WASHINGTON STATE BUILDING CODE

CHAPTER 51-54A
2018 Edition

Washington State Amendments to the
2018 INTERNATIONAL FIRE CODE

Washington State Building Code Council

Effective July 1, 2020*

Copies of the State Building Codes and
complete copies of the International Fire 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
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International Fire Code
Chapter 51-54A WAC
Effective July 1, 2020

Preface

Authority: The International Fire Code (Chapter 51-54A 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.

Supersession of Previous Codes: Chapter 51-54A WAC supersedes Chapters 51-44 and 51-45 WAC.

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 Fire 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 51-11C), the Ventilation provisions of the International Residential Code (WAC 51-51) or International Mechanical Code (WAC 51-52); any provision of the International Building Code (WAC 51-50) or International Residential Code affecting accessibility; and standards specifically adopted in Chapters 19.27 and 19.27A cannot be amended by any local jurisdiction.

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

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

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

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Printing Format: This version of the rules is published as a series of insert or replacement pages 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. These rules are effective throughout the state on July 1, 2016.

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 51-54A WAC
STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE 2018 EDITION OF THE INTERNATIONAL FIRE CODE

WAC 51-54A-001 AUTHORITY

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

WAC 51-54A-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 51-54A-003 INTERNATIONAL FIRE CODE

The 2018 edition of the International Fire Code, published by the International Code Council is hereby adopted by reference with the following additions, deletions, and exceptions.

WAC 51-54A-007 EXCEPTIONS

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

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

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 (2SSB 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.

The manufacture, storage, handling, sale and use of fireworks shall be governed by chapter 70.77 RCW and by chapter 212-17 WAC and local ordinances consistent with chapter 212-17 WAC.

WAC 51-54A-008 IMPLEMENTATION

The International Fire Code adopted by Chapter 51-54A WAC shall become effective in all counties and cities of this state on July 1, 2020.

101.2.1 Appendices. Provisions in the appendices shall not apply unless specifically adopted.

105.6.30 Mobile food preparation vehicles. A permit is required for mobile preparation vehicles equipped with appliances that produce smoke or grease-laden vapors or utilize LP-gas systems or CNG systems.

105.7.26 Underground supply piping for automatic sprinkler system. A construction permit is required for the installation of the portion of the underground water supply piping, public or private, supplying a water-based fire protection system. The permit shall apply to all underground piping and appurtenances downstream of the first control valve on the lateral piping or service line from the distribution main to one foot above finished floor of the facility with the fire protection system. Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.

EXCEPTIONS: 1. When the underground piping is installed by the aboveground piping contractor.

2. Underground piping serves a fire protection system installed in accordance with NFPA 13D.

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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.

ALERT SIGNAL. A distinctive signal indicating the need for trained personnel and occupants to initiate a specific action, such as shelter-in-place.
ALERT SYSTEM. Approved devices, equipment and systems or combinations of systems used to transmit or broadcast an alert signal.
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.

CHILD CARE. For the purposes of these regulations, child care is 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.
CLUSTER. Clusters are multiple *portable school classrooms* separated by less than the requirements of the building code for separate buildings.
COVERED BOAT MOORAGE. A pier or system of floating or fixed access ways to which vessels on water may be secured and any portion of which are covered by a roof.

ELECTRICAL CODE. The National Electrical Code, promulgated by the National Fire Protection Association, as adopted by rule or local ordinance under the authority of chapter **19.28** RCW.

GRAVITY-OPERATED DROP OUT VENTS. Automatic smoke and heat vents containing heat-sensitive glazing designed to shrink and drop out of the vent openings when exposed to fire.

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

MOBILE FOOD PREPERATION [PREPARATION] VEHICLE. Mobile food preparation vehicles that are equipped with appliances that produce smoke or grease-laden vapors or utilize LP-gas systems or CNG systems for the purpose of preparing and serving food to the public. Vehicles intended for private recreation shall not be considered mobile food preparation vehicles.

MOTOR VEHICLE. Includes, but not limited to, a vehicle, machine, tractor, trailer or semitrailer, or any combination thereof, propelled or drawn by mechanical power and designed for use upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service. The term "motor vehicle" also includes freight containers or cargo tanks used, or intended for use, in connection with motor vehicles.

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.

OCCUPANCY CLASSIFICATION. For the purposes of this code, certain occupancies are defined as follows:

Institutional Group I-1. Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than 16 persons excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions indicated below. This group shall include, but not be limited to, the following: Assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC shall be classified as Group I-1, Condition 2.

Group I-2. This 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

Five or fewer persons receiving care. A facility such as the above with five or fewer persons receiving such care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

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*.

Adult care facility. A facility that provides accommodations for less than 24 hours for more than five unrelated adults and provides supervision and personal care services shall be classified as Group I-4.

EXCEPTION: Where the occupants are capable of responding to an emergency situation without physical assistance from the staff, the facility shall be classified as Group R-3.

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

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

2. Family child care homes licensed by Washington state for the care of 12 or fewer children shall be classified as Group R-3.

Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code*. This group shall include:

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:
Boarding houses (transient) with more than 10 occupants
Congregate living facilities (transient) with more than 10 occupants
Hotels (transient)
Motels (transient)

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

R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, or I, including:
Buildings that do not contain more than two dwelling units.
Boarding houses (nontransient) with 16 or fewer occupants.
Boarding houses (transient) with 10 or fewer occupants.
Care facilities that provide accommodations for five or fewer persons receiving care.
Congregate living facilities (nontransient) with 16 or fewer occupants.
Congregate living facilities (transient) with 10 or fewer occupants.

Care facilities within a dwelling. Care facilities for five or fewer persons receiving care that are within a single-family dwelling are permitted to comply with the *International Residential Code* provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

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*.

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.

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

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.

RECALL SIGNAL. An electrically or mechanically operated signal used to recall occupants after an emergency drill or to terminate a shelter-in-place event that shall be distinct from any alarm or alert signal used to initiate an emergency plan, or other signals.

SHELTER-IN-PLACE. An emergency response used to minimize exposure of facility occupants to chemical or environmental hazards by taking refuge in predetermined interior rooms or areas where actions are taken to isolate the interior environment from the exterior hazard.

307.2.1 Authorization. Where required by state or local law or regulations, open burning shall only be permitted with prior approval from the state or local air and water quality management authority, provided that all conditions specified in the authorization are followed. See also chapter **173-425** WAC.

307.4.2 Recreational fires. Recreational fires shall not be conducted within 25 feet of a structure or combustible material. Conditions which could cause a fire to spread within 25 feet of a structure shall be eliminated prior to ignition. See also chapter **173-425** WAC.

