2007 Portland Fire Code

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As Amended by The City of Portland, Oregon

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by Ordinance No. XXXXXX

Based on the
2007 OREGON FIRE CODE
Effective Date April 01, 2007
Authorized by ORS 476.030
Adopted by OAR 837 Division 40

And the

INTERNATIONAL FIRE CODE ® 2006 EDITION

APPENDIX D (Portland)
FIRE APPARATUS ACCESS ROADS

The provisions contained in this appendix are adopted by the City of Portland

D101.1 Scope. Fire apparatus access roads shall be in accordance with this appendix and all other applicable requirements of the *International Fire Code*. The fire code official may be guided by the Oregon Department of Land Conservation and Development's Neighborhood Street Design Guidelines, June 2001.

SECTION D102
REQUIRED ACCESS

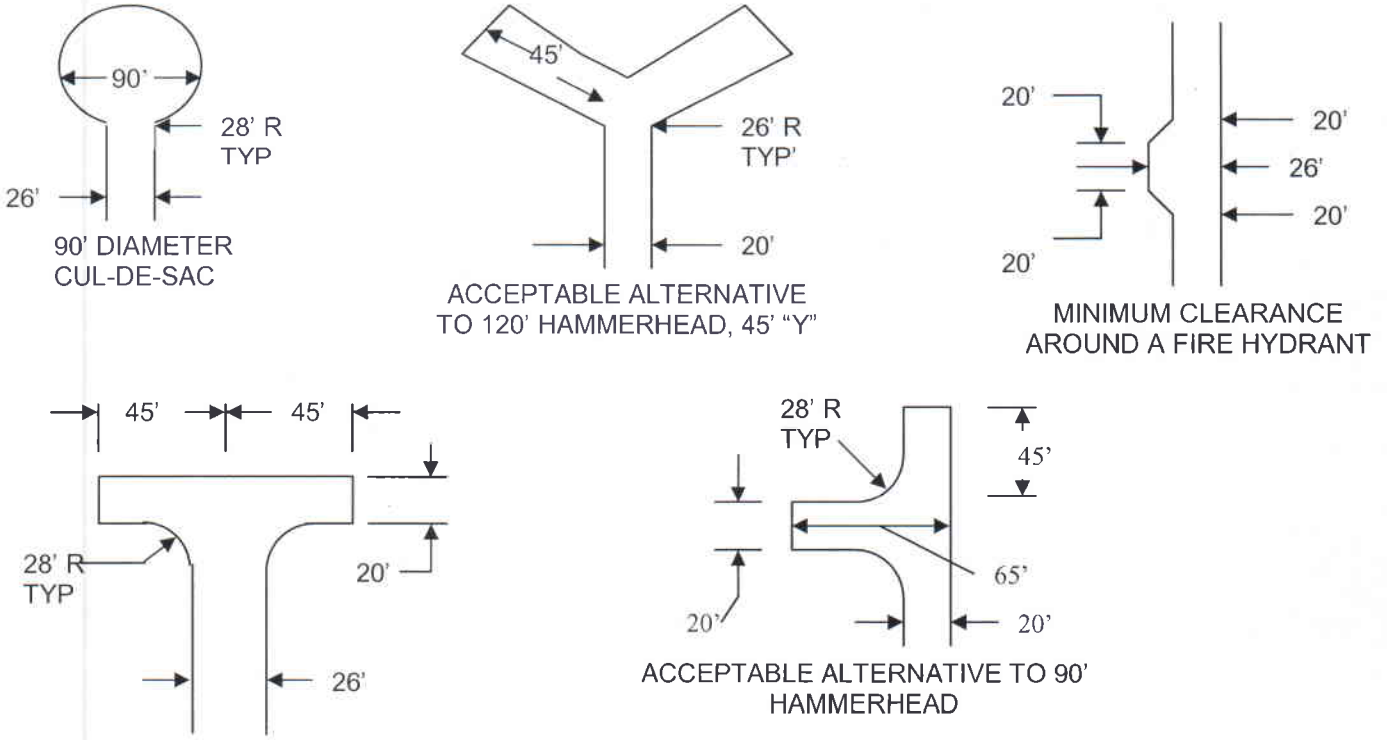
D102.1 Access and loading. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus byway of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg). Other approved driving surfaces shall be approved by the fire code official and may include compacted gravel, "grasscrete" or similar driving surfaces. *(Exception deleted by Portland.)*

D102.1.1 Access in urban-wildland interface areas. For egress and access concerns in urban-wildland interface locations, the fire code official may be guided by the *International Wildland-Urban Interface Code*.

