building Code Act requires that a fee of $6.50 be imposed on each residential permit and $25.00 on each commercial building permit issued by each city and county. In addition, a fee of $2.00 per unit shall be imposed for each dwelling unit after the first unit, on each building containing more than one residential unit. For the purpose of this fee, WAC 365-110-035 defines building permits as any permit to construct, enlarge, alter, repair, move, improve, remove, convert or demolish any building or structure regulated by the Building Code. Exempt from the fee are plumbing, electrical, mechanical permits, permits issued to install a mobile/manufactured home, commercial coach or factory built structure, or permits issued pursuant to the International Fire Code.

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

These permit fees are the amounts current in January 2020. Such fees may be changed by the State Legislature.

Opinions: RCW 19.27.031 grants the council authority to render opinions relating to the building code at the request of a local code official. For the purposes of this section, the term "code official" means the local or state official, or their designee, responsible for implementation and enforcement of the specific code provision on which the opinion is requested.

At the request of a code official, the council will issue opinions relating to the codes adopted under chapters 19.27, 19.27A, and 70.92 RCW, and council amendments to the model codes. At the request of a local code official, the council may issue opinions on the applicability of WAC 51-04-030 to a local government ordinance regulating construction. Council related opinions may be developed and approved by a standing committee of the council. Opinions approved by a standing committee may be reviewed and modified by the council.

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CHAPTER 51-50 WAC
STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE

WAC 51-50-001 AUTHORITY

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

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.

WAC 51-50-003 INTERNATIONAL BUILDING CODE

The 2018 edition of the International Building Code, including Appendix E, published by the International Code Council is hereby adopted by reference with the exceptions noted in this chapter of the Washington Administrative Code.

WAC 51-50-005 INTERNATIONAL BUILDING CODE REQUIREMENTS FOR BARRIER-FREE ACCESSIBILITY

Chapter 11 and other International Building Code requirements for barrier-free access, including ICC A117.1-2009 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.

Codes referenced which are not adopted through RCW 19.27.031 or RCW 19.27A shall not apply unless specifically adopted by the authority having jurisdiction. The 2018 International Existing Buildings Code is included in the adoption of this code in Section 101.4.7 and amended in WAC 51-50-480000.

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, 2020.

WAC 51-50-009 RECYCLABLE MATERIALS, COMPOST, AND SOLID WASTE STORAGE

For the purposes of this section, the following definition shall apply:

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

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

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

Exceptions: 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.

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.

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SECTION 202—DEFINITIONS.

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.

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

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

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

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

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

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

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

Insert Facing Page 21

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

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

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

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

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

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

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

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

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

1. Any metal or wood stud wall that supports more than 100 pounds per linear foot (1459 N/m) of vertical load in addition to its own weight.
2. Any masonry or concrete, or mass timber wall that supports more than 200 pounds per linear foot (2919 N/m) of vertical load in addition to its own weight.

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303.4 Assembly Group A-3. Group A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to:

- Amusement arcades
- Art galleries more than 3,000 square feet
- Bowling alleys
- Community halls
- Courtrooms
- Dance halls (not including food or drink consumption)
- Exhibition halls
- Funeral parlors
- Greenhouses for the conservation and exhibition of plants that provide public access
- Gymnasiums (without spectator seating)
- Indoor swimming pools (without spectator seating)
- Indoor tennis courts (without spectator seating)
- Lecture halls
- Libraries
- Museums
- Places of religious worship
- Pool and billiard parlors
- Waiting areas in transportation terminals

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

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

Aircraft (manufacturing, not to include repair)
Appliances
Athletic equipment
Automobiles and other motor vehicles
Bakeries
Beverages: Over 16 percent alcohol content
Bicycles
Boats
Brooms or brushes
Business machines
Cameras and photo equipment
Canvas or similar fabric
Carpets and rugs (includes cleaning)
Clothing
Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Engines (including rebuilding)
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232m2) in area
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Marijuana processing
Metals
Millwork (sash and door)
Motion pictures and television filming (without spectators)
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products
Printing or publishing
Recreational vehicles
Refuse incineration
Shoes
Soaps and detergents
Textiles
Tobacco
Trailers
Upholstering
Wood; distillation
Woodworking (cabinet)

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

24-hour care
Custodial Care
Detoxification Facilities
Foster Care Facilities
Hospice Care Center
Hospitals and psychiatric hospitals
Incapable of self-preservation
Medical care
Nursing homes

308.2 Institutional Group I-1. Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than sixteen persons, excluding staff, who reside on a twenty-four-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.3.1 or 308.3.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers;
Assisted living facilities as licensed by Washington state under chapter 388-78A WAC;
Congregate care facilities;
Group homes;
Halfway houses;
Residential board and care facilities;
Social rehabilitation facilities;
Residential treatment facilities as licensed by Washington state under chapter 246-337 WAC.

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

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

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

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

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

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

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

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

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310.1.1 Definitions. The following terms are defined in Chapter 2:

Adult family home
Boarding house
Child care
Child care, family home
Congregate living facilities
Dormitory
Group home
Guest room
Lodging house
Personal care service
Transient

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

Apartment houses
Boarding houses (nontransient) with more than 16 occupants
Congregate living facilities (nontransient) with more than 16 occupants
Convents
Dormitories
Fraternities and sororities
Hotels (nontransient)
Live/work units
Monasteries
Motels (nontransient)
Vacation timeshare properties

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

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

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

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

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

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

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

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

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

Insert Facing Page 64

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

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

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412.8.3 Means of egress. The means of egress from heliports, helipads and helistops shall comply with the provisions of Chapter 10. Landing areas located on buildings or structures shall have two or more means of egress. For landing areas less than 60 feet in length or less than 2,000 square feet (186 m2) in area, the second means of egress is permitted to be a fire escape, alternating tread device or ladder leading to the floor below. On Group I-2 roofs with heliports or helipads and helistops, rooftop structures enclosing exit stair enclosures or elevator shafts shall be enclosed with fire barriers and opening protectives that match the rating of their respective shaft enclosures below.

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

Exceptions:

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

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

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

1. Type S - Where the means of egress contains stairs, elevators or platform lifts.
2. Type NS1 - Where one means of egress is at grade level or a ramp constructed in accordance with Section 420.7.8 is provided.
3. Type NS2 - Where two means of egress are at grade level or ramps constructed in accordance with Section 420.7.8 are provided.

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

Every closet door shall be readily openable from the inside.

Operable parts of door handles, pulls, latches, locks and other devices installed in adult family homes shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Pocket doors shall have graspable hardware available when in the closed or open position.

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

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

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

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

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

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

1. The number of care recipients housed in the smoke compartment is not greater than 30.
2. The number of care recipients served by the cooking facility is not greater than 30.
3. Only one cooking facility area is permitted in a smoke compartment.
4. The types of domestic cooking appliances permitted are limited to ovens, cooktops, ranges, warmers and microwaves.
5. The corridor is a clearly identified space delineated by construction or floor pattern, material or color.
6. The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.
7. A domestic cooking hood installed and constructed in accordance with Section 505 of the *International Mechanical Code* is provided over the cooktop or range.
8. The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and *listed* and *labeled* for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.
9. A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2.
10. An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.
11. A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.
12. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.
13. A portable fire extinguisher shall be installed in accordance with Section 906 of the *International Fire Code*.

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422.3.1 Means of egress. Where ambulatory care facilities require smoke compartmentation in accordance with Section 422.3, the fire safety evacuation plans provided in accordance with Section 1002.2 shall identify the building components necessary to support Sections 403 and 404 of the *International Fire Code*.

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SECTION 429
ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

429.1 Scope. The provisions of this section shall apply to the construction of new buildings serving Group B, Group R-1 hotel and motel only, and Group R-2 occupancies.

429.2 Required electric vehicle charging infrastructure. Where parking is provided, five percent of parking spaces shall be provided with electric vehicle charging infrastructure in compliance with Sections 427.3, 427.4 and 427.5. When the calculation of percent served results in a fractional parking space, the applicant shall round up to the next whole number.

Exception: Group R and Group B occupancies served by less than 20 on-site parking spaces.

427.3 Electrical room(s). Electrical room(s) serving parking areas shall be designed to accommodate the electrical equipment and distribution required to serve a minimum of 20 percent of the total parking spaces with 208/240 V 40-amp electric vehicle charging infrastructure.

427.4 Electric vehicle charging infrastructure. Electric vehicle charging infrastructure shall be installed meeting one of the following requirements:

1. A minimum number of 208/240 V 40-amp, electric vehicle charging stations required to serve the parking spaces specified in section 427.2. The electric vehicle charging stations shall be located to serve spaces designated for parking and charging electric vehicles, or
2. Additional service capacity, space for future meters, panel capacity or space for additional panels, and raceways for future installation of electric vehicle charging stations. The service capacity and raceway size shall be designed to accommodate the future installation of the number of 208/240 V 40-amp, electric vehicle charging stations specified in section 427.2. The raceway shall terminate at spaces designated for parking and charging electric vehicles in the future.

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

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

427.5 Electric vehicle charging infrastructure for accessible parking spaces. When electric vehicle charging infrastructure is required, one accessible parking space shall be served by electric vehicle charging infrastructure. The electric vehicle charging infrastructure may also serve adjacent parking spaces not designated as accessible parking.

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

Exceptions:

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

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TABLE 504.3
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE[a]

Occupancy Classification	Type of Construction												
	See Footnotes	Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A, B, E, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	270	180	85	85	70	60
H-1, H-2, H-3, H-5	NS[c,d]	UL	160	65	55	65	55	120	90	65	65	50	40
	S												
H-4	NS[c,d]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	140	100	85	85	70	60
I-1 Condition 1, I-3	NS[d,e]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	180	120	85	85	70	60
I-1 Condition 2, I-2	NS[d,e,f]	UL	160	65	55	65	55	65	65	65	65	50	40
	S[i]	UL	180	85									
I-4	NS[d,g]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	270	180	85	85	70	60
R[h]	NS[d]	UL	160	65	55	65	55	65	65	65	65	50	40
	S13D	60	60	60	60	60	60	60	60	60	60	50	40
	S13R	60	60	60	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	270	180	85	85	70	60

For SI: 1 foot = 304.8 mm.

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

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

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

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

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

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

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

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

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

i. I-1, Condition 2 Assisted living facilities licensed in accordance with chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC shall be permitted to use the allowable height above grade plane for Group R-2 occupancies.

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504.4.1 Stair enclosure pressurization increase. For Group R-1, R-2, and I-1 Condition 2 Assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC located in buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the maximum number of stories permitted in Section 504.4 may be increased by one provided the interior exit stairways and ramps are pressurized in accordance with Sections 909.6.3 and 909.20. Legally required standby power shall be provided in accordance with Sections 909.11 and 2702.2.16 for buildings constructed in compliance with this section and be connected to stairway shaft pressurization equipment, elevators and lifts used for accessible means of egress (if provided), elevator hoistway pressurization equipment (if provided) and other life safety equipment as determined by the authority having jurisdiction. For the purposes of this section, legally required standby power shall comply with 2017 NEC Section 701.12, options (A), (B), (C), (D), (F), or (G) or subsequent revised section number(s).

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TABLE 504.4
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a,b]

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

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TABLE 504.4—continued
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a,b]

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

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

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

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TABLE 506.2
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a,b]

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

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TABLE 506.2—continued
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a,b]

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

(continued)

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TABLE 506.2—continued
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a,b]

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

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

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
d. The NS value is only for use in evaluation of existing building area in accordance with the *International Existing Building Code*.
e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.
f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.
g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
i. The maximum allowable area for single-story nonsprinklered Group U greenhouse is permitted to be 9,000 square feet, or the allowable area shall be permitted to comply with Table C102.1 of Appendix C.

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508.4.4.1 Construction. Required separations shall be *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, so as to completely separate adjacent occupancies.

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

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509.4.1.1 Type IV-B and IV-C construction. Where Table 509 specifies a fire-resistance-rated separation, mass timber elements serving as fire barriers or a horizontal assembly in Type IV-B or IV-C construction shall be separated from the interior of the incidental use with an approved thermal barrier consisting of a minimum of 1/2 inch (12.7 mm) gypsum board or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.