308.1.4 Open-flame cooking devices. This section is not adopted
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308.1.7 Religious ceremonies. Participants in religious ceremonies shall not be precluded from carrying hand-held candles. See RCW **19.27.031**(3).

308.1.7.1 Aisles and exits. Candles shall be prohibited in areas where occupants stand, or in an aisle or exit.
EXCEPTION: Candles used in religious ceremonies.

308.1.9 Decorative open flame tables. Gas-fired portable or fixed open flame fire tables and fireplaces are required to be provided with fire *code official* approved design or protection devices to prevent occupants from using flame, and from flame being exposed to combustible material. A fire extinguisher shall be located within 75 feet of travel distance or a distance as approved by the fire *code official*. Where located indoors, the supply gas valve will be interlocked with building fire alarm and/or fire sprinklers, where provided.

314.1 General. Indoor displays constructed within any occupancy shall comply with Sections 314.2 through 314.4.

314.2 Fixtures and displays. Fixtures and displays of goods for sale to the public shall be arranged so as to maintain free, immediate and unobstructed access to exits as required by Chapter 10.

314.3 Highly combustible goods. The display of highly combustible goods including, but not limited to, fireworks, flammable or combustible liquids, liquefied flammable gases, oxidizing materials, pyroxylin plastics and agricultural goods, in main exit access aisles, corridors, covered and open malls, or within 5 feet (1524 mm) of entrances to exits and exterior exit doors is prohibited where a fire involving such goods would rapidly prevent or obstruct egress.

314.4 Vehicles. Liquid- or gas-fueled vehicles, boats, aircraft or other motorcraft shall not be located indoors except as follows:
1. The engine starting system is made inoperable, batteries are disconnected except where the fire code official requires that the batteries remain connected to maintain safety features.
2. Fuel in fuel tanks does not exceed one-quarter tank or 5 gallons (19 L) (whichever is least).
3. Fuel tanks and fill openings are closed and sealed to prevent tampering.
4.Vehicles, aircraft, boats or other motorcraft equipment are not fueled or defueled within the building.

Table 315.7.6(1)
Separation Distance Between Pallet Stack and Building

Wall Construction	**Opening Type**	**Wood Pallet Separation Distance (feet)**		
		≤ 50 Pallets	51 to 200 Pallets	> 200 Pallets
Masonry	None	2	2	2
Masonry	Fire-rated glazing with open sprinklers	2	5	20
Masonry	Fire-rated glazing	5	10	20
Masonry	Plain glass with open sprinklers	5	10	20
Noncombustible	None	5	10	20
Wood with open sprinklers	_____	5	10	20
Wood	None	15	30	90
Any	Plain glass	15	30	90

For SI: 1 foot = 304.8 mm

319.1 General. Mobile food preparation vehicles that are equipped with appliances that produce smoke or grease-laden vapors or utilize LP-gas systems or CNG systems shall comply with this system.

401.2 Approval. Where required by the fire code official, fire safety plans, emergency procedures and employee training programs shall be approved.

The following terms are defined in Chapter 2:
ALARM SIGNAL
ALERT SIGNAL
ALERT SYSTEM
SHELTER-IN-PLACE
RECALL SIGNAL

403.3.1 Fire evacuation plan. The fire safety and evacuation plan required by Section 404 shall include a description of special staff actions. This shall include a description for stabilizing patients in a staged evacuation or full evacuation in conjunction with the entire building, if part of a multitenant facility.

403.5.4 Assembly points and fire operations. Assembly points shall not be in areas likely to be utilized for fire service operations.

403.10.2 Group R-2 occupancies. Group R-2 occupancies shall comply with Sections 403.10.2.1 through 403.10.2.4.

403.10.2.4 Group R-2 assisted living and residential care facilities. Assisted living and residential care facilities licensed by the state of Washington shall comply with Section 403.8.1 as required for Group I-1 Condition 2 occupancies.

403.10.3 Group R-4 occupancies. This section not adopted.

403.12.3 Crowd managers for gatherings exceeding 1,000 people. Where facilities or events involve a gathering of more than 1,000 people, or as required by the fire *code official*, crowd managers shall be provided in accordance with Sections 403.12.3.1 through 403.12.3.3.

404.2.3 Lockdown plans. This section is not adopted.

406.1 General. Employees in the occupancies listed in Section 403 shall be trained in the emergency procedures described in their emergency plans. Training shall be based on these plans and as described in Section 406.2 and 406.3.

406.2 Frequency. Employees shall receive training in the contents of the emergency plans and their duties as part of new employee orientation and at least annually thereafter. Records shall be kept and made available to the fire code official upon request.

406.3 Employee training program. Employees shall be trained in fire prevention, evacuation, sheltering-in-place, and fire safety in accordance with Sections 406.3.1 through 406.3.3.

406.3.4 Emergency shelter-in-place training. Where a facility has a shelter-in-place plan, employees shall be trained on the alert and recall signals, communication system, location of emergency supplies, the use of the incident notification and alarm system, and their assigned duties and procedures in the event of an alarm or emergency.

406.4 Emergency lockdown training. This section is not adopted.

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with locally adopted street, road, and access standards.
503.1.1 Buildings and facilities, is not adopted.

503.1.2 Additional access, is not adopted.
503.1.3 High-piled storage, is not adopted.
503.2 Specifications. This section is not adopted.
503.3 Marking. This section is not adopted.
503.4 Obstruction of fire apparatus access roads. This section is not adopted.
503.4.1 Traffic calming devices. This section is not adopted.

507.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method.

EXCEPTIONS: 1. Fire flow is not required for structures under 500 square feet with a B, U or R-1 occupancy where structures are at least 30 feet from any other structure and are used only for recreation.

2. In rural and suburban areas in which adequate and reliable water supply systems do not exist, the fire *code official* is authorized to utilize NFPA 1142 or the *International Wildland-Urban Interface Code*.

508.1.2 Separation. The fire command center shall be separated from the remainder of the building by not less than a 2-hour fire barrier constructed in accordance with Section 707 of the International Building Code or horizontal assembly constructed in accordance with Section 711 of the International Building Code, or both.

510.4.1.1 Minimum signal strength into building. The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the *fire code official*. The inbound signal level shall be a minimum of -95 dBm throughout the coverage area and sufficient to provide not less than a delivered audio quality (DAQ) of 3.0 or an equivalent signal-to-interference-plus-noise ratio (SINR) applicable to the technology for either analog or digital signals.