D103.1 Access road width with a hydrant. Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm) within 20 feet of the hydrant to provide a staging area for apparatus on the access road. See Figure D103.1.

Exceptions: The fire code official is authorized to modify the provisions of Section D103.1 when:

1. In accordance with OAR 918-480-0100, all buildings are completely protected with an approved automatic fire sprinkler system; or
2. Provisions are made for the emergency use of sidewalks by such means as rolled or mountable curbs capable of supporting the fire department's apparatus: or
3. Streets or roadways are identified for one-way circulating flow of traffic or pullouts are provided every 150 feet (45 720 mm) on streets or roadways identified for two-way traffic; or
4. A grid system for traffic flow is provided and streets or roadways in the grid do not exceed 300 feet (91 400 mm) in length but are accessible at each end from approved access roadways or streets; or
5. Existing access road width is less than 26 feet.



Note: Curb radius may be reduced to 25 feet subject to approval of the Fire Chief

For SI: 1 foot = 304.8 mm

FIGURE D103.1
DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

D103.2 Grade. Fire apparatus access roads shall not exceed 10 percent in grade.

Exception: Grades steeper than 10 percent as approved by the fire chief. (See Portland Fire & Rescue Design Guide.)

D103.3 Turning radius. The minimum turning radius shall be determined by the fire code official. (See Portland Fire & Rescue Design Guide.)

D103.3.1 Angles of approach. The angles of approach and departure for any means of egress shall not be less than the design limitations of the fire apparatus of the fire department, subject to the approval of the fire code official. (See Portland Fire & Rescue Design Guide.)

D103.3.2 Drainage. When subject to run-off damage, the fire code official is authorized to require approved drainage.

D103.4 Dead ends. Dead-end fire apparatus access roads in excess of 300 feet (91 440 mm) shall be provided with width and turnaround provisions in accordance with Table D103.4.

TABLE D103.4
REQUIREMENTS FOR DEAD-END FIRE APPARATUS ACCESS ROADS

Length (feet)	Width (feet)	TURNAROUNDS REQUIRED
0-150	20	None Required
151-500	20	90-foot Hammerhead, 45-foot "Y" or 90 foot cul-de-sac
501-750	26	90-foot Hammerhead, 45-foot "Y" or 90-foot cul-de-sac
Over 750	Special approval required.	

For SI: 1 foot = 304.8 mm.

D103.5 Fire apparatus access road gates. Gates securing the fire apparatus access roads shall comply with all of the following criteria:

1. The minimum gate width shall be 20 feet (6096 mm).

   Exception: The minimum gate width may be reduced to not less than 14 feet where no turning movements are necessary within 30 feet of either side of the gate.
2. Gates shall be of the swinging or sliding type.
3. Construction of gates shall be of materials that allow manual operation by one person.
4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.
5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the fire code official.
6. Manual opening gates shall not be locked with a padlock or chain and padlock unless they are capable of being opened by means of forcible entry tools or when a key box containing the key(s) to the lock is installed at the gate location.
7. Locking device specifications shall be submitted for approval by the fire code official. (See Portland Fire & Rescue Design Guide.)

D103.6 Signs. Where required by the fire code official, fire apparatus access roads shall be marked with permanent NO PARKING—FIRE LANE signs complying with Figure D103.6. Signs shall have a minimum dimension of 12 inches (305mm) wide by 18 inches (457mm) high and have red letters on a white reflective background. Signs shall be posted on one or both sides of the fire apparatus road as required by Section D103.6.1 or D103.6.2.

FIGURE D103.6
FIRE LANE SIGNS

D103.6.1 Roads 20 to 26 feet in width. Fire apparatus access roads 20 to 26 feet wide (6096 to 7925 mm) shall be posted on both sides as a fire lane.