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

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

Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating* provided:

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

TABLE 509
INCIDENTAL USES

Room or Area	Separation and/or Protection
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having an energy capacity greater than the threshold quantity specified in Table 1206.2 of the *International Fire Code*	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Electrical installations and transformers	See Sections 110.26 through 110.34 and Sections 450.8 through 450.48 of NFPA 70 for protection and separation requirements.
Dry type transformers over 112.5 kVA and required to be in a fire resistant room per NEC (NFPA 70) Section 450.21 (B)[a]	1 hour or provide automatic sprinkler system

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

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

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510.5 Group R-1 and R-2 buildings of Type IIIA construction. For buildings of Type IIIA construction in Groups R-1 and R-2, the maximum allowable height in Table 504.3 shall be increased by 10 feet and the maximum allowable number of stories in Table 504.4 shall be increased by one foot where the first floor assembly above the basement has a *fire-resistance rating* of not less than 3 hours and the floor area is subdivided by 2-hour *fire-resistance-rated* fire walls into areas of not more than 3,000 square feet (279 m2).

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

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

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

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

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

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

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

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

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

Building Element	Type I		Type II		Type III		Type IV				Type V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1b	0	3[a]	2[a]	2[a]	HT	1	0
Bearing walls												
Exterior[e,f]	3	2	1	0	2	2	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT	1	0
Nonbearing walls and partitions Exterior	See Table 602											
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	0	0	0	See Section 602.4.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	1 1/2	1	1	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

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

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

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

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

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

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

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TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS
BASED ON FIRE SEPARATION DISTANCE[a,d,g]

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

For SI: 1 foot = 304.8 mm.

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

a. See Section 706.1.1 for party walls.
b. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
c. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
d. For special requirements for Group H occupancies, see Section 415.6.
e. For special requirements for Group S aircraft hangars, see Section 412.3.1.
f. Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.
g. For a building containing only a Group U occupancy private garage or carport, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.
h. For a Group R-3 building of Type II-B or Type V-B construction, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.

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

602.4.1.1 Exterior protection. The outside face of exterior walls of mass timber construction shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1. All components of the exterior wall covering, shall be of noncombustible material except water resistive barriers having a peak heat release rate of less than 150 kW/m2, a total heat release of less than 20 MJ/m2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354 and having a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m2.

(Continued on Page 120a)

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

1. *Fire-retardant-treated wood* shall be permitted in:
   1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
   1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   1.3. Roof construction, including girders, trusses, framing and decking.

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

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

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

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

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

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

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

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

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

602.4.2.1 Exterior protection. The outside face of exterior walls of mass timber construction shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1. All components of the exterior wall covering shall be of noncombustible material except water resistive barriers having a peak heat release rate of less than 150 kW/m2, a total heat release of less than 20 MJ/m2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354, and having a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m2.

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

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

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

Exception: Unprotected portions of mass timber ceilings and walls complying with Section 602.4.2.2.4 and the following:

1. Unprotected portions of mass timber ceilings, including attached beams, shall be permitted and shall be limited to an area equal to 20% of the floor area in any dwelling unit or fire area; or
2. Unprotected portions of mass timber walls, including attached columns, shall be permitted and shall be limited to an area equal to 40% of the floor area in any dwelling unit or fire area; or
3. Unprotected portions of both walls and ceilings of mass timber, including attached columns and beams, in any dwelling unit or fire area shall be permitted in accordance with Section 602.4.2.2.3.
4. Mass timber columns and beams which are not an integral portion of walls or ceilings, respectively, shall be permitted to be unprotected without restriction of either aggregate area or separation from one another.

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

Insert As Page 120a

$(U_{tc}/U_{ac}) + (U_{tw}/U_{aw}) \leq 1$ **(Equation 6-1)**

where:

U_{tc} = Total unprotected mass timber ceiling areas

U_{ac} = Allowable unprotected mass timber ceiling area conforming to Section 602.4.2.2.2, Exception 1

U_{tw} = Total unprotected mass timber wall areas

U_{aw} = Allowable unprotected mass timber wall area conforming to Section 602.4.2.2.2, Exception 2

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

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

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

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

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

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

602.4.3.1 Exterior protection. The exterior side of walls of combustible construction shall be protected with noncombustible protection with a minimum assigned time of 40 minutes as determined in Section 722.7.1. All components of the exterior wall covering, shall be of noncombustible material except water resistive barriers having a peak heat release rate of less than 150 kW/m2, a total heat release of less than 20 MJ/m2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354 and having a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m2.

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

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

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

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

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

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

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

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

1. Fire-retardant-treated wood sheathing complying with Section 2303.2 and not less than 15/32 inch (12 mm) thick;
2. Gypsum board not less than 1/2 inch (12.7 mm) thick; or
3. A noncombustible material.

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703.8 Determination of noncombustible protection time contribution. The time, in minutes, contributed to the fire-resistance rating by the noncombustible protection of mass timber building elements, components, or assemblies, shall be established through a comparison of assemblies tested using procedures set forth in ASTM E119 or UL 263. The test assemblies shall be identical in construction, loading, and materials, other than the noncombustible protection. The two test assemblies shall be tested to the same criteria of structural failure.

1. Test Assembly 1 shall be without protection.
2. Test Assembly 2 shall include the representative noncombustible protection. The protection shall be fully defined in terms of configuration details, attachment details, joint sealing details, accessories and all other relevant details.

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

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

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

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

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

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704.6.1 Secondary (nonstructural) attachments to structural members. Where primary and secondary structural steel members require fire protection, secondary (nonstructural) tubular steel attachments to those structural members shall be protected with the same fire resistive rating as required for the structural member. The protection shall extend from the structural member a distance of not less than 12 inches. An open tubular attachment shall be filled with an equivalent fire protection method for a distance of 12-inch length from the structural member, or the entire length of the open tube, whichever is less.

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705.1 General. Exterior walls and projections shall comply with this section.

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

Exceptions:

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

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

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

Exception: A fire wall serving as part of an exterior wall that separates buildings having different roof levels shall be permitted to terminate at the underside of the roof sheathing, deck or slab of the lower roof, provided items 1, 2, and 3 below are met. The exterior wall above the fire wall is not required to be of *fire-resistance-rated* construction, unless required by other provisions of this code.

1. The lower roof assembly within 10 feet (3048 mm) of the *fire wall* has not less than a 1-hour *fire-resistance rating*.
2. The entire length and span of supporting elements for the rated roof assembly has a *fire-resistance rating* of not less than 1 hour.
3. Openings in the lower roof are not located within 10 feet (3048 mm) of the *fire wall*.

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

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

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

Exceptions:

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

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

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

Exceptions:

1. Where mechanically ventilated in accordance with *International Mechanical Code* Section 515 the full diameter of the chute shall extend through the roof a minimum of 3 feet (0.92 m) and terminate at a blast cap. The mechanical exhaust connection shall tap into the side of the blast cap extension above the roof.
2. Where the trash chute does not extend to the upper floor of the building below the roof the trash chute shall be permitted to gravity vent to a sidewall louver termination. The horizontal extension of the trash chute shall be the full diameter of the chute and shall be enclosed in rated construction equal to the rating of the shaft enclosure. Where the chute is mechanically ventilated in accordance with *International Mechanical Code* Section 515 the blast cap shall terminate behind the louver and the exhaust fan and duct connection will be enclosed in the rated shaft.

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716.5.9 Door closing .*Fire doors* shall be latching and self- or automatic-closing in accordance with this section.

Exceptions:

1. *Fire doors* located in common walls separating *sleeping units* in Group R-l shall be permitted without automatic- or *self-closing* devices.
2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.
3. In Group I-1, Condition 2 Assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC, fire doors in dwelling and sleeping units opening to the corridor shall be permitted without automatic or self-closing devices when all of the following conditions exist:
   - 3.1 Each floor is constantly attended by staff on a 24-hour basis and stationed on that floor;
   - 3.2 The facility is provided with an NFPA 13 sprinkler system throughout;
   - 3.3 Doors shall be equipped with positive latching;
   - 3.4 Dwelling and sleeping units are not equipped with cooking appliances;
   - 3.5 Dwelling and sleeping units shall be equipped with a smoke detection system interconnected with the smoke detection system required by Section 907.2.6.1.

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

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

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

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

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

1. Corridor walls in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and the duct is protected as a through penetration in accordance with Section 714.
2. Tenant partitions in covered and open mall buildings where the walls are not required by provisions elsewhere in the code to extend to the underside of the floor or roof sheathing, slab or deck above.
3. The duct system is constructed of approved materials in accordance with the *International Mechanical Code* and the duct penetrating the wall complies with all of the following requirements:
   3.1. The duct shall not exceed 100 square inches (0.06 m2).
   3.2. The duct shall be constructed of steel not less than 0.0217-inch (0.55 mm) in thickness.
   3.3. The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.
   3.4. The duct shall be installed above a ceiling.
   3.5. The duct shall not terminate at a wall register in the *fire-resistance-rated* wall.
   3.6. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening. The sleeve shall be secured to both sides of the wall and all four sides of the sleeve with minimum 1.5 inch by 1.5 inch by 0.060-inch (38 mm by 38 mm by 1.52 mm) steel retaining angles. The retaining angles shall be secured to the sleeve and the wall with No. 10 (M5) screws. The annular space between the steel sleeve and the wall opening shall be filled with mineral wool batting on all sides.
4. Such walls shall have a required *fire-resistance rating* of 1 hour or less, penetrated by ducted HVAC systems in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous without openings from the air-handling appliance or equipment to the air outlet and inlet terminals located on the opposite side of the wall assembly.

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

1. Two inch (51 mm) nominal lumber.
2. Two thicknesses of 1 inch (25 mm) nominal lumber with broken lap joints.
3. One thickness of 0.719 inch (18.3 mm) wood structural panels with joints backed by 0.719 inch (18.3 mm) wood structural panels.
4. One thickness of 0.75 inch (19.1 mm) particleboard with joints backed by 0.75 inch (19 mm) particleboard.
5. One half inch (12.7 mm) gypsum board.
6. One fourth inch (6.4 mm) cement-based millboard.
7. Batts or blankets of mineral wool, mineral fiber or other approved materials installed in such a manner as to be securely retained in place.
8. Cellulose insulation installed as tested for the specific application.
9. Mass timber complying with Section 2304.11.

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

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

TABLE 722.7.1(1)
PROTECTION REQUIRED FROM NONCOMBUSTIBLE COVERING MATERIAL

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

TABLE 722.7.1(2)
PROTECTION PROVIDED BY NONCOMBUSTIBLE COVERING MATERIAL

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

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

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

1. Each layer shall be attached with Type S drywall screws of sufficient length to penetrate the mass timber at least 1 inch when driven flush with the paper surface of the gypsum board.
   Exception: The third layer, where determined necessary by Section 722.7, shall be permitted to be attached with 1 inch #6 Type S drywall screws to furring channels in accordance with ASTM C645.
2. Screws for attaching the base layer shall be 12 inches on center in both directions.
3. Screws for each layer after the base layer shall be 12 inches on center in both directions and offset from the screws of the previous layers by 4 inches in both directions.
4. All panel edges of any layer shall be offset 18 inches from those of the previous layer.
5. All panel edges shall be attached with screws sized and offset as in items 1 through 4 above and placed at least 1 inch but not more than 2 inches from the panel edge.
6. All panels installed at wall-to-ceiling intersections shall be installed such that the ceiling panel(s) is installed first and the wall panel(s) is installed after the ceiling panel has been installed and is fitted tight to the ceiling panel. Where multiple layers are required, each layer shall repeat this process.
7. All panels installed at a wall-to-wall intersection shall be installed such that the panel(s) covering an exterior wall or a wall with a greater fire-resistance rating shall be installed first and the panel(s) covering the other wall shall be fitted tight to the panel covering the first wall. Where multiple layers are required, each layer shall repeat this process.
8. Panel edges of the face layer shall be taped and finished with joint compound. Fastener heads shall be covered with joint compound.
9. Panel edges protecting mass timber elements adjacent to unprotected mass timber elements in accordance with Section 602.4.2.2 shall be covered with 1 1/4 inch metal corner bead and finished with joint compound.