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be a National Electrical Manufacturer's Association (NEMA) 4, IP65-type waterproof cabinet or equivalent.
2. Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet, IP65-type waterproof cabinet or equivalent.
3. Equipment shall have FCC or other radio licensing authority certification and be suitable for public safety use prior to installation.
4. Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20 dB greater than the system gain under all operating conditions.
5. Bi-directional amplifiers (BDAs) active RF emitting devices used in emergency responder radio coverage systems shall have oscillation prevention built-in oscillation detection and control circuitry.
6. The installation of amplification systems or systems that operate on or provide the means to cause interference on any emergency responder radio coverage networks shall be coordinated and approved by the fire code official.

510.5.3 Acceptance test procedure. Where an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to verify that two-way coverage on each floor of the building is not less than 95 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system or equipment approved by the fire code official.
3. Failure of more than one test area shall result in failure of the test.
4. In the event that two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than two nonadjacent test areas shall not result in failure of the test. If the system fails the 40 area test, the system shall be altered to meet the 95 percent coverage requirement.
5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered to be a failure of that test area. Additional test locations shall not be permitted.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building *owner* so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building *owner* shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation, a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and at subsequent annual inspections.
8. Systems incorporating Class B signal-booster devices or Class B broadband fiber remote devices shall be tested using two portable radios simultaneously conducting subjective voice quality checks. One portable radio shall be positioned not greater than 10 feet (3048 mm) from the indoor antenna. The second portable radio shall be positioned at a distance that represents the farthest distance from any indoor antenna. With both portable radios simultaneously keyed up on different frequencies within the same band, subjective audio testing shall be conducted and comply with DAQ levels as specified in Sections 510.4.1.1 and 510.4.1.2.

510.5 Installation requirements. The installation of the public safety radio coverage system shall be in accordance with NFPA 1221 and Sections 510.5.1 through 510.5.5.

510.5.5 Mounting of the donor antenna(s). To maintain proper alignment with the system designed donor site, donor antennas shall be permanently affixed on the highest possible position on the building or where approved by the fire code official. A clearly visible sign stating "movement or repositioning of this antenna is prohibited without approval from the fire code official." The antenna installation shall be in accordance with the applicable requirements in the International Building Code for weather protection of the building envelope.

510.6.1 Testing and proof of compliance. The owner of the building or owner's authorized agent shall have the emergency responder radio coverage system inspected and tested annually or where structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

1. In-building coverage test as described in Section 510.5.3 or as required by the fire code official.
2. Signal boosters shall be tested to verify that the gain is the same as it was upon initial installation and acceptance or set to optimize the performance of the system.
3. Backup batteries and power supplies shall be tested under load of a period of 1 hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.
4. Other active components shall be checked to verify operation within the manufacturers specification.
5. At the conclusion of the testing, a report, which shall verify compliance with Section 510.5.3, shall be submitted to the fire code official.

607.2 Where required. A Type I hood shall be installed at or above all commercial cooking appliances and domestic cooking appliances used for commercial purposes that produce grease laden vapors.

EXCEPTIONS: 1. A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m3 or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m3/s) in accordance with Section 17 of UL 710B.

2. A Type I hood shall not be required to be installed in an R-2 occupancy, an assisted living facility licensed under chapter 388-78A WAC, or a residential treatment facility licensed under chapter 246-337 WAC with not more than 16 residents.

3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.

4. A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m3 or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m3/s) in accordance with UL 710B.

5. A Type I hood shall not be required to be installed in an R-2 occupancy with not more than 16 residents.

607.2.1 Domestic cooking appliances used for commercial purposes. Domestic cooking appliances utilized for commercial purposes shall be provided with Type I, Type II or residential hoods as required for the type of appliances and processes in accordance with Table 607.2.1 or Sections 507.2 and 507.3 of the *International Mechanical Code*.

Table 607.2.1

Type of Hood Required for Domestic Cooking Appliances in the Following Spaces a,b

Type of Space	Type of Cooking	Type of Hood
Church	1. Boiling, steaming and warming precooked food	Residential hoodc or Type II hood
	2. Roasting, pan frying and deep frying	Type I hood
Community or party room in apartment and condominium	1. Boiling, steaming and warming precooked food	Residential hoodc or Type II hoodd
	2. Roasting, pan frying and deep frying	Type I hood
Day care	1. Boiling, steaming and warming precooked food	Residential hoodc or Type II hoodd
	2. Roasting, pan frying and deep frying	Type I hood
Dormitory, assisted living facility, nursing home	1. Boiling, steaming and warming precooked food	Residential hoodc or Type II hood
	2. Roasting, pan frying and deep frying	Type I hood
Office lunch room	1. Boiling, steaming and warming precooked food	Residential hoodc or Type II hoodd
	2. Roasting, pan frying and deep frying	Type I hood

a Commercial cooking appliances shall comply with Section 507.2 of the *International Mechanical Code*.

b Requirements in this table apply to electric or gas fuel appliances only. Solid fuel appliances or charbroilers require Type I hoods.

c Residential hood shall ventilate to the outside.

d Type II hood required when more than one appliance is used.

e Hoods are not required where the HVAC design meets IMC 507.3.

607.3 Operations, inspection and maintenance. Commercial cooking systems shall be operated, inspected and maintained in accordance with Sections 607.3.1 through 607.3.4 and Chapter 11 of NFPA 96.

701.6 Owner's responsibility. The owner shall maintain an inventory of all required fire-resistance-rated construction, construction installed to resist the passage of smoke and the construction included in Sections 703 through 707 and Sections 602.4.1 and 602.4.2 of the *International Building Code*. Such construction shall be visually inspected by the owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space.

806.1.1 Restricted occupancies. Natural cut trees shall be prohibited in the following occupancies:
1. Group I; and
2. R-2 occupancies providing licensed care to clients in one of the categories listed in the International Building Code, Section 310.1, licensed by Washington state.

806.1.2 Support devices. The support device that holds the tree in an upright position shall be of a type that is stable and that meets all of the following criteria:
1. The device shall hold the tree securely and be of adequate size to avoid tipping over of the tree.
2. The device shall be capable of containing a minimum supply of water in accordance with Table 806.1.2.
3. The water level, when full, shall cover the tree stem at least 2 inches (51 mm). The water level shall be maintained above the fresh cut and checked at least once daily.

Table 806.1.2
Support Stand Water Capacity

Tree Stem Diameter (inches)	Minimum Support Stand Water Capacity (gallons)	Typical Daily Water Transpiration Amount (gallons)
Up to 4	1	1/4 to 1
4 to 6	1 1/2	1 1/4 to 1 1/2
7 to 8	2	1 3/4 to 2
9 to 12	3	2 1/4 to 3
13 and over	4	Over 3

901.4.2 Nonrequired fire protection systems. A *fire protection system* or portion thereof not required by this code or the *International Building Code* shall be allowed to be furnished for partial or complete protection provided such installed system meets the applicable requirements of this code and the *International Building Code*. Such systems or portion of system shall be provided with signage stating "NON-REQUIRED SYSTEM." Signage shall be durable and permanent in nature, with contrasting color and background, and with lettering of not less than 1 inch in height. Location of such signage shall be approved.

901.8.2 Removal of existing occupant-use hose lines. The fire *code official* is authorized to permit the removal of existing occupant-use hose lines where all of the following conditions exist:

1. Installation is not required by this code, the *International Building Code*, or a previously approved alternative method.
2. The hose line would not be utilized by trained personnel or the fire department.
3. The remaining outlets are compatible with local fire department fittings.

903.2.1.6 Assembly occupancies on roofs. Where an occupied roof has an assembly occupancy with an occupant load exceeding 100 for Group A-2, and 300 for other Group A occupancies, the building shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

EXCEPTION: Open parking garages of Type I or Type II construction.

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 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.

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 or additions house less than sixteen persons receiving care, an automatic sprinkler system installed in accordance with Section 903.2.8.3 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.

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 where 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.

903.2.8 Group R. An automatic 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 on 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 Group S-1. An *automatic sprinkler system* shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 *fire area* exceeds 12,000 square feet (1115 m2).
2. A Group S-1 *fire area* is located more than three stories above grade plane.
3. The combined area of all Group S-1 *fire areas* on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m2).
4. A Group S-1 *fire area* used for the storage of commercial motor vehicles where the *fire area* exceeds 5,000 square feet (464 m2).

903.2.9.3 Group S-1 Upholstered Furniture and Mattresses. An automatic sprinkler system shall be provided throughout a Group S-1 fire are where the area used for the storage of upholstered furniture exceeds 2,500 square feet (232 m2).

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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903.2.11.1.3 Basements. Where any portion of a basement is located more than 75 feet (22,860 mm) from openings required by Section 903.2.11.1, or where new walls, partitions or other similar obstructions are installed that increase the exit access travel distance to more than 75 feet, the basement shall be equipped throughout with an approved automatic sprinkler system.

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.

903.3.5.3 Underground portions of fire protection system water supply piping. The portion of the installation or modification of an underground water main, public or private, dedicated to 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.

EXCEPTION: Portions of underground piping supplying automatic sprinkler systems installed in accordance with NFPA 13D.

904.1.1 Certification of service personnel for fire-extinguishing equipment. Service personnel performing system design, installation or conducting system maintenance or testing on automatic fire-extinguishing systems, other than automatic sprinkler systems, shall possess the appropriate ICC/NAFED certification.

904.1.1.1 Preengineered kitchen fire-extinguishing systems. A current ICC/NAFED certification for preengineered kitchen fire-extinguishing systems is required when performing design, installation, inspection/testing or maintenance on kitchen suppression systems.

904.1.1.2 Engineered fire suppression systems. A current ICC/NAFED certification for engineered fire suppression systems is required when performing design, installation, inspection/testing or maintenance on kitchen suppression systems.

904.1.1.3 Preengineered industrial fire-extinguishing system. A current ICC/NAFED certification for preengineered industrial fire-extinguishing system is required when performing design, installation, inspection/testing or maintenance on kitchen suppression systems.

904.12 Commercial cooking systems. The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Preengineered automatic dry and wet chemical extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Other types of automatic fire-extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions. Signage shall be provided on the exhaust hood or system cabinet, indicating the type and arrangement of cooking appliances protected by the automatic fire-extinguishing system. Signage shall indicate appliances from left to right, be durable, and the size, color, and lettering shall be approved. Automatic fire-extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows:

1. Carbon dioxide extinguishing systems, NFPA 12;
2. *Automatic sprinkler systems*, NFPA 13;
3. Foam-water sprinkler systems or foam-water spray systems, NFPA 16;
4. Dry-chemical extinguishing systems, NFPA 17;
5. Wet-chemical extinguishing systems, NFPA 17A.

EXCEPTION: Factory-built commercial cooking recirculating systems that are tested in accordance with UL 710B and *listed, labeled* and installed in accordance with Section 304.1 of the *International Mechanical Code.*

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 dusts 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.

907.2.6.1 Group I-1. An automatic smoke detection system shall be installed in *corridors*, waiting areas open to *corridors* and *habitable spaces* other than *sleeping units* and kitchens. The system shall be activated in accordance with Section 907.4.

EXCEPTIONS: 1. For Group I-1 Condition 1 occupancies, smoke detection in *habitable spaces* is not required where the facility is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

2. Smoke detection is not required for exterior balconies.

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.

907.11 NICET: National Institute for Certification in Engineering Technologies and ESA/NTS: Electronic Security Association/National Training School.

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

907.11.2 Design review: All construction documents shall be reviewed by a NICET III, an ESA/NTS Certified Fire Alarm Designer (CFAD) Level III Fire 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).

907.10.1 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 or ESA/NTS Certified Fire Alarm Technician (CFAT) Level II Fire in fire alarms (effective July 1, 2018).

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 assisted living facilities and residential treatment facilities licensed by the state of Washington, 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 Section 915.1.4.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed 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 a 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.

918.1 General. An approved alerting system shall be provided in buildings and structures as required in Chapter 4 and this section, unless other requirements are provided by another section of this code.

EXCEPTION: Approved alerting systems in existing buildings, structures or occupancies.

918.2 Power source. Alerting systems shall be provided with power supplies in accordance with Section 4.4.1 of NFPA 72 and circuit disconnecting means identified as "EMERGENCY ALERTING SYSTEM."

EXCEPTION: Systems which do not require electrical power to operate.

918.3 Duration of operation. The alerting system shall be capable of operating under nonalarm condition (quiescent load) for a minimum of 24 hours and then shall be capable of operating during an emergency condition for a period of 15 minutes at maximum connected load.

918.4 Combination system. Alerting system components and equipment shall be allowed to be used for other purposes.

918.4.1 System priority. The alerting system use shall take precedence over any other use.

918.4.2 Fire alarm system. Fire alarm systems sharing components and equipment with alerting systems must be in accordance with Section 6.8.4 of NFPA 72.

918.4.2.1 Signal priority. Recorded or live alert signals generated by an alerting system that shares components with a fire alarm system shall, when actuated, take priority over fire alarm messages and signals.

918.4.2.2 Temporary deactivation. Should the fire alarm system be in the alarm mode when such an alerting system is actuated, it shall temporarily cause deactivation of all fire alarm-initiated audible messages or signals during the time period required to transmit the alert signal.