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

1. Galvanized nails of minimum 12 gage with a 7/16 inch head of sufficient length to penetrate the mass timber a minimum of 1 inch.
2. Screws that comply with ASTM C1002 (Type S, Type W, or Type G) of sufficient length to penetrate the mass timber a minimum of 1 inch.

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

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

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

Exceptions:

1. Portable school classrooms with an occupant load of 50 or less calculated in accordance with Table 1004.1.2, provided that the aggregate area of any cluster of portable school classrooms does not exceed 6,000 square feet (557 m2); and clusters of portable school classrooms shall be separated as required by the building code; or
2. Portable school classrooms with an occupant load from 51 through 98, calculated in accordance with Table 1004.1.2, and provided with two means of direct independent exterior egress from each classroom in accordance with Chapter 10, and one exit from each class room shall be accessible, provided that the aggregate area of any cluster of portable classrooms does not exceed 6,000 square feet (557 m2); and clusters of portable school classrooms shall be separated as required by the building code; or
3. Fire areas containing day care and preschool facilities with a total occupant load of 100 or less located at the level of exit discharge where every room in which care is provided has not fewer than one exit discharge door.

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

Exceptions:

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

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

Exceptions:

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

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

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

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

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

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

Exceptions:

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

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903.3.5.3 Underground portions of fire protection system water supply piping. The installation or modification of an underground water main, public or private, supplying a water-based fire protection system shall be in accordance with NFPA 24 and chapter 18.160 RCW. Piping and appurtenances downstream of the first control valve on the lateral or service line from the distribution main to one-foot above finished floor shall be approved by the fire *code official*. Such underground piping shall be installed by a fire sprinkler system contractor licensed in accordance with chapter 18.160 RCW and holding either a Level U or a Level 3 license. For underground piping supplying systems installed in accordance with Section 903.3.1.2, a Level 2, 3, or U licensed contractor is acceptable.

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

1. An emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6; or
2. A system developed as part of a safe school plan adopted in accordance with RCW 28A.320.125 or developed as part of an emergency response system consistent with the provisions of RCW 28A.320.126. The system must achieve all of the following performance standards:
   - 2.1 The ability to broadcast voice messages or customized announcements;
   - 2.2 Includes a feature for multiple sounds, including sounds to initiate a lock down;
   - 2.3 The ability to deliver messages to the interior of a building, areas outside of a building as designated pursuant to the safe school plan, and to personnel;
   - 2.4 The ability for two-way communications;
   - 2.5 The ability for individual room calling;
   - 2.6 The ability for a manual override;
   - 2.7 Installation in accordance with NFPA 72;
   - 2.8 Provide 15 minutes of battery backup for alarm and 24 hours of battery backup for standby; and
   - 2.9 Includes a program for annual inspection and maintenance in accordance with NFPA 72.

Exceptions:

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

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

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

Exceptions:

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

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

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907.10 NICET: National Institute for Certification in Engineering Technologies.

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

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

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

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909.6.3 Pressurized stairways and elevator hoistways. Where stairways or elevator hoistways are pressurized, such pressurization systems shall comply with the requirements of Section 909.20 of this code for stair pressurization and 909.21 of the *International Building Code and Fire Code* as necessary to determine that the stairway or elevator hoistways meets the pressurization requirements of the code. Stairway and elevator hoistway pressurization systems in high-rise buildings, underground buildings, and in airport traffic control towers shall comply with *International Building Code* and *International Fire Code* Sections 909 as smoke control systems.

Stairway pressurization systems in other than high-rise buildings, underground buildings, or airport traffic control towers are smoke control systems but shall only be required to comply with the following *International Building Code* 909 Sections: 909.1, 909.2, 909.3, 909.6 with the exception of Sections 909.6.1, 909.10 with the exception of Sections 909.10.2, 909.11 with the exception of Sections 909.11.1, 909.12 with the exception of Sections 909.12.3.2, 909.13, 909.14, 909.17, 909.18 with the exception of Sections 909.18.2 and 909.18.9, 909.19, 909.20.5 and 909.20.6. Design drawings shall include a description of system operation, the conditions for system testing and the criteria for system acceptance to achieve the code minimum performance of the smoke control system. Stairway pressurization systems shall be maintained in accordance with Section 909.20 of the *International Fire Code*.

Elevator hoistway pressurization systems in other than high-rise buildings, underground buildings, or airport traffic control towers are smoke control systems but shall only be required to comply with the following *International Building Code* 909 Sections: 909.1, 909.2, 909.3, 909.6 with the exception of Sections 909.6.1, 909.10 with the exception of Sections 909.10.2, 909.11 with the exception of Sections 909.11.1, 909.12 with the exception of Sections 909.12.3.2, 909.13, 909.14, 909.17, 909.18 with the exception of Sections 909.18.2 and 909.18.9, 909.19, and 909.21 with the exception of Sections 909.21.2, 909.21.9, and 909.21.10. Design drawings shall include a description of system operation, the conditions for system testing and the criteria for system acceptance to achieve the code minimum performance of the smoke control system. Elevator hoistway pressurization systems shall be maintained in accordance with Section 909.20 of the *International Fire Code*.

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909.21.12 Hoistway venting. Hoistway venting need not be provided for pressurized elevator shafts.

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

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

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

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

Exceptions:

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

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

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

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

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

Exceptions:

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

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

Exceptions:

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

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

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

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

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

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

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

Exceptions:

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

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TABLE 1004.5
MAXIMUM FLOOR AREA ALLOWANCE PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Billiard table/game table area	50 gross
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	
Concentrated (chairs only - not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	
Concentrated business use areas	150 gross (See Section 1004.8)
Courtrooms - Other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mall buildings - Covered and open	See Section 402.8.2
Mercantile	60 gross
Storage, stock, shipping areas	300 gross
Group M art gallery	30 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.

a. Floor area in square feet per occupant.

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1006.2.1 Egress based on occupant load and common path of egress travel distance. Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1. The cumulative occupant load from adjacent rooms, areas or spaces shall be determined in accordance with Section 1004.2.

Exceptions:

1. The number of exits from foyers, lobbies, vestibules or similar spaces need not be based on cumulative occupant loads for areas discharging through such spaces, but the capacity of the exits from such spaces shall be based on applicable cumulative occupant loads.
2. Care suites in Group I-2 occupancies complying with Section 407.4.
3. Unoccupied mechanical rooms and penthouses are not required to comply with the common path of egress travel distance measurement.

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TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL ≥ 30	
A[c], E[h], M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d], I-4	10	NP	NP	75[b]
I-3	10	NP	NP	100[a]
R-1	10	NP	NP	75[a]
R-2	20	NP	NP	125[a]
R-3[e]	20	NP	NP	125[a,g]
R-4[e]	20	NP	NP	125[a,g]
S[f]	29	100	75	100[a]
U	49	100	75	75[a]

For SI: 1 foot = 304.8 mm.
NP = Not Permitted.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
b. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.
c. For a room or space used for assembly purposes having fixed seating, see Section 1029.8.
d. For the travel distance limitations in Group I-2, see Section 407.4.
e. The common path of egress travel distance shall only apply in a Group R-3 occupancy located in a mixed occupancy building.
f. The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet.
g. For the travel distance limitations in Groups R-3 and R-4 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3, see Section 1006.2.2.6.
h. Day care facilities, rooms or spaces where care is provided for more than 10 children that are 2 1/2 years of age or less, shall have access to not less than two exits or exit access doorways.

1006.2.2.4 Group I-4 means of egress. This section is not adopted.

1006.2.2.6 Electrical equipment rooms. Rooms containing electrical equipment shall be provided with a second exit or exit access doorways as required by NFPA 70 Article 110 where all of the following apply:

1. The electrical equipment is rated at 1,200 amperes or more.
2. The electrical equipment is over 6 feet (1829 mm) wide.
3. The electrical equipment contains overcurrent devices, switching devices or control devices.

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1006.3.3 Single exits. A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access travel distance within the portion of the building served by the single exit do not exceed the values in Table 1006.3.3(1) or 1006.3.3(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.
4. Groups R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit.
5. Individual single-story or multistory dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that both of the following criteria are met:
   5.1. The dwelling unit complies with Section 1006.2.1 as a space with one means of egress.
   5.2. Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits

TABLE 1006.3.3(1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second, or third story above grade plane	R-2[a,b]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP = Not Permitted. NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1030.

b. This table is used for R-2 occupancies consisting of dwelling units. For R-2 occupancies consisting of sleeping units, use Table 1006.3.3(2).

TABLE 1006.3.3(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plan	A, B[b], E, F[b], M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a,c]	10	75
	S[b,d]	29	75
Second story above grade plane	B, F, M, S	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP = Not Permitted. NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.1.2 and provided with emergency escape and rescue openings in accordance with Section 1030.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum exit access travel distance of 100 feet.

c. This table is used for R-2 occupancies consisting of sleeping units. For R-2 occupancies consisting of dwelling units, use Table 1006.3.3(1).

d. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

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1008.2.3 Exit discharge. This subsection not adopted.

1009.1 Accessible means of egress required. Accessible *means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one accessible *means of egress*. Where more than one *means of egress* is required by Section 1006.2 or 1006.3 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two accessible *means of egress*.

Exceptions:

1. Accessible *means of egress* are not required to be provided in existing buildings.
2. One accessible *means of egress* is required from an *accessible mezzanine* level in accordance with Section 1009.3, 1009.4 or 1009.5.
3. In assembly areas with ramped *aisles* or stepped *aisles*, one accessible *means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section 1029.8.
4. In parking garages, accessible means of egress are not required to serve parking areas that do not contain accessible parking spaces.

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1009.2.1 Elevators required. In buildings where a required accessible floor or accessible occupied roof is four or more stories above or below a level of exit discharge, not less than one required accessible means of egress shall be an elevator complying with Section 1009.4.

Exceptions:

1. In buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a horizontal exit and located at or above the levels of exit discharge.
2. In buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a ramp conforming to the provisions of Section 1012.

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1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* that provide a direct path of egress travel to grade or the level of exit discharge conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.
6. Two-way communication systems are not required in Group I-2 irI-3 facilities.

1009.8.1 System requirements. Two-way communication systems shall provide communication between each required location and the *fire command center* or a central control point location *approved* by the fire department. Where the central control point is not a *constantly attended location*, a two-way communication system shall have a timed automatic telephone dial-out capability to a monitoring location. 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.

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1010.1.9.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side, provided:
   2.1. The locking device is readily distinguishable as locked;
   2.2. A readily visible and durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and
   2.3. The use of the key-operated locking device is revocable by the building official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices are openable from the inside without the use of a key or a tool.
5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.
6. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.
7. Approved, listed locks without delayed egress shall be permitted in Group I-1 condition 2 assisted living facilities licensed by the state of Washington, provided that:
   7.1. The clinical needs of one or more patients require specialized security measures for their safety.
   7.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
   7.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.
   7.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.
   7.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.
8. Other than egress courts, where occupants must egress from an exterior space through the building for means of egress, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:
   8.1. The occupant load of the occupied exterior area shall not exceed 300 as determined by IBC Section 1004.
   8.2. The maximum occupant load shall be posted where required by Section 1004.9. Such sign shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the exit access doorways.
   8.3. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.
   8.4. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.
   8.5. A clear window or glazed door opening, not less than 5 square feet (0.46 m2) sq. ft. in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.
   8.6. A readily visible durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating: THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED. The letters on the sign shall be not less than 1 inch high on a contrasting background.
9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual dwelling or sleeping units.
10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet or less, serving a private office space.

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1010.1.9.7 Controlled egress doors in Groups I-1 and I-2. Electric locking systems, including electromechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors are installed and operate in accordance with all of the following:

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.
4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.
5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.
6. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.
7. Emergency lighting shall be provided at the door.
8. The door locking system units shall be listed in accordance with UL 294.