918.4.2.3 Supervisory signal. Deactivation of fire alarm audible and visual notification signals shall cause a supervisory signal for each notification zone affected in the fire alarm system.

918.5 Audibility. Audible characteristics of the alert signal shall be in accordance with Section 7.4.1 of NFPA 72 throughout the area served by the alerting system.

EXCEPTION: Areas served by approved visual or textual notification, where the visible notification appliances are not also used as a fire alarm signal, are not required to be provided with audibility complying with Section 916.6.

918.6 Visibility. Visible and textual notification appliances shall be permitted in addition to alert signal audibility.

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. One *accessible means of egress* is required from an *accessible* mezzanine level in accordance with Section 1009.3, 1009.4 or 1009.5.

2. 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.

3. In parking garages, *accessible means of egress* are not required to serve parking areas that do not contain accessible parking spaces.

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 or I-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.

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 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. Approved, listed locks without delayed egress shall be permitted in Group I-1 condition 2 assisted living facilities licensed under chapter 388-78A WAC and Group I-1 Condition 2 residential treatment facilities licensed under chapter 246-337 WAC by the state of Washington, provided that:
6.1. The clinical needs of one or more patients require specialized security measures for their safety.
6.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
6.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.
6.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.
6.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.
6.6. Emergency lighting shall be provided at the door.

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 controlled egress locking system 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.
7. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.
8. Emergency lighting shall be provided at the door.
9. 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.

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.

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 have locking devices in accordance with Section 1010.1.9.4, Item 2.

2. Doors provided with panic 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.

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.

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 1009.

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

1. Other than ramps that are part of the accessible routes providing access in accordance with Sections 1108.2 through 1108.2.4 and 1108.2.6, ramped aisles within assembly rooms or spaces shall conform with the provisions in Section 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 1010.4 through 1010.10 when they are not an accessible route serving accessible parking spaces or other required accessible elements.
4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections 1010.5, 1010.6, and 1010.9. A landing complying with Sections 1010.7.1 and 1010.7.4 shall be provided at any change of direction in the accessible means of egress.

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 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 (9144 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.

1103.4.3 More than five stories. In other than Group I occupancies, interior vertical openings connecting more than five stories shall be protected by fire-resistant and smoke-rated construction.

EXCEPTIONS: 1. Vertical opening protection is not required for Group R-3 occupancies.

2. Vertical opening protection is not required for open parking garages and ramps.

3. Vertical opening protection for escalators shall be in accordance with Section 1103.4.8.

1103.5.5 Nightclub. An automatic sprinkler system shall be provided throughout A-2 nightclubs as defined in this code. No building shall be constructed for, used for, or converted to occupancy as a nightclub except in accordance with this section.

1103.9 Carbon monoxide alarms. Existing Group I or Group R occupancies shall be provided with single station carbon monoxide alarms in accordance with Section 915.4.3. An inspection will occur when alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720-2015 and the manufacturer's instructions.

EXCEPTIONS: 1. For other than R-2 occupancies, if the building does not contain a fuel-burning appliance, a fuel-burning fireplace, or an attached garage.

2. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, or electrical permits.

3. Installation, alteration or repairs of noncombustion plumbing or mechanical systems.

4. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and assisted living facilities and residential treatment facilities licensed by the state of Washington 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:

4.1. The sleeping units or dwelling unit is not adjacent to any room which contains a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and

4.2. The sleeping units or dwelling unit is not connected by duct work or ventilation shafts with a supply or return register in the same room to any room containing a fuel-burning appliance, a fuel-burning fireplace, or to an attached garage; and

4.3. The building is provided with a common area carbon monoxide detection system.

5. An open parking garage, as defined in the International Building Code, or enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

1104.1 General. Means of egress in existing buildings shall comply with Section 1030 and 1104.2 through 1104.25.

EXCEPTION: Means of egress conforming to the requirements of the building code under which they were constructed and Section 1030 shall not be required to comply with 1104.2 through 1104.22 and 1104.25.

1105.1 General. This section shall be applied by jurisdictions conducting surveys for compliance with the federal centers for medicare and medicaid reimbursement program. Existing Group I-2 shall meet all of the following requirements:

1. The minimum fire safety requirements in Section 1103.
2. The minimum means of egress requirements in Section 1104.
3. The additional egress and construction requirements in Section 1105.

Where the provisions of this chapter conflict with the construction requirements that applied at the time of construction, the most restrictive provisions shall apply.

1204.1 General. Installation, modification, or alteration of solar photovoltaic power systems shall comply with this section. Due to the emerging technologies in the solar photovoltaic industry, it is understood fire code officials may need to amend prescriptive requirements of this section to meet the requirements for firefighter access and product installations. Section 104.9 Alternative materials and methods of this code shall be considered when approving the installation of solar photovoltaic power systems. Solar photovoltaic power systems shall be installed in accordance with Sections 605.11.1 through 605.11.2, the *International Building Code* and chapter 19.28 RCW.

1204.2.1 Solar photovoltaic systems for Group R-3 residential and buildings built under the *International Residential Code*. Solar photovoltaic systems for Group R-3 residential and buildings built under the *International Residential Code* shall comply with Sections 1204.2.1.1 through 1204.2.1.3.

EXCEPTIONS: 1. Residential dwellings with an approved automatic fire sprinkler system installed.

2. Residential dwellings with approved mechanical or passive ventilation systems.

3. Where the fire code official determines that the slope of the roof is too steep for emergency access.

4. Where the fire code official determines that vertical ventilation tactics will not be utilized.

5. These requirements shall not apply to roofs where the total combined area of the solar array does not exceed thirty-three percent as measured in plan view of the total roof area of the structure, where the solar array will measure 1,000 sq. ft. or less in area, and where a minimum eighteen inches unobstructed pathway shall be maintained along each side of any horizontal ridge.

1204.6 Size of solar photovoltaic array.

1. Each photovoltaic array shall be limited to 150 feet (45,720 mm) by 150 feet (45,720 mm). Multiple arrays shall be separated by a 3-foot wide (914 mm) clear access pathway.

2. Panels/modules shall be located up to the roof ridge where an alternative ventilation method approved by the fire *code official* has determined vertical ventilation techniques will not be employed.

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3103.5 Use period. Temporary tents, air-supported, air-inflated or tensioned membrane structures are permitted to be erected for a period of less than 180 days within a 12-month period on a single premises. Such structures erected for 180 days or more within a 12-month period shall comply with the IBC.

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.

3308.9 Fire safety requirements for buildings of Types IV-A, IV-B, and IV-C construction. Buildings of Types IV-A, IV-B, and IV-C construction designed to be greater than six stories above grade plane shall meet the following requirements during construction unless otherwise approved by the fire code official.

1. Standpipes shall be provided in accordance with Section 3313.

2. A water supply for fire department operations, as approved by the fire code official and the fire chief.

3. Where building construction exceeds six stories above grade plane, at least one layer of noncombustible protection where required by Section 602.4 of the *International Building Code* shall be installed on all building elements more than four floor levels, including mezzanines, below active mass timber construction before erecting additional floor levels.

EXCEPTION: Shafts and vertical exit enclosures shall not be considered a part of the active mass timber construction.

4. Where building construction exceeds six stories above grade plane required exterior wall coverings shall be installed on all floor levels more than four floor levels, including mezzanines, below active mass timber construction before erecting additional floor level.

EXCEPTION: Shafts and vertical exit enclosures shall not be considered a part of the active mass timber construction.

3601.3 Permits. For permits to operate marine motor fuel-dispensing stations, application of flammable or combustible finishes, and hot works, see Section 105.6.

3602.1 Definitions. The following terms are defined in Chapter 2:

COVERED BOAT MOORAGE

FLOAT

GRAVITY-OPERATED DROP OUT VENTS

MARINA

PIER

VESSEL

WHARF

3604.2 Standpipes. Marinas shall be equipped throughout with Class I manual, dry standpipe systems in accordance with NFPA 303. Systems shall be provided with outlets located such that no point on the marina pier or float system exceeds 150 feet from a standpipe outlet.

3604.3 Access and water supply. Piers and wharves shall be provided with fire apparatus access roads and water-supply systems with on-site fire hydrants when required and approved by the fire code official. At least one fire hydrant capable of providing the required fire flow shall be provided within an approved distance of standpipe supply connections.

3604.4 Portable fire extinguishers. One 4A40BC fire extinguisher shall be provided at each standpipe outlet. Additional fire extinguishers, suitable for the hazards involved, shall be provided and maintained in accordance with Section 906.

3604.7 Smoke and heat vents. Approved automatic smoke and heat vents shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m2) in area, excluding roof overhangs.

EXCEPTION: Smoke and heat vents are not required in areas protected by automatic sprinklers.

3604.7.1 Design and installation. Where smoke and heat vents are required they shall be installed near the roof peak, evenly distributed and arranged so that at least one vent is over each covered berth. The effective vent area shall be calculated using a ratio of one square foot of vent to every fifteen square feet of covered berth area (1:15). Each vent shall provide a minimum opening size of 4 ft. x 4 ft.

3604.7.1.1 Smoke and heat vents. Smoke and heat vents shall operate automatically by actuation of a heat-responsive device rated at 100ºF (56ºC) above ambient.

EXCEPTION: Gravity-operated drop out vents.

3604.7.1.2 Gravity-operated drop out vents. Gravity-operated drop out vents shall fully open within 5 minutes after the vent cavity is exposed to a simulated fire represented by a time-temperature gradient that reaches an air temperature of 500ºF (260ºC) within 5 minutes.

3604.8 Draft curtains. Draft curtains shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m2) in area, excluding roof overhangs.

EXCEPTION: Draft curtains are not required in areas protected by automatic sprinklers.

3604.8.1 Draft curtain construction. Draft curtains shall be constructed of sheet metal, gypsum board or other approved materials that provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.

3604.8.2 Draft curtain location and depth. The maximum area protected by draft curtains shall not exceed 2,000 sq. ft. (186 m2) or two slips or berths, whichever is smaller. Draft curtains shall not extend past the piling line. Draft curtains shall have a minimum depth of 4 feet and shall not extend closer than 8 feet (2438 mm) to the walking surface of the pier.

3901.1 Scope. Facilities used for marijuana processing or extraction that utilize chemicals or equipment as regulated by the International Fire Code shall comply with this chapter and the International Building Code. The extraction process includes the act of extraction of the oils and fats by use of a solvent, desolventizing of the raw material and production of the miscella, distillation of the solvent from the miscella and solvent recovery. The use, storage, transfilling, and handling of hazardous materials in these facilities shall comply with this chapter and the International Building Code.

3901.2 Application. The requirements set forth in this chapter are requirements specific only to marijuana processing and extraction facilities and shall be applied as exceptions or additions to applicable requirements set forth elsewhere in this code.

3901.2.1 For the purposes of this chapter, marijuana processing and extraction shall be limited to those processes and extraction methods that utilize chemicals defined as hazardous by the International Fire Code and are regulated as such. Such processes and extraction methods shall meet the requirements of this chapter and other applicable requirements elsewhere in this code and its referenced standards.

EXCEPTION: Provisions of WAC 314-55-104 do not apply to this chapter.

3901.2.2 The use of equipment regulated by the International Fire Code for either marijuana processing or marijuana extraction shall meet the requirements of this chapter and other applicable requirements elsewhere in this code.

3901.3 Multiple hazards. Where a material, its use or the process it is associated with poses multiple hazards, all hazards shall be addressed in accordance with Section 5001.1 and other material specific chapters.

3901.4 Existing building or facilities. Existing buildings or facilities used for the processing of marijuana shall comply with this chapter.

3901.5 Permits. Permits shall be required as set forth in Section 105.6 and 105.7.

SECTION 3902—DEFINITIONS

Desolventizing. The act of removing a solvent from a material.
Finding. The results of an inspection, examination, analysis or review.
Marijuana processing. Processing that uses chemicals or equipment as regulated by the International Fire Code; this does not include the harvesting, trimming, or packaging of the plant.
Miscella. A mixture, in any proportion, of the extracted oil or fat and the extracting solvent.
Observation. A practice or condition not technically noncompliant with other regulations or requirements, but could lead to noncompliance if left unaddressed.
Transfilling. The process of taking a gas source, either compressed or in liquid form (usually in bulk containers), and transferring it into a different container (usually a smaller compressed cylinder).

SECTION 3903—PROCESSING OR EXTRACTION OF MARIJUANA

3903.1 Location. Marijuana processing shall be located in a building complying with the International Building Code and this code. Requirements applied to the building shall be based upon the specific needs for mitigation of the specific hazards identified.

3903.2 Systems, equipment and processes. Systems, equipment, and processes shall be in accordance with Sections 3803.2.1 through 3803.2.7. In addition to the requirements of this chapter, electrical equipment shall be listed or evaluated for electrical fire and shock hazard in accordance with RCW 19.28.010(1).

3903.2.1 Application. Systems, equipment and processes shall include, but are not limited to, vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps.