Exceptions:

1. Items 1 through 4 and 6 shall not apply to doors to areas where persons, which because of clinical needs, require restraint or containment as part of the function of a psychiatric treatment area provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
2. Items 1 through 4 and 6 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

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1010.1.10 Panic and fire exit hardware. Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

Exceptions:

1. A main exit of a Group A occupancy shall be permitted to have locking devices in accordance with Section 1010.1.9.4, Item 2.
2. Doors provided with panic hardware or fire exit hardware and serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9 or 1010.1.9.10.
3. Exit access doors serving occupied exterior areas shall be permitted to be locked in accordance with Section 1010.1.9.4, Item 7.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel.

1010.1.10.3 Electrical rooms and working clearances. Exit and exit access doors serving electrical rooms and working spaces shall swing in the direction of egress travel and shall be equipped with panic hardware or fire exit hardware where such rooms or working spaces contain one or more of the following:

1. Equipment operating at more than 600 volts, nominal.
2. Equipment operating at 600 volts or less, nominal and rated at 800 amperes or more, and where the equipment contains overcurrent devices, switching devices or control devices.

Exception: Panic and fire exit hardware is not required on exit and exit access doors serving electrical equipment rooms and working spaces where such doors are not less than twenty-five feet (7.6 m) from the nearest edge of the electrical equipment.

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1011.7 Stairway construction. Stairways shall be built of materials consistent with the types permitted for the type of construction of the building.

Exceptions:

1. Wood handrails shall be permitted in all types of construction.
2. Interior exit stairway in accordance with Section 510.2.

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1011.17 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m2) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1011.

1012.1 Scope. The provisions of this section shall apply to ramps used as a component of a *means of egress*.

Exceptions:

1. Ramped *aisles* within assembly rooms or spaces shall conform with the provisions in Section 1029.13.
2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian *exit access* shall not be required to comply with Sections 1012.3 through 1012.10 where they are not an *accessible route* serving *accessible* parking spaces, other required *accessible* elements, or part of an accessible *means of egress*.
4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections 1012.5, 1012.6, and 1012.9. A landing complying with Sections 1012.6.1 and 1012.6.4 shall be provided at any change of direction in the accessible means of egress.

1019.3 Occupancies other than Groups I-2 and I-3. In other than Groups I-2 and I-3 occupancies, floor openings containing exit access stairways or ramps shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

Exceptions:

1. Exit access stairways and ramps that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
3. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. Exit access stairways and ramps in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. Exit access stairways and ramps within an atrium complying with the provisions of Section 404.
6. Exit access stairways and ramps in open parking garages that serve only the parking garage.
7. Exit access stairways and ramps serving smoke-protected or open-air assembly seating complying with the exit access travel distance requirements of Section 1029.7.
8. Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums, and sports facilities.

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1020.4 Dead ends. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead-end corridors do not exceed 20 feet (6096 mm) in length.

Exceptions:

1. In Group I-3, Condition 2, 3 or 4, occupancies, the dead end in a corridor shall not exceed 50 feet (15,240 mm).
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet (15,240 mm).
3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.
4. In Group I-2, Condition 2 occupancies, the length of dead end corridors that do not serve patient rooms or patient treatment spaces shall not exceed 30 feet (9144 mm).

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1020.5 Air movement in corridors. Corridors shall not serve as supply, return, exhaust, relief, or ventilation air ducts.

Exceptions:

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
3. Where located within tenant spaces of one thousand square feet (93 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 and sleeping units subject to the following:
   - 6.1 The air supplied to the corridor is one hundred percent outside air; and
   - 6.2 The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and
   - 6.3 For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors which shall be spaced at no more than thirty feet (9,144 mm) on center along the corridor; or
   - 6.4 For high-rise buildings, corridor smoke detector activation will close required smoke/fire dampers at the supply inlet to the corridor at the floor receiving the alarm.

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1023.2 Construction. Enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707 or *horizontal* assemblies constructed in accordance with Section 711, or both. Interior exit stairway and ramp enclosures shall have a *fire-resistance rating* of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but not any mezzanines. Interior exit stairways and ramps shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours.

Exceptions:

1. Interior exit stairways and ramps in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.
2. Interior exit stairways within an atrium enclosed in accordance with Section 404.6.
3. Interior exit stairway in accordance with Section 510.2.

1023.5 Penetrations. Penetrations into or through interior exit stairways and ramps are prohibited except for the following:

1. Equipment and ductwork necessary for independent ventilation or pressurization;
2. Fire protection systems;
3. Security systems;
4. Two-way communication systems;
5. Electrical raceway for fire department communication systems;
6. Electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m);
7. Structural elements supporting the interior exit stairway or ramp or enclosure, such as beams or joists.

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1023.11 Smokeproof enclosures. Where required by Section 403.5.4, 405.7.2 or 412.2.2.1, interior exit stairways and ramps shall be smokeproof enclosures in accordance with Section 909.20. Where interior exit stairways and ramps are pressurized in accordance with Section 909.20.5, the smoke control pressurization system shall comply with the requirements specified in Section 909.6.3.

Insert Facing Page 290

1024.8 Exit passageway exterior walls. Exterior walls of the exit passageway shall comply with Section 705. Where nonrated walls or unprotected openings enclose the exterior of the exit passageway and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the building exterior walls within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a *fire-resistance rating* of not less than 1 hour. Openings within such exterior walls shall be protected by opening protectives having a *fire-protection rating* of not less than 3/4 hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor of the exit passageway, or to the roof line, whichever is lower.

Insert Facing Page 291

1030.6 Drainage. Window wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section 1805.4.2 or by an approved alternative method.

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

1101.2.1 (ICC A117.1 Section 403.5) Clear width of accessible route. Clear width of an accessible route shall comply with ICC A117.1 Section 403.5. For exterior routes of travel, the minimum clear width shall be 44 inches (1118 mm).

1101.2.2 (ICC A117.1 Section 404.2.8) Door-opening force. Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

1. Interior hinged door: 5.0 pounds (22.2 N) maximum
2. Interior sliding or folding doors: 5.0 pounds (22.2 N) maximum
3. Exterior hinged, sliding or folding door: 10 pounds (44.4 N) maximum.

Exception: Interior or exterior automatic doors complying with Section 404.3 of ICC ANSI A117.1.

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

1101.2.3 (ICC A117.1 Section 407.4.6.2.2) Arrangement of elevator car buttons. Buttons shall be arranged with numbers in ascending order. When two or more columns of buttons are provided they shall read from left to right.

1101.2.4 (ICC ANSI A117.1 606.7) Operable parts. Operable parts on drying equipment, towel or cleansing product dispensers, and disposal fixtures shall comply with Table 603.6.

1101.2.5 (ICC A117.1 Section 604.6) Flush controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309, except the maximum height above the floor shall be 44 inches. Flush controls shall be located on the open side of the water closet.

Exception: In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

1101.2.6 (ICC A117.1 Section 703.6.3.1) International Symbol of Accessibility. Where the International Symbol of Accessibility is required, it shall be proportioned complying with ICC A117.1 Figure 703.6.3.1. All interior and exterior signs depicting the International Symbol of Accessibility shall be white on a blue background.

1101.2.7 (ICC A117.1 Section 502.2) Vehicle space size. Car and van parking spaces shall be 96 inches (2440 mm) minimum in width.

1101.2.8 (ICC A117.1 Section 502.4.2) Access aisle width. Access aisles serving car parking spaces shall be 60 inches (1525 mm) minimum in width. Access aisles serving van parking spaces shall be 96 inches (2440 mm) minimum in width.

1101.2.9 (ICC A117.1 Section 502.7) Identification. Accessible parking spaces shall be indicated by a vertical sign. The signs shall include the International Symbol of Accessibility complying with section 703.6.3.1. Such symbol shall be white on a blue background. Signs identifying van parking spaces shall contain the designation "van accessible." The sign may include additional language such as, but not limited to, an indication of the amount of the monetary penalty defined in RCW 46.19.050 for parking in the space without a valid permit. A vertical "no parking" sign shall be erected at the head of each access aisle located adjacent to an accessible parking space. The sign may include additional language such as, but not limited to, an indication of any penalty for parking in an access aisle. Such signs shall be 60 inches (1525 mm) minimum above the floor of the parking space, measured to the bottom of the sign.

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1105.1.8 Automatic doors. In facilities with the occupancies and building occupant loads indicated in Table 1105.1.8, all public entrances that are required to be accessible shall have one door be either a full power-operated door or a low-energy power-operated door. Where the public entrance includes a vestibule, at least one door into and one door out of the vestibule shall meet the requirements of this section.

TABLE 1105.1.8[a]
PUBLIC ENTRANCE WITH POWER-OPERATED DOORS[a]

Occupancy	Building Occupant Load Greater Than
A-1, A-2, A-3, A-4	300
B, M, R-1	500

a. In mixed-use facilities containing occupancies listed, when the total sum of the occupant load is greater than those listed, the most restrictive building occupant load shall apply.

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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.

Exceptions:

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.

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1107.5.1 Group I-1. Accessible units and Type B units shall be provided in Group I-1 occupancies in accordance with Sections 1107.5.1.1 through 1107.5.1.3.

1107.5.1.1 Accessible units in Group I-1, Condition 1. In Group I-1, Condition 1, at least 4 percent, but not less than one, of the dwelling units and sleeping units shall be accessible units.

Exceptions:

1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

1107.5.1.2 Accessible units in Group I-1, Condition 2. In Group I-1, Condition 2, at least 10 percent, but not less than one, of the dwelling units and sleeping units shall be accessible units.

Exceptions:

1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

1107.5.1.3 Type B units. In structures with four or more dwelling units or sleeping units intended to be occupied as a residence, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1107.5.2 Group I-2 nursing homes. Accessible units and Type B units shall be provided in nursing homes of Group I-2, Condition 1 occupancies in accordance with Sections 1107.5.2.1 and 1107.5.2.2.

1107.5.2.1 Accessible units. At least 50 percent but not less than one of each type of the dwelling units and sleeping units shall be accessible units.

Exceptions:

1. In not more than 90 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 90 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

1107.5.2.2 Type B units. In structures with four or more dwelling units or sleeping units intended to be occupied as a residence, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1107.5.4 Group I-2 rehabilitation facilities. In hospitals and rehabilitation facilities of Group I-2 occupancies that specialize in treating conditions that affect mobility, or units within either that specialize in treating conditions that affect mobility, 100 percent of the dwelling units and sleeping units shall be accessible units.

Exceptions:

1. In not more than 50 percent of the accessible units, water closets shall not be required to comply with ICC A117.1 where such water closets comply with Section 1109.2.2.
2. In not more than 50 percent of the accessible units, roll-in-type showers shall not be required to comply with ICC A117.1 where roll-in-type showers comply with Section 1109.2.3.

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1107.6.2.2.1 Type A units. In Group R-2 Occupancies containing more than 10 dwelling units or sleeping units, at least 5 percent, but not less than one, of the units shall be a Type A unit. All units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units, as described in Section 1107.6. Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units. Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*.

Exceptions:

1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.
2. Existing structures on a site shall not contribute to the total number of units on a site.

1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents. In Group R-2 Occupancies, other than live/work units, apartment houses, monasteries and convents falling within the scope of Sections 1107.6.2.1 and 1107.6.2.2, accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.3.1 and 1107.6.2.3.2. Bedrooms within congregate living facilities shall be counted as sleeping units for the purpose of determining the number of units. Where the sleeping units are grouped into suites, only one sleeping unit in each suite shall be permitted to count towards the number of required accessible units. Accessible units shall be dispersed among the various classes of units, as described in Section 1107.6.

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1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1109.2.3, 1109.2.4 and 1109.2.5 at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

Exceptions:

1. Toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, shall be permitted to comply with the specific exceptions in ICC A117.1.
2. This section is not applicable to toilet and bathing rooms that serve dwelling units or sleeping units that are not required to be accessible by Section 1107.
3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible. Where these rooms are designated as gender-neutral, the total number of accessible toilet or bathing rooms shall not be less than the sum of required accessible separate male plus female rooms.
4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be accessible.
5. Toilet rooms or bathing rooms that are part of critical care or intensive care patient sleeping rooms serving accessible units are not required to be accessible.
6. Toilet rooms or bathing rooms designed for bariatrics patients are not required to comply with the toilet room and bathing room requirement in ICC A117.1. The sleeping units served by bariatrics toilet or bathing rooms shall not count toward the required number of accessible sleeping units.
7. Where permitted in Section 1107, in toilet rooms or bathrooms serving accessible units, water closets designed for assisted toileting shall comply with Section 1109.2.2.
8. Where permitted in Section 1107, in bathrooms serving accessible units, showers designed for assisted toileting shall comply with Section 1109.2.3.
9. Where toilet facilities are primarily for children's use, required accessible water closets, toilet compartments and lavatories shall be permitted to comply with children's provision of ICC A117.1.