3903.2.2 General requirements. In addition to the requirements in Section 3803, systems, equipment and processes shall also comply with Section 5003.2, other applicable provisions of this code, the International Building Code, and the International Mechanical Code. The use of ovens in post-process purification or winterization shall comply with Section 3803.2.7.

3903.2.3 Systems and equipment. Systems or equipment used for the extraction of oils from plant material shall be listed and approved for the specific use. If the system used for extraction of oils and products from plant material is not listed, then a technical report prepared by a Washington licensed engineer shall be provided to the code official for review and approval.
3903.2.4 Change of extraction medium. Where the medium of extraction or solvent is changed from the material indicated in the technical report, or as required by the manufacturer, the technical report shall be revised at the cost of the facility owner, and submitted for review and approval by the fire code official prior to the use of the equipment with the new medium or solvent.

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3903.2.5 Required technical report. The technical report documenting the equipment design shall be submitted for review and approval by the fire code official prior to the equipment being installed at the facility.

3903.2.5.1 Content of technical report and engineering analysis. All, but not limited to, the items listed below shall be included in the technical report.

1. Manufacturer information.
2. Engineer of record information.
3. Date of review and report revision history.
4. Signature page shall include:

4.1 Author of the report;

4.2 Date of report;

4.3 Seal, date and signature of engineer of record performing the design; and

5. Model number of the item evaluated. If the equipment is provided with a serial number, the serial number shall be included for verification at the time of site inspection.
6. Methodology of the design review process used to determine minimum safety requirements. Methodology shall consider the basis of design, and shall include a code analysis and code path to demonstrate the reason why specific codes or standards are applicable or not.
7. Equipment description. A list of all components and subassemblies of the system or equipment, indicating the material, solvent compatibility, maximum temperature and pressure limits.
8. A general flow schematic or general process flow diagram (PFD) of the process, including maximum temperatures, pressures and solvent state of matter shall be identified in each step or component. It shall provide maximum operating temperature and pressure in the system.
9. Analysis of the vessel(s) if pressurized beyond standard atmospheric pressure. Analysis shall include purchased and fabricated components.
10. Structural analysis for the frame system supporting the equipment.
11. Process safety analysis of the extraction system, from the introduction of raw product to the end of the extraction process.
12. Comprehensive process hazard analysis considering failure modes and points of failure throughout the process. This portion of the review should include review of emergency procedure information provided by the manufacturer of the equipment or process and not that of the facility, building or room.
13. Review of the assembly instructions, operational and maintenance manuals provided by the manufacturer.
14. Report shall include findings and observations of the analysis.
15. List of references used in the analysis.

3903.2.6 Building analysis. The technical report, provided by the engineer of record, shall include a review of the construction documents for location, room, space or building and include recommendations to the fire code official.

3903.2.6.1 Site inspection. The engineer of record of the equipment shall inspect the installation of the extraction equipment for conformance with the technical report and provide documentation to the fire code official that the equipment was installed in conformance with the approved design.

3903.2.7 Post-process purification and winterization. Post-processing and winterization involving the heating or pressurizing of the miscella shall be approved and performed in an appliance listed for such use. Domestic or commercial cooking appliances shall not be used. The use of industrial ovens shall comply with Chapter 30.

EXCEPTION: An automatic fire extinguishing system shall not be required for batch-type Class A ovens having less than 3.0 cubic feet of work space.

3903.3 Construction requirements.

3903.3.1 Location. Marijuana extraction shall not be located in any building containing a Group A, E, I or R occupancy.

3903.3.1.1 Extraction room. The extraction equipment and processes utilizing hydrocarbon solvents shall be located in a room or area dedicated to extraction.

3903.3.2 Egress. Doors installed on rooms or areas dedicated to extraction shall be equipped with panic hardware or fire exit hardware.

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3903.3.2.1 Facility egress. Egress requirements shall be in compliance with Chapter 10 of the International Building Code.

3903.3.3 Ventilation. Ventilation shall be provided in compliance with Chapter 4 of the International Mechanical Code.

3903.3.4 Control area. Control areas shall comply with Section 5003.8.3.

3903.3.5 Ignition source control. Extraction equipment and processes using flammable or combustible gas or liquid solvents shall be provided with ventilation rates for the room to maintain the concentration of flammable constituents in air below 25 percent of the lower flammability limit of the respective solvent. If not provided with the required ventilation rate, Class I Division II electrical requirements shall apply to the entire room.

3903.3.6 Interlocks. When a hazardous exhaust system is provided, all electrical components within the extraction room or area shall be interlocked with the hazardous exhaust system, and when provided, the gas detection system. When the hazardous exhaust system is not operational, then light switches and electrical outlets shall be disabled. Activation of the gas detection system shall disable all light switches and electrical outlets.

3903.3.7 Emergency power.

3903.3.7.1 Emergency power for extraction process. Where power is required for the operation of the extraction process, an automatic emergency power source in accordance with Section 5004.7 and 604 shall be provided. The emergency power source shall have sufficient capacity to allow safe shutdown of the extraction process plus an additional 2 hours of capacity beyond the shutdown process.

3903.3.7.2 Emergency power for other than extraction process. An automatic emergency power system in accordance with Section 604 shall be provided when any of the following items are installed:

1. Extraction room lighting;
2. Extraction room ventilation system;
3. Solvent gas detection system;
4. Emergency alarm systems;
5. Automatic fire extinguishing systems.

3903.3.8 Continuous gas detection system. For extraction processes utilizing gaseous hydrocarbon-based solvents, a continuous gas detection system shall be provided. The gas detection threshold shall not exceed 25 percent of the LEL/LFL limit of the materials.

3903.4 Carbon dioxide enrichment or extraction. Extraction processes using carbon dioxide shall comply with this section.

3903.4.1 Scope. Carbon dioxide systems with more than 100 pounds of carbon dioxide shall comply with Sections 3803.4 through 3803.4.3. This section is applicable to carbon dioxide systems utilizing compressed gas systems, liquefied-gas systems, dry ice, or on-site carbon dioxide generation.

3903.4.2 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7.

3903.4.3 Signage. At the entrance to each area using or storing carbon dioxide, signage shall be posted indicating the hazard. Signs shall be durable and permanent in nature and not less than 7 inches wide by 10 inches tall. Signs shall bear the warning "DANGER! POTENTIAL OXYGEN DEFICIENT ATMOSPHERE." NFPA 704 signage shall be provided at the building main entry and the rooms where the carbon dioxide is used and stored.

3903.5 Flammable or combustible liquid. The use of a flammable or combustible liquid for the extraction of oils and fats from marijuana shall comply with this section.

3903.5.1 Scope. The use of flammable and combustible liquids for liquid extraction processes where the liquid is boiled, distilled, or evaporated shall comply with this section and NFPA 30.