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1109.2.2 Water closets designed for assisted toileting. Water closets designed for assisted toileting shall comply with Sections 1109.2.2.1 through 1109.2.2.6.

1109.2.2.1 Location. The centerline of the water closet shall be 24 inches (610 mm) minimum and 26 inches (660 mm) maximum from one side of the required clearance.

1109.2.2.2 Clearance. Clearance around the water closet shall comply with Sections 1109.2.2.2.1 through 1109.2.2.2.3.

1109.2.2.2.1 Clearance width. Clearance around a water closet shall be 66 inches (1675 mm) minimum in width, measured perpendicular from the side of the clearance that is 24 inches (610 mm) minimum and 26 inches (660 mm) maximum from the water closet centerline.

1109.2.2.2.2 Clearance depth. Clearance around the water closet shall be 78 inches (1980 mm) minimum in depth, measured perpendicular from the rear wall.

1109.2.2.2.3 Clearance overlap. The required clearance around the water closet shall be permitted overlaps in accordance with ICC A117.1 Section 604.3.3.

1109.2.2.3 Height. The height of the water closet seats shall comply with ICC A117.1 Section 604.4.

1109.2.2.4 Swing–up grab bars. The swing-up grab bars shall comply with ICC A117.1 Sections 609.2 and 609.8. Swing–up grab bars shall be provided on both sides of the water closet and shall comply with all of the following:

1. The centerline of the grab bar shall be 14 inches minimum to 16 inches (356 mm to 405 mm) maximum from the centerline of the water closet.
2. The length of the grab bar is 36 inches (915 mm) minimum in length, measured from the rear wall to the end of the grab bar.
3. The top of the grab bar in the down position is 30 inches (760 mm) minimum and 34 inches (865 mm) maximum above the floor.

1109.2.2.5 Flush controls. Flush controls shall comply with ICC A117.1 Section 604.6.

1109.2.2.6 Dispensers. Toilet paper dispensers shall be mounted on at least one of the swing-up grab bars and the outlet of the dispenser shall be located at 24 inches (610 mm) minimum to 36 inches (915 mm) maximum from the rear wall.

1109.2.3 Standard roll-in-type shower compartment designed for assisted bathing. Standard roll-in-type shower compartments designed for assisted bathing shall comply with Sections 1109.2.3.1 through 1109.2.3.8.

1109.2.3.1 Size. Standard roll-in-type shower compartments shall have a clear inside dimension of 60 inches (1525 mm) minimum in width and 30 inches (760 mm) minimum in depth, measured at the center point of opposing sides. An entry 60 inches (1525 mm) minimum in width shall be provided.

1109.2.3.2 Clearance. A clearance of 60 inches (1525 mm) minimum in length adjacent to the 60 inch (1525 mm) width of the open face of the shower compartment, and 30 inches (760 mm) minimum in depth, shall be provided.

Exceptions: 1. A lavatory complying with Section 606 shall be permitted at one end of the clearance.
2. Where the shower compartment exceeds minimum sizes, the clear floor space shall be placed adjacent to the grab bars and 30 inches minimum from the back wall.

1109.2.3.3 Grab bars. Grab bars shall comply with ICC A117.1 Section 609 and shall be provided in accordance with Sections 1109.2.3.3.1 and 1109.2.3.3.2. In standard roll-in-type shower compartments, grab bars shall be provided on three walls. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the floor. Grab bars can be separate bars or one continuous bar.

1109.2.3.3.1 Back-wall grab bar. The back-wall grab bar shall extend the length of the back wall and extend within 6 inches (150 mm) maximum from the two adjacent side walls.

Exception: The back wall grab bar shall not be required to exceed 48 inches (1220 mm) in length. The rear grab bar shall be located with one end within 6 inches maximum of a side wall with a grab bar complying with Section 1109.2.3.3.2.

1109.2.3.3.2 Side-wall grab bars. The side-wall grab bars shall extend the length of the wall and extend within 6 inches (150 mm) maximum from the adjacent back wall.

Exceptions: 1. The side-wall grab bar shall not be required to exceed 30 inches (760 mm) in length. The side grab bar shall be located with one end within 6 inches maximum of the back wall with a grab bar complying with Section 1109.2.3.3.1.
2. Where the side walls are located 72 inches (1830 mm) or greater apart, a grab bar is not required on one of the side walls.

1109.2.3.4 Seats. Wall-mounted folding seats shall not be installed.

1109.2.3.5 Controls and hand showers. In standard roll-in-type showers, the controls and hand shower shall be located 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor. Controls shall be located to facilitate caregiver access.

1109.2.3.6 Hand showers. Hand showers shall comply with ICC A117.1 Section 608.5.

1109.2.3.7 Thresholds. Thresholds shall comply with ICC A117.1 Section 608.6.

1109.2.3.8 Shower enclosures. Shower compartment enclosures for shower compartments shall comply with ICC A117.1 Section 608.7.

1109.2.3.9 Water temperature. Water temperature shall comply with ICC A117.1 Section 608.8.

1109.5.1 Minimum number. Not fewer than two drinking fountains shall be provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

Exceptions: 1. A single drinking fountain with two separate spouts that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.
2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.
3. In all occupancies that require more than two drinking fountains per floor or secured area, bottle filling stations shall be allowed to be substituted in accordance with Section 2902.5.

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1202.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.5, or mechanical ventilation in accordance with the *International Mechanical Code*. *Ambulatory care facilities* and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the *International Mechanical Code*.

1202.2 Attic spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated. Ventilators shall be installed in accordance with the manufacturer's installation instructions.

Exception: The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:

1. A Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

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1202.4 Under-floor ventilation. The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation openings through foundation walls or *exterior walls*. Such openings shall be placed so as to provide cross ventilation of the under-floor space. A ground cover of six mil (0.006 inch thick) black polyethylene or approved equal shall be laid over the ground within crawl spaces. The ground cover shall be overlapped six inches minimum at the joints and shall extend to the foundation wall.

Exception: The ground cover may be omitted in crawl spaces if the crawl space has a concrete slab floor with a minimum thickness of two inches.

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1202.5 Natural ventilation. For other than Group R Occupancies, natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants. Group R Occupancies shall comply with the *International Mechanical Code*.

1202.7 Radon resistive construction standards. The criteria of this section establishes minimum radon resistive construction requirements for Group R Occupancies.

1202.7.1 Application. The requirements of Section 1202.7 shall be adopted and enforced by all jurisdictions of the state according to the following subsections.

1202.7.1.1 All jurisdictions of the state shall comply with Section 1202.7.2.

1202.7.1.2 Clark, Ferry, Okanogan, Pend Oreille, Skamania, Spokane, and Stevens counties shall also comply with Section 1202.7.3.

1202.7.2 State wide radon requirements.

1202.7.2.1 Crawlspaces. All crawlspaces shall comply with the requirements of this section.

1202.7.2.2 Ventilation. All crawlspaces shall be ventilated as specified in Section 1203.3.

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 1202.7.3.2.7 and 1202.7.3.2.7.

1202.7.2.3 Crawlspace plenum systems. In crawlspace plenum systems used for providing supply air for an HVAC system, aggregate, a permanently sealed soil gas retarder membrane and a radon vent pipe shall be installed in accordance with Section 1203.6.3.2. Crawlspaces shall not be used for return air plenums.

In addition, an operable radon vent fan shall be installed and activated. The fan shall be located as specified in Section 1203.6.3.2.7. 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."

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1203.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

Exceptions:

1. Interior spaces where the primary purpose of the space is not associated with human comfort.
2. Group F, H, S, or U occupancies.
3. Group R-1 Occupancies not more than 500 square feet.

1203.2 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.

1203.3 Primary heating source. Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

1203.4 Solid fuel burning devices. No new or used solid fuel burning device shall be installed in new or existing buildings unless such device is United States Environmental Protection Agency certified or exempt from certification by the United States Environmental Protection Agency and conforms with RCW 70.94.011, 70.94.450, 70.94.453 and 70.94.457.

Exceptions:

1. Wood cook stoves.
2. Antique wood heaters manufactured prior to 1940.

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1202.7.3 Radon prescriptive requirements.

1202.7.3.1 Scope. This section applies to those counties specified in Section 1202.7.1.2. This section establishes prescriptive construction requirements for reducing the potential for radon entry into all Group R Occupancies, and for preparing the building for future mitigation if desired.

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

1202.7.3.2 Floors in contact with the earth.

1202.7.3.2.1 General. Concrete slabs that are in direct contact with the building envelope shall comply with the requirements of this section.

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

1202.7.3.2.2 Aggregate. A layer of aggregate of 4-inch minimum thickness shall be placed beneath concrete slabs. The aggregate shall be continuous to the extent practical.

1202.7.3.2.3 Gradation. Aggregate shall:

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

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

1202.7.3.2.4 Soil-gas retarder membrane. A soil-gas retarder membrane, consisting of at least one layer of virgin polyethylene with a thickness of at least 6 mil, or equivalent flexible sheet material, shall be either placed directly under all concrete slabs so that the slab is in direct contact with the membrane, or on top of the aggregate with 2 inches minimum of fine sand or pea gravel installed between the concrete slab and membrane. The flexible sheet shall extend to the foundation wall or to the outside edge of the monolithic slab. Seams shall overlap at least 12 inches. The membrane shall also be fitted tightly to all pipes, wires, and other penetrations of the membrane and sealed with an approved sealant or tape. All punctures or tears shall be repaired with the same or approved material and similarly lapped and sealed.

1202.7.3.2.5 Sealing of penetrations and joints. All penetrations and joints in concrete slabs or other floor systems and walls below grade shall be sealed by an approved sealant to create an air barrier to limit the movement of soil-gas into the indoor air.

Sealants shall be approved by the manufacturer for the intended purpose. Sealant joints shall conform to manufacturer's specifications. The sealant shall be placed and tooled in accordance with manufacturer's specifications. There shall be no gaps or voids after the sealant has cured.

1202.7.3.2.6 Radon vent. One continuous sealed pipe shall run from a point within the aggregate under each concrete slab to a point outside the building. Joints and connections shall be permanently gas tight. The continuous sealed pipe shall interface with the aggregate in the following manner, or by other approved equal method. The pipe shall be permanently connected to a "T" within the aggregate area so that the two end openings of the "T" lie within the aggregate area. A minimum of 5 feet of perforated drain pipe of 3 inches minimum diameter shall join to and extend from the "T." The perforated pipe shall remain in the aggregate area and shall not be capped at the ends. The "T" and its perforated pipe extensions shall be located at least 5 feet horizontally from the exterior perimeter of the aggregate area.

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

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

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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 1202.7.3.2.4;
2. Sealing of penetrations and joints as specified in Section 1207.7.3.2.5;
3. A 3-inch continuous sealed radon pipe shall run from a point within the aggregate under each concrete slab to a point outside the building;
4. Joints and connections shall be gas tight, and may be of either PVC schedule 40 or ABS schedule of equivalent in wall thickness;
5. A label of "radon vent" shall be placed on the pipe so as to remain visible to an occupant;
6. Fan circuit and wiring as specified in Section 1207.7.3.2.7 and a fan.

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

1202.7.3.2.7 Fan circuit and wiring and location. An area for location of an in-line fan shall be provided. The location shall be as close as practicable to the radon vent pipe's point of exit from the building, or shall be outside the building shell; and shall be located so that the fan and all downstream piping is isolated from the indoor air.

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

1202.7.3.2.8 Separate aggregate areas. If the 4-inch aggregate area underneath the concrete slab is not continuous, but is separated into distinct isolated aggregate areas by a footing or other barrier, a minimum of one radon vent pipe shall be installed into each separate aggregate area.