3903.5.2 Location. The process using a flammable or combustible liquid shall be located within a hazardous exhaust fume hood, rated for exhausting flammable vapors. Electrical equipment used within the hazardous exhaust fume hood shall be listed or approved for use in flammable atmospheres. Heating of flammable or combustible liquids over an open flame is prohibited.

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4001.1 Scope. Fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130.

Table 5003.11.1
Maximum Allowable Quantities Per Indoor and Outdoor Control Area in Group M and S Occupancies - Nonflammable Solids, Nonflammable and Combustible Liquids d,e,f

Conditions		Maximum Allowable Quantities Per Control Area	
Materials	Class	Solids (pounds)	Liquids (gallons)
A. Health-Hazard Materials Nonflammable and Noncombustible Solids and Liquids			
1. Corrosive b,c	Not Applicable	9,750	975
2. Highly Toxic	Not Applicable	20 b,c	2 b,c
3. Toxics b,c	Not (k) Applicable	1,000	100
B. Physical-Hazard Materials Nonflammable and Noncombustible Solids and Liquids			
1. Oxidizer b,c	4	Not Allowed	Not Allowed
	3	1,350 g	135
	2	2,250 h	225
	1	18,000 i,j	1,800 i,j
2. Unstable (Reactives) b,c	4	Not Allowed	Not Allowed
	3	550	55
	2	1,150	115
	1	Not Limited	Not Limited
3. Water Reactives	3 b,c	550	55
	2 b,c	1,150	115
	1	Not Limited	Not Limited

For SI: 1 pound = 0.454 kg, 1 gallon = 3.785 L, 1 cubic foot = 0.02832 m3.

a. Hazard categories are as specified in Section 5001.2.2.

b. Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where note c applies, the increase for both notes shall be applied accumulatively.

c. Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets in accordance with Section 5003.8. Where note b applies, the increase for both notes shall be applied accumulatively.

d. See Table 5003.8.3.2 for design and number of control areas.

e. Maximum allowable quantities for other hazardous material categories shall be in accordance with Section 5003.1.

f. Maximum allowable quantities shall be increased 100 percent in outdoor control areas.

g. Maximum allowable quantities shall be increased to 2,250 pounds where individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.

h. Maximum allowable quantities shall be increased to 4,500 pounds where individual packages are in the original sealed containers from the manufacturer or packager and do not exceed 10 pounds each.

i. Quantities are unlimited where protected by an automatic sprinkler system.

j. Quantities are unlimited in an outdoor control area.

k. Maximum allowable quantity of consumer products shall be increased to 10,000 pounds where individual packages are in original sealed containers from the manufacturer and the toxic classification is exclusively based on the LC50.

5306.1 General. Compressed gases at hospitals and similar facilities intended for inhalation or sedation including, but not limited to, analgesia systems for dentistry, podiatry, veterinary and similar uses shall comply with Sections 5306.2 through 5306.4 in addition to other requirements of this chapter.

EXCEPTION: All new distribution piping, supply manifolds, connections, regulators, valves, alarms, sensors and associated equipment shall be in accordance with the Plumbing Code.

5306.5 Medical gas systems. The maintenance and testing of medical gas systems including, but not limited to, distribution piping, supply manifolds, connections, pressure regulators and relief devices and valves, shall comply with the maintenance and testing requirements of NFPA 99 and the general provisions of this chapter.

5601.1 Scope. The provisions of this chapter shall govern the possession, manufacture, storage, handling, sale and use of explosives, explosive materials, and small arms ammunition. The manufacture, storage, handling, sale and use of fireworks shall be governed by chapter 70.77 RCW, and by chapter 212-17 WAC and local ordinances consistent with chapter 212-17 WAC.

EXCEPTIONS: 1. The Armed Forces of the United States, Coast Guard or National Guard.

2. Explosives in forms prescribed by the official United States Pharmacopoeia.

3. The possession, storage and use of small arms ammunition when packaged in accordance with DOT packaging requirements.

4. The possession, storage and use of not more than 1 pound (0.454 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and 10,000 small arms primers for hand loading of small arms ammunition for personal consumption.

5. The use of explosive materials by federal, state and local regulatory, law enforcement and fire agencies acting in their official capacities.

6. Special industrial explosive devices which in the aggregate contain less than 50 pounds (23 kg) of explosive materials.

7. The possession, storage and use of blank industrial-power load cartridges when packaged in accordance with DOT packaging regulations.

8. Transportation in accordance with DOT 49 C.F.R. Parts 100-185.

9. Items preempted by federal regulations.

5601.1.1 Explosive material standard. In addition to the requirements of this chapter, NFPA 495 shall govern the manufacture, transportation, storage, sale, handling and use of explosive materials. See also chapter 70.74 RCW and chapter 296-52 WAC.

5704.2.11 Underground tanks. Underground storage of flammable and combustible liquids in tanks shall comply with Section 5704.2 and Sections 5704.2.11.1 through 5704.2.11.4.2. Corrosion protection shall comply with WAC 173-360-305.

5706.5.4.5 Commercial, industrial, governmental or manufacturing. Dispensing of Class II and III motor vehicle fuel from tank vehicles into the fuel tanks of motor vehicles located at commercial, industrial, governmental or manufacturing establishments is allowed where permitted, provided such dispensing operations are conducted in accordance with the following: (Those sections not noted here remain unchanged.)

12. Fuel delivery vehicles shall be equipped with spill clean-up supplies in accordance with the department of ecology's Source Control Best Management Practices. Such supplies shall be readily available for deployment by the operator at all times and include nonwater absorbents capable of absorbing 15 gallons (56.76 L) of diesel fuel, storm drain plug or cover kit, a nonwater absorbent containment boom of a minimum 10 foot long (3038 mm) length with a 12-gallon (45.41 L) absorbent capacity, a nonmetallic shovel, and two 5-gallon (19 L) buckets with lids.

6108.1 General. Storage, handling and transportation of liquefied petroleum gas (LP-gas) and the installation of LP-gas equipment pertinent to systems for such uses shall comply with this chapter and NFPA 58. Properties of LP-gas shall be determined in accordance with Appendix B of NFPA 58.

EXCEPTION: The use and storage of listed propane fired barbeque grills on R-2 decks and balconies with an approved container not exceeding a water capacity of 20 pounds (9 kg) that maintain a minimum clearance of 18 inches on all sides, unless listed for lesser clearances.

Referenced standards.

NFPA 720-15 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units 1103.9
NFPA 130-17 Standard for Fixed Guideway Transit and Passenger Rail Systems 3901.1