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

1202.7.3.2.9 Concrete block walls. Concrete block walls connected to below grade areas shall be considered unsealed surfaces. All openings in concrete block walls that will not remain accessible upon completion of the building shall be sealed at both vertical and horizontal surfaces, in order to create a continuous air barrier to limit the transport of soil-gas into the indoor air.

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1206.1 Scope. This section shall apply to common interior walls, partitions and floor/ceiling assemblies between => adjacent dwelling units and sleeping units or between dwelling units and sleeping units and adjacent public areas.

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1207.4 Efficiency dwelling units. Efficiency dwelling units shall conform to the requirements of the code except as modified herein:

1. The unit shall have a living room of not less than 190 square feet (17.7 m) of floor area.
2. The unit shall be provided with a separate closet.
3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and ventilation conforming to this code shall be provided.
4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.

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1209.3.1 Water closet compartment. Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy. Gender-neutral toilet room water closet compartments shall be in accordance with Section 2902.2.2.

Exceptions:

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.
3. This provision is not applicable to toilet areas located within Group I-3 occupancy housing areas.

1209.3.2 Urinal partitions. Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The walls or partitions shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished back wall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single occupant or family or assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.
3. Urinals located in gender-neutral toilet facilities shall be in accordance with Section 2902.2.2.

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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 for draining water that enters the assembly to the exterior. An air space cavity is not required under the exterior cladding for an exterior wall clad with lapped or panel siding made of plywood, engineered wood, hardboard, or fiber cement. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section 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 1405.4, shall not be required for an exterior wall envelope that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
   - 2.1 Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.
   - 2.2 Exterior wall envelope test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.
   - 2.3 Exterior wall envelope assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/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.

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1406.3 Balconies and similar projections. Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance-rated where required by Table 601 for floor construction or shall be of Type IV construction in accordance with Section 602.4.4. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.

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TABLE 1604.5
RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure including, but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III, and IV.
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure including, but not limited to: • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. • Buildings and other structures containing Group E or Group I-4 occupancies with an occupant load greater than 250. • Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500. • Group I-2 occupancies with an occupant load of 50 or more resident care recipients but not having surgery or emergency treatment facilities. • Group I-3 occupancies. • Any other occupancy with an occupant load greater than 5,000.[a] • Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV. • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code*; and Are sufficient to pose a threat to the public if released.[b]
IV	Buildings and other structures designated as essential facilities including, but not limited to: • Group I-2 occupancies having surgery or emergency treatment facilities. • Structures that house private emergency power generation, medical gas systems, HVAC systems or related infrastructure systems that support emergency surgery or emergency treatment. • Fire, rescue, ambulance and police stations, and emergency vehicle garages. • Designated earthquake, hurricane, or other emergency shelters. • Designated emergency preparedness, communications and operations centers, and other facilities required for emergency response. • Power-generating stations and other public utility facilities required as emergency backup facilities for Risk Category IV structures. • Buildings and other structures containing quantities of highly toxic materials that: Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code*; and Are sufficient to pose a threat to the public if released.[b] • Aviation control towers, air traffic control centers, and emergency aircraft hangars. • Buildings and other structures having critical national defense functions. • Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.1.2 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.
b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

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1613.4 Amendments to ASCE 7. The provisions of Section 1613.4 shall be permitted as an amendment to the relevant provisions of ASCE 7. The text of ASCE 7 shall be amended as indicated in Sections 1613.4.1 through 1613.4.2.

1613.4.1 ASCE 7 Section 12.2.5.4. Amend ASCE 7 Section 12.11.2.2.1 as follows:

12.2.5.4 Increased structural height limit for steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls, and special reinforced concrete shear walls. The limits on height, *hn*, in Table 12.2-1 are permitted to be increased from 160 ft (50 m) to 240 ft (75 m) for structures assigned to Seismic Design Categories D or E and from 100 ft (30 m) to 160 ft (50 m) for structures assigned to Seismic Design Category F, provided that the seismic force-resisting systems are limited to steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls, or special reinforced concrete cast-in-place shear walls and all of the following requirements are met:

1. The structure shall not have an extreme torsional irregularity as defined in Table 12.3-1 (horizontal structural irregularity Type 1b).
2. The steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls or special reinforced concrete shear walls in any one plane shall resist no more than 60 percent of the total seismic forces in each direction, neglecting accidental torsional effects.
3. Where floor and roof diaphragms transfer forces from the vertical seismic force-resisting elements above the diaphragm to other vertical force-resisting elements below the diaphragm, these in-plane transfer forces shall be amplified by the overstrength factor, Ωo for the design of the diaphragm flexure, shear, and collectors.
4. The earthquake force demands in foundation mat slabs, grade beams, and pile caps supporting braced frames and/or walls arranged to form a shear-resisting core shall be amplified by 2 for shear and 1.5 for flexure. The redundancy factor, ρ, applies and shall be the same as that used for the structure in accordance with Section 12.3.4.
5. The earthquake shear force demands in special reinforced concrete shear walls shall be amplified by the over-strength factor, Ωo.

1613.4.2 ASCE 7 Section 12.6. Amend ASCE 7 Section 12.6 and Table 12.6-1 to read as follows:

12.6 ANALYSIS PROCEDURE SELECTION

12.6.1 Analysis procedure. The structural analysis required by Chapter 12 shall consist of one of the types permitted in Table 12.6-1, based on the structure's seismic design category, structural system, dynamic properties, and regularity, or with the approval of the authority having jurisdiction, an alternative generally accepted procedure is permitted to be used. The analysis procedure selected shall be completed in accordance with the requirements of the corresponding section referenced in Table 12.6-1.

TABLE 12.6-1
PERMITTED ANALYTICAL PROCEDURES

Seismic Design Category	Structural Characteristics	Equivalent Lateral Force Procedure, Section 12.8a	Modal Response Spectrum Analysis, Section 12.9.1, or Linear Response History Analysis, Section 12.9.2	Nonlinear Response History Procedures, Chapter 16a
B, C	All structures	P	P	P
D, E, F	Risk Category I or II buildings not exceeding two stories above the base	P	P	P
	Structures of light frame construction	P	P	P
	Structures with no structural irregularities and not exceeding 160 ft in structural height	P	P	P
	Structures exceeding 160 ft in structural height with no structural irregularities and with $T < 3.5Ts$	P	P	P
	Structures not exceeding 160 ft in structural height and having only horizontal irregularities of Type 2, 3, 4, or 5 in Table 12.3-1 or vertical irregularities of Type 4, 5a, or 5b in Table 12.3-2	P	P	P
	All other structures ≤ 240 ft in height	NP	P	P
	All structures > 240 ft in height	NP	NP	Pc

P = Permitted; NP = Not Permitted; *Ts*= SD1/SDS.

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1705.5.3 Mass timber construction. *Special inspections* of *mass timber* elements in Types IV-A, IV-B and IV-C construction shall be in accordance with Table 1705.5.3.

TABLE 1705.5.3
REQUIRED SPECIAL INSPECTIONS OF MASS TIMBER CONSTRUCTION

Type	Continuous Special Inspection	Periodic Special Inspection
1. Inspection of anchorage and connections of mass timber construction to timber deep foundation systems.		X
2. Inspect erection and sequence of mass timber construction.		X
3. Inspection of connections where installation methods are required to meet design loads.		
3.1. Threaded fasteners.		
3.1.1. Verify use of proper installation equipment.		X
3.1.2. Verify use of predrilled holes where required.		X
3.1.3. Inspect screws, including diameter, length, head type, spacing, installation angle, and depth.		X
3.2. Adhesive anchors installed in horizontal or upwardly inclined orientation to resist sustained tension loads.	X	
3.3. Adhesive anchors not defined in 3.2		X
3.4. Bolted connections.		X
3.5. Concealed connections.		X

1705.11.1 Structural wood.*Continuous special inspection* is required during field gluing operations of elements of the main windforce-resisting system. *Periodic special inspection* is required for nailing, bolting, anchoring and other fastening of elements of the main windforce-resisting system, including wood shear walls, wood diaphragms, drag struts, braces and hold-downs.

Exception: *Special inspections* are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the main windforce-resisting system, where the lateral resistance is provided by sheathing of wood structural panels, and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

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1705.12.2 Structural wood. For the seismic force-resisting systems of structures assigned to *Seismic Design Category* C, D, E, or F:

1. *Continuous special inspection* shall be required during field gluing operations of elements of the seismic force-resisting system.
2. *Periodic special inspection* shall be required for nailing, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs.

Exception: *Special inspections* are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the seismic force-resisting system, where the lateral resistance is provided by sheathing of wood structural panels, and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

1705.12.6 Plumbing, mechanical and electrical components. Periodic special inspection of plumbing, mechanical and electrical components shall be required for the following:

1. Anchorage of electrical equipment for emergency and standby power systems in structures assigned to Seismic Design Category C, D, E or F.
2. Anchorage of other electrical equipment in structures assigned to Seismic Design Category E or F.
3. Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to Seismic Design Category C, D, E or F.
4. Installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to Seismic Design Category C, D, E or F.
5. Installation and anchorage of vibration isolation systems in structures assigned to Seismic Design Category C, D, E or F where the approved construction documents require a nominal clearance of .25 inch (6.4 mm) or less between the equipment support frame and restraint.
6. Installation of mechanical and electrical equipment, including ductwork, piping systems and their structural supports, where automatic fire sprinkler systems are installed in Risk Category IV structures assigned to Seismic Design Category C, D, E or F to verify one of the following:
   6.1. Minimum clearances have been provided as required by Section 13.2.3 ASCE/SEI 7.
   6.2. A nominal clearance of not less than 3 inches (76 mm) has been provided between fire protection sprinkler system drops and sprigs and: Structural members not used collectively or independently to support the sprinklers; equipment attached to the building structure; and other systems' piping.

Where flexible sprinkler hose fittings are used, special inspection of minimum clearances is not required.

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1705.19 Sealing of mass timber. Periodic special inspections of sealants or adhesives shall be conducted where sealant or adhesive required by Section 703.9 is applied to mass timber building elements as designated in the approved construction documents.

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1709.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1709.5.1 or 1709.5.2. For the purposes of this section, the required design pressure shall be determined using the allowable stress design load combinations of Section 1605.3.

Exceptions:

1. Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1709.5.1 or 1709.5.2 shall be permitted to be higher than the design value of the tested unit provided such higher pressures are determined by accepted engineering analysis. All components of the small unit shall be the same as the tested unit. Where such calculated design pressures are used, they shall be validated by an additional test of the window unit having the highest allowable design pressure.
2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section 1709 of the International Building Code provided they meet the applicable provisions of Chapter 24 of the International Building Code.

1807.2.2 Design lateral soil loads. Retaining walls shall be designed for the lateral soil loads set forth in Section 1610. For structures assigned to Seismic Design Category D, E, or F, the design of retaining walls supporting more than 6 feet (1829 mm) of backfill height measured to the bottom of the footing shall incorporate the additional seismic lateral earth pressure in accordance with the geotechnical investigation where required in Section 1803.2.

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2107.1 General. The design of masonry structures using *allowable stress design* shall comply with Sections 2106 and the requirements of Chapters 1 through 8 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107.2 through 2107.4.

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2107.2 TMS 402/ACI 530/ASCE 5, Section 2.1.8.7.1.1, lap splices. In lieu of Section 2.1.8.7.1.1, it shall be permitted to design lap splices in accordance with Section 2107.2.1.

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2111.8 Fireplaces. Fireplaces shall be provided with each of the following:

1. Tightly fitting flue dampers, operated by a readily accessible manual or approved automatic control.
   Exception: Fireplaces with gas logs shall be installed in accordance with the International Mechanical Code Section 901, except that the standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code).
2. An outside source for combustion air ducted into the firebox. The duct shall be at least 6 square inches, and shall be provided with an operable outside air duct damper.
   Exception: Washington certified fireplaces shall be installed with the combustion air systems necessary for their safe and efficient combustion and specified by the manufacturer in accordance with IBC Section 2114.
3. Site built fireplaces shall have tight fitting glass or metal doors, or a flue draft induction fan or as approved for minimizing back-drafting. Factory built fireplaces shall use doors listed for the installed appliance.

2111.8.1 Lintel and throat. Masonry over a fireplace opening shall be supported by a lintel of noncombustible material. The minimum required bearing length on each end of the fireplace opening shall be 4 inches (102 mm). The fireplace throat or damper shall be located a minimum of 8 inches (203 mm) above the top of the fireplace opening.

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2115.1 Emission standards for factory-built fireplaces. No new or used factory-built fireplace shall be installed in Washington state unless it is certified and labeled in accordance with procedures and criteria specified in ASTM E2558 Standard Test Method for determining particulate matter emission from fires in low mass wood burning fireplaces.

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.

2115.2 Emission standards for certified masonry and concrete fireplaces. Masonry and concrete fireplace model lines certified to Washington State Building Code Standard 31-2 prior to July 1, 2013, may retain certification provided the design and construction specifications of the fireplace model line internal assembly do not change.

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2303.1.4 Structural glued cross-laminated timber. Cross-laminated timbers shall be manufactured and identified in accordance with ANSI/APA PRG 320. Cross-laminated timbers in Construction Types IV-A, IV-B, and IV-C shall be manufactured and identified in accordance with ANSI/APA PRG 320.

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2303.6 Nails and staples. Nails and staples shall conform to requirements of ASTM F1667, including Supplement 1. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as follows: 80 kips per square inch (ksi) (551 MPa) for shank diameters larger than 0.177 inch (4.50 mm) but not larger than 0.254 inch (6.45 mm), 90 ksi (620 MPa) for shank diameters larger than 0.142 inch (3.61 mm) but not larger than 0.177 inch (4.50 mm) and 100 ksi (689 MPa) for shank diameters of not less than 0.099 inch (2.51 mm) but not larger than 0.142 inch (3.61 mm). Staples used for framing and sheathing connections shall have minimum average bending moments as follows: 3.6 in.-lbs (0.41 N-m) for No. 16 gage staples, 4.0 in.-lbs (0.45 N-m) for No. 15 gage staples, and 4.3 in.-lbs (0.49 N-m) for No. 14 gage staples. Staples allowable bending moments shall be listed on the construction documents.

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2405.3 Screening. Where used in monolithic glazing systems, heat-strengthened glass and fully tempered glass shall have screens installed below the glazing material. The screens and their fastenings shall:

1. Be capable of supporting twice the weight of the glazing;
2. Be firmly and substantially fastened to the framing members; and
3. Be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Heat strengthened glass, fully tempered glass and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.

Exception: In monolithic and multiple-layer sloped glazing systems, the following applies:

1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.
2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.
4. Screens shall not be required within individual dwelling units in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:
   4.1. Each pane of the glass is 16 square feet (1.5 m2) or less in area.
   4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.
   4.3. The glass thickness is 3/16 inch (4.8 mm) or less.
5. Screens shall not be required for laminated glass with a 15 mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer within the following limits:
   5.1. Each pane of glass is 16 square feet (1.5 m2) or less in area.
   5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.

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2702.1.5 Load duration. Emergency power systems and standby power systems shall be designed to provide the required power for a minimum duration of 8 hours without being refueled or recharged, unless specified otherwise in this code.

Exception: The minimum duration of all required power loads may be reduced to 2 hours for all systems except for fire pumps that require a minimum duration of 8 hours in accordance with NFPA 20.

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2901.1 Scope. The provisions of this chapter and the state plumbing code shall govern the erection, installation, *alteration*, repairs, relocation, replacement, *addition* to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the state plumbing code.

2901.2 Health codes. In food preparation, serving and related storage areas, additional fixture requirements may be dictated by health codes.

2901.3 Fixed guideway transit and passenger rail systems. In construction of a fixed guideway and passenger rail system, subject to Section 3114, public plumbing fixtures are not required.

2902.1 Minimum number of fixtures. Plumbing fixtures shall be provided in the minimum number shown in Table 2902.1. Uses not shown in Table 2902.1 shall be determined individually by the *building official* based on the occupancy which most nearly resembles the proposed occupancy. The number of occupants shall be determined by this code. Plumbing fixtures need not be provided for unoccupied buildings or facilities.

2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

Exception: The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

2902.1.1.1 Private offices. Fixtures only accessible to private offices shall not be counted to determine compliance with this section.

2902.1.1.2 Urinals in men's facilities. Where urinals in men's facilities are provided, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced to less than one quarter (25%) of the minimum specified. For men's facilities serving 26 or more persons, not less than one urinal shall be provided.

2902.1.1.3 Urinals. Where urinals are provided in gender-neutral facilities, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced less than one quarter (25 percent) of the minimum specified. Facilities serving 26 or more persons, not less than one urinal shall be provided.

TABLE 2902.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 2902.2 and 2902.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS		LAVATORIES		BATHTUBS/ SHOWERS
				MALE	FEMALE	MALE	FEMALE	
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—

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TABLE 2902.1—(continued)
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS		LAVATORIES		BATHTUBS/ SHOWERS
				MALE	FEMALE	MALE	FEMALE	
1	Assembly	A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—
		A-4	Coliseums, arenas, skating rinks, pools, and tennis courts for indoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—
		A-5	Stadiums amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for first 80 and 1 per 80 for remainder exceeding 80		—
3	Educational	E[e]	Educational facilities	1 per 35	1 per 25	1 per 85	1 per 50	—
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		Check State (UPC)
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8
		I-2	Hospitals, ambulatory nursing home care recipient[b]	1 per room[c]		1 per room[c]		1 per 15
			Employees, other than residential care[b]	1 per 25		1 per 35		—
			Visitors other than residential care	1 per 75		1 per 100		—
		I-3	Prisons[b]	1 per cell		1 per cell		1 per 15
			Reformatories, detention centers and correctional centers[b]	1 per 15		1 per 15		1 per 15
			Employees[b]	1 per 25		1 per 35		—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1

(continued)

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TABLE 2902.1—(continued)
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS		LAVATORIES		BATHTUBS/ SHOWERS
				MALE	FEMALE	MALE	FEMALE	
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8
			Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit
		R-3	One- and two-family dwellings	1 per dwelling unit		1 per 10		1 per dwelling unit
			Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100		1 per 100		Check State (UPC)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code, except with respect to Group E occupancies the provisions of note "e" shall apply.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For Group E occupancies, the number of occupants shall be determined by using a calculation of 100 square feet gross building area per student for the minimum number of plumbing fixtures.

Insert Facing Page 589

2902.1.4 Family or assisted-use toilet and bath fixtures. Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.

2902.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or less.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.
4. Separate facilities shall not be required in spaces primarily used for drinking or dining with a total occupant load, including both employees and customers, of 30 or fewer.
5. Separate facilities shall not be required when gender-neutral facilities are provided in accordance with Section 2902.2.2.

2902.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 2902.4.

2902.2.2 Gender-neutral facilities. Gender-neutral toilet facilities, when provided, shall be in accordance with the following:

1. There is no reduction in the number of fixtures required to be provided for male and female in the type of occupancy and in the minimum number shown in Table 2902.1.
2. Gender-neutral multiuser toilet rooms shall have water closets and urinals located in toilet compartments in accordance with ICC A117.1.
3. Gender-neutral multiuser toilet room water closet and urinal compartments shall have full-height walls and a door enclosing the fixture to ensure privacy.
4. Gender-neutral toilet room water closet and urinal compartment doors shall be securable from within the compartment.
5. Gender-neutral toilet rooms provided for the use of multiple occupants, the egress door from the room shall not be lockable from the inside of the room.
6. Compartments shall not be required in a single-occupant toilet room with a lockable door.

2902.3 Employee and public toilet facilities. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902.1 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall either be separate or combined employee and public toilet facilities.

Exception: Public toilet facilities shall not be required in:

1. Open or enclosed parking garages where there are no parking attendants.
2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m2).
3. Fixed guideway transit and passenger rail systems constructed in accordance with Section 3112.

2902.3.1 Access. The route to the public toilet facilities required by Section 2902.3 shall not pass through kitchens, food preparation areas, unpackaged food storage areas, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. Access to toilets serving multiple tenants shall be through a common use area and not through an area controlled by a tenant. All routes shall comply with the accessibility requirements of this code. The public shall have access to the required toilet facilities at all times that the building is occupied. For other requirements for plumbing facilities, see Chapter 11.

2902.3.2 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located in each building not more than one story above or below the space required to be provided with toilet facilities, or conveniently in a building adjacent thereto on the same property, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

Exception: The location and maximum distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum distance of travel are *approved*.

(continued on page 590a)

Insert Facing Page 590

(continued from page 590)

2902.3.3 Location of toilet facilities in malls. In covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91,440 mm). In mall buildings, the required facilities shall be based on total square footage (m2) within a covered mall building or within the perimeter line of an open mall building, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum distance of travel to central toilet facilities in mall buildings shall be measured from the main entrance of any store or tenant space. In mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum distance of travel shall be measured from the employees' work area of the store or tenant space.

2902.3.4 Pay facilities. Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities. Required facilities shall be free of charge.

2902.3.5 Door locking. Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

2902.3.6 Prohibited toilet room location. Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

2902.4 Signage. Required public facilities shall be provided with signs that designate the sex for separate facilities or indicate gender-neutral facilities. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111.

2902.4.1 Directional signage. Directional signage indicating the route to the public toilet facilities shall be posted in a lobby, corridor, aisle or similar space, such that the sign can be readily seen from the main entrance to the building or tenant space.

2902.5 Drinking fountain location. Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet. Drinking fountains shall be located on an accessible route. Drinking fountains shall not be located in toilet rooms.

2902.5.1 Drinking fountain number. Occupant loads over 30 shall have one drinking fountain for the first 150 occupants, then one per each additional 500 occupants.

Exceptions:

1. Sporting facilities with concessions serving drinks shall have one drinking fountain for each 1000 occupants.
2. A drinking fountain need not be provided in a drinking or dining establishment.

2902.5.2 Multistory buildings. Drinking fountains shall be provided on each floor having more than 30 occupants in schools, dormitories, auditoriums, theaters, offices and public buildings.

2902.5.3 Penal institutions. Penal institutions shall have one drinking fountain on each cell block floor and one on each exercise floor.

2902.5.4 Bottle filling stations. Bottle filling stations shall be provided in accordance with Sections 2902.5.4.1 through 2902.5.4.3.

2902.5.4.1 Group E occupancies. In Group E occupancies with an occupant load over 30, a minimum of one bottle filling station shall be provided on each floor. This bottle filling station may be integral to a drinking fountain.

2902.5.4.2 Substitution. In all occupancies that require more than two drinking fountains per floor or secured area, *bottle filling stations* shall be permitted to be substituted for up to 50 percent of the required number of drinking fountains.

2902.5.4.3 Accessibility. At least one of the required bottle filling stations shall be located in accordance with Section 309 ICC A117.1.

2902.6 Dwelling units. Dwelling units shall be provided with a kitchen sink.

2902.7 Water. Each required sink, lavatory, bathtub and shower stall shall be equipped with hot and cold running water necessary for its normal operation.

Insert as Page 590a

3005.2 Temperature control. Elevator machine rooms, machinery spaces that contain the driving machine, and control rooms or spaces that contain the operation or motion controller for elevator operation shall be provided with an independent dedicated ventilation or air-conditioning system to control the space temperature to protect against the overheating of the electrical equipment. Ventilation systems shall use outdoor make up air pathway that does not rely on transfer air from other building systems. 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 from the 0.5% column for summer from the Puget Sound Chapter of ASHRAE publication "*Recommended Outdoor Design Temperatures, Washington State*." The following formula shall be used to calculate flow rate for ventilation:

CFM = BTU output of elevator machine room equipment / [1.08 x (acceptable machine room temp - makeup air temp)]

The ventilation or air-conditioning system will be provided with the same source of power (normal, optional standby, legally required standby, or emergency) as the elevator equipment so that the temperature control is available at all times that the elevators have power.

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.

Insert Facing Page 593

3006.3 Hoistway opening protection. Where Section 3006.2 requires protection of the elevator hoistway door opening, the protection shall be provided by one of the following:

1. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by fire partitions in accordance with Section 708. In addition, doors protecting openings in the elevator lobby enclosure walls shall comply with Section 716.2.2.1 as required for corridor walls. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.
2. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by smoke partitions in accordance with Section 710 where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition, doors protecting openings in the smoke partitions shall comply with Sections 710.5.2.2, 710.5.2.3, and 716.2.6.1. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.
3. Additional doors shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such door shall comply with the smoke and draft control door assembly requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. The elevator hoistway shall be pressurized in accordance with Sections 909.6.3 and 909.21.

Insert Facing Page 594

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, towers and antennas, relocatable buildings, swimming pool enclosures and safety devices, and solar energy systems and fixed guideway transit and passenger rail systems.

3102.3 Type of construction. Noncombustible membrane structures shall be classified as Type II-B construction. Noncombustible frame or cable-supported structures covered by an *approved* membrane in accordance with Section 3102.3.1 shall be classified as Type II-B construction. Heavy timber frame-supported structures covered by an *approved* membrane in accordance with Section 3102.3.1 shall be classified as Type IV-HT construction. Other membrane structures shall be classified as Type V construction.

Exception: Plastic less than 30 feet (9144 mm) above any floor used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers is not required to meet the fire propagation performance criteria of Test Method 1 or 2, as appropriate, of NFPA 701.

3102.6.1.1 Membrane. A membrane meeting the fire propagation performance criteria of Test Method 1 or 2, as appropriate, of NFPA 701 shall be permitted to be used as the roof or as a skylight on buildings of Type II-B, III, IV-HT and V construction, provided that the membrane is not less than 20 feet (6096 mm) above any floor, balcony or gallery.

Insert Facing Page 599

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.

Insert Facing Page 600

3109.1 General. The design and construction of swimming pools, spas and other aquatic recreation facilities shall comply with the *International Swimming Pool and Spa Code*, where the facility is one of the following:

1. For the sole use of residents and invited guests at a single-family dwelling;
2. For the sole use of residents and invited guests of a duplex owned by the residents; or
3. Operated exclusively for physical therapy or rehabilitation and under the supervision of a licensed medical practitioner.

All other "water recreation facilities" as defined in RCW 70.90.110 are regulated under chapters 246-260 and 246-262 WAC.

Insert Facing Page 603

Section 3114—Fixed guideway transit and passenger rail systems.

3114.1 General. Construction of fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130, standard for fixed guideway transit and passenger rail systems.

3114.2 Means of egress. The means of egress for fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130.

Insert Facing Page 604

3304.5.1 Fire watch during construction. Where required by the fire code official, a fire watch shall be provided during nonworking hours for new construction that exceeds 40 feet (12,192 mm) in height above the lowest adjacent grade.

Exceptions:

1. New construction that is built under the IRC.
2. New construction less than 5 stories and 50,000 square feet per story.

Insert Facing Page 608

Chapter 35—Referenced standards.

Modify the ANSI/APA PRG 320 reference standard as follows:

Standard reference number	Title	Referenced in code section number
ANSI/APA PRG 320-18	Standard for Performance-Rated Cross-Laminated Timber (revised 2018)	602.4, 2303.1.4

Insert Facing Page 615

Add the following NFPA 130 reference standard:

Standard reference number	Title	Referenced in code section number
NFPA 130-17	Standard for Fixed Guideway Transit and Passenger Rail Systems	3101.1, 3114

Insert Facing Page 635

D102.2.5 Structural fire rating. Walls, floors, roofs and their supporting structural members shall be not less than 1 hour fire-resistance-rated construction.

Exceptions:

1. Buildings of Type IV-HT construction.
2. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Automobile parking structures.
4. Buildings surrounded on all sides by a permanently open space of not less than 30 feet (9144 mm).
5. Partitions complying with Section 603.1, Item 11.

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B L A N K

D102.2.5 Structural fire rating. Walls, floors, roofs and their supporting structural members shall not be less than 1 hour fire-resistance-rated construction.

Exceptions:

1. Buildings of Type IV-HT construction.
2. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. Automobile parking structures.
4. Buildings surrounded on all sides by a permanently open space of not less than 30 feet (9144 mm).
5. Partitions complying with Section 603.1, Item 11.

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APPENDIX O

SOLAR READINESS

The provisions contained in this appendix are not mandatory unless specifically referenced in the local adopting ordinance.

O101.1 General. A *solar zone* shall be provided on nonresidential buildings of any size that are 5 stories or less in height above grade plane, and shall be located on the roof of the building or on another structure elsewhere on the site. The *solar zone* shall be in accordance with Sections 490101.3 through 490101.9 and the *International Fire Code*.

Exception: A *solar zone* is not required where the solar exposure of the building's roof area is less than 75 percent of that of an unshaded area, as measured by one of the following:

1. Incident solar radiation expressed in kWh/ft2 per year using typical meteorological year (TMY) data;
2. Annual sunlight exposure expressed in cumulative hours per year using TMY data;
3. Shadow studies indicating that the roof area is more than 25 percent in shadow, on September 21 at 10:00 a.m., 11:00 a.m., 12:00 p.m., 1:00 p.m., and 2:00 p.m. solar time.

O101.2 Definitions. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *International Building Code* for general definitions.

SOLAR ZONE. A clear area or areas reserved solely for current and future installation of photovoltaic or solar water heating systems.

O101.3 Minimum area. The minimum area of the *solar zone* shall be determined by one of the following methods, whichever results in the smaller area:

1. 40 percent of roof area. The roof area shall be calculated as the horizontally-projected gross roof area, less the area covered by skylights, occupied roof decks and planted areas.
2. 20 percent of electrical service size. The electrical service size shall be the rated capacity of the total of all electrical services to the building. The required *solar zone* size shall be based upon 10 peak watts of PV per square foot.

Exception: Subject to the approval of the *building official*, buildings with extensive rooftop equipment that would make full compliance with this section impractical shall be permitted to reduce the size of the *solar zone* required by Section N101.3 to the maximum practicable area.

O101.4 Contiguous area. The *solar zone* is permitted to be comprised of smaller separated subzones. Each subzone shall be at least 5 feet wide in the narrowest dimension.

O101.5 Obstructions. The *solar zone* shall be free of pipes, vents, ducts, HVAC equipment, skylights and other obstructions, except those serving photovoltaics or solar water heating systems within the *solar zone*. Photovoltaics or solar water heating systems are permitted to be installed within the *solar zone*. The *solar zone* is permitted to be located above any such obstructions, provided that the racking for support of the future system is installed at the time of construction, the elevated *solar zone* does not shade other portions of the *solar zone*, and its height is permitted by the *International Building Code* and other applicable codes.

O101.6 Shading. The *solar zone* shall be set back from any existing or new object on the building or site that is located south, east, or west of the *solar zone* a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings. No portion of the *solar zone* shall be located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

O101.7 Access. Areas contiguous to the *solar zone* shall provide access pathways and provisions for emergency smoke ventilation as required by the *International Fire Code*.

(Insert as Page 686a)

O101.8 Structural integrity. The as-designed dead load and live load for the *solar zone* shall be clearly marked on the record drawings, and shall accommodate future photovoltaic or solar water heating arrays at an assumed dead load of 4 pounds per square foot in addition to other required live and dead loads. For photovoltaic systems, a location for future inverters shall be designated either within or adjacent to the *solar zone*, with a minimum area of 2 square feet for each 1,000 square feet of *solar zone* area, and shall accommodate an assumed dead load of 175 pounds per square foot. Where photovoltaic or solar water heating systems are installed in the *solar zone*, structural analysis shall be based upon calculated loads, not upon these assumed loads.

O101.9 Photovoltaic or solar water heating interconnection provisions. Buildings shall provide for the future interconnection of either a photovoltaic system in accordance with Section 490101.9.1 or a solar water heating system in accordance with Section 490101.9.2.

O101.9.1 Photovoltaic interconnection. A capped roof penetration sleeve shall be provided in the vicinity of the future inverter, sized to accommodate the future photovoltaic system conduit. Interconnection of the future photovoltaic system shall be provided for at the main service panel, either ahead of the service disconnecting means or at the end of the bus opposite the service disconnecting means, in one of the following forms:

1. A space for the mounting of a future overcurrent device, sized to accommodate the largest standard rated overcurrent device that is less than 20 percent of the bus rating;
2. Lugs sized to accommodate conductors with an ampacity of at least 20 percent of the bus rating, to enable the mounting of an external overcurrent device for interconnection.

The electrical construction documents shall indicate the following:

1. *Solar zone* boundaries and access pathways;
2. Location for future inverters and metering equipment; and
3. Route for future wiring between the photovoltaic panels and the inverter, and between the inverter and the main service panel.

O101.9.2 Solar water heating interconnection. Two capped pipe tees shall be provided upstream of the domestic water heating equipment to provide plumbing interconnections between a future solar water heating system and the domestic water heating system. Two roof penetration sleeves shall be provided in the vicinity of the *solar zone*, capable of accommodating supply and return piping for a future solar water heating system. The plumbing construction documents shall indicate the following:

1. *Solar zone* boundaries and access pathways;
2. Location for future hot water storage tanks; and
3. Route for future piping between the *solar zone* and the plumbing interconnection point, following the shortest feasible pathway.

(Insert as Page 686b)

WASHINGTON STATE BUILDING CODE

Washington State Amendments to the

INTERNATIONAL EXISTING BUILDING CODE 2018 Edition

Washington State Building Code Council
Effective July 1, 2020

Copies of the State Building Codes and
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Olympia, Washington 98507-7310
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The 2018 International Existing Building Code,
as published by the International Code Council,
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https://codes.iccsafe.org/content/IEBC2018P3

First Edition Titled
International Building Code
Chapter 51-50 WAC
based on
WSR 20-01-090
Effective July 1, 2020

WAC 51-50-480000 Washington State Amendments to the 2018 International Existing Building Code

B L A N K

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.

101.6 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.

(Insert Facing Page 1)

B L A N K

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

(Insert Facing Page 33)

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

(Insert Facing Page 44)

B L A N K

B L A N K

908.1 Minimum requirements. Level 3 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11C WAC).

(Insert Facing Page 47)

B L A N K

1002.1 Compliance with the building code. Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*:

1. Covered and open mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. Incidental use areas.
9. Hazardous materials.
10. Ambulatory care facilities.
11. Group I-2 occupancies.
12. Group I-1, Condition 2, for licensure as an assisted living facility under chapter 388-78A WAC or residential treatment facility under chapter 246-337 WAC.

(Insert Facing Page 49)

B L A N K

1201.1 Scope. It is the intent of this chapter to provide means for the preservation of historic buildings. It is the purpose of this chapter to encourage cost-effective preservation of original or restored architectural elements and features and to provide a historic building that will result in a reasonable degree of safety, based on accepted life and fire safety practices, compared to the existing building. Historical buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

(Insert Facing Page 57)

1203.9 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.*

1204.1 General. Historic buildings shall comply with the applicable provisions for the work as classified in Chapter 4 or 5.

Exception: The code official shall be authorized to accept existing floors and existing live loads ad to approve operational controls that limit the live load on any floor.

(Insert Facing Page 58)

1204.10 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.

1204.14 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 1011.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered acceptable.

(Insert Facing Page 59)

B L A N K

1401.1 Scope. This chapter provides requirements for relocated or moved structures, including relocatable buildings as defined in Chapter 2.

1401.2 Conformance. Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code, the International Residential Code (chapter 51-51 WAC), the International Mechanical Code (chapter 51-52 WAC), the International Fire Code (chapter 51-54A WAC), the Uniform Plumbing Code (chapters 51-56 WAC), and the Washington State Energy Code (chapter 51-11C or 51-11R WAC) for new buildings or structures.

Exception: Group R-3 buildings or structures are not required to comply if:

1. The original occupancy classification is not changed; and
2. The original building is not substantially remodeled or rehabilitated.

For the purposes of this section, a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.

SECTION 1402
REQUIREMENTS

This section is not adopted.

(Insert Facing Page 73)

Effective Date July 1, 2020