D103.6.2 Roads more than 26 feet in width. Fire apparatus access roads more than 26 feet wide (7925 mm) to 32 feet wide (9754 mm) shall be posted on one side of the road as a fire lane.

SECTION D104
COMMERCIAL AND INDUSTRIAL DEVELOPMENTS

D104.1 Buildings exceeding three stories or 30 feet in height. Buildings or facilities exceeding 30 feet (9144 mm) or three stories in height shall have at least two means of fire apparatus access for each structure.

D104.2 Buildings exceeding 62,000 square feet in area. Buildings or facilities having a gross building area of more than 62,000 square feet (5760 m^2) shall be provided with two separate and approved fire apparatus access roads.

Exception: Projects having a gross building area of up to 124,000 square feet (11 520 m^2) that have a single approved fire apparatus access road when all buildings are equipped throughout with approved automatic sprinkler systems.

D104.3 Remoteness. Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses.

Exception: When all buildings served by the access road are equipped throughout with approved automatic sprinkler systems and the site constraints do not allow full separation.

SECTION D105
AERIAL FIRE APPARATUS ACCESS ROADS

D105.1 Where required. Buildings or portions of buildings or facilities exceeding 30 feet (9144 mm) in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Except as provided in D105.4, overhead utility and power lines shall not be located within the aerial fire apparatus access roadway or be located within 10 feet of an aerial ladder extended from the fire apparatus access roads to the roof of the building or portion of the building over 30 feet in height.

Exception: An aerial fire apparatus access road is not required when the bottom of the eave of a sloped roof or the top of the parapet for a flat roof is not more than 30 feet above the adjacent grade.

D105.2Width. Fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm) in the immediate vicinity of any building or portion of building more than 30 feet (9144 mm) in height.

D105.3 Proximity to building. Except as provided in Section D105.4, at least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building, and shall be positioned parallel to one entire side of the building.

D105.4 Alternate to Aerial Fire Apparatus Roads. The alternatives to aerial access roads specified in D105.4.1 are allowed provided a building exceeding 30 feet in height is provided with the following:

1. Building is equipped with an approved automatic sprinkler system,
2. There is no combustible concealed attic space,
3. All stairways are in a minimum 2 hour fire-resistive enclosure, and extend to the top floor,
4. The roof is essentially flat and
5. A hatch or other roof access structure is provided directly to the roof. Roof hatches shall be a minimum 16 square feet (1.49 m^2) with a minimum opening dimension of 2 feet (610 mm).

D105.4.1 Alternatives. The requirements specified in D105.1 and D105.3 are modified as follows:

1. The provisions of D105.1 are modified to eliminate restrictions due to overhead utility and power lines.
2. The provisions of D105.3 are modified to allow one access roadway to be a maximum 50 feet from the building.

SECTION D106
MULTIPLE-FAMILY RESIDENTIAL DEVELOPMENTS

D106.1 Projects having more than 100 dwelling units. Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads.

Exception: Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all buildings, including nonresidential occupancies, are equipped throughout with approved automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Fire Code*.

D106.2 Projects having more than 200 dwelling units. Multiple-family residential projects having more than 200 dwelling units shall be provided with two separate and approved fire apparatus access roads regardless of whether they are equipped with an approved automatic sprinkler system.

SECTION D107
ONE- OR TWO-FAMILY RESIDENTIAL DEVELOPMENTS

D107.1 One- or two-family dwelling residential developments. Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with separate and approved fire apparatus access roads, and shall meet the requirements of Section D104.3.

Exceptions:

1. Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.
2. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

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CHAPTER 1

ADMINISTRATION

SECTION 101
GENERAL

101.1 Title. These regulations shall be known as the Portland Fire Code herein after referred to as "this code."

101.2 Scope. This code establishes regulations affecting or relating to structures, processes, premises and safeguards regarding:

1. The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices;
2. Conditions hazardous to life, property or public welfare in the occupancy of structures or premises;
3. Fire hazards in the structure or on the premises from occupancy or operation;
4. Matters related to the construction, extension, repair, alteration or removal of fire suppression or alarm systems.

The following governmental subdivisions may have other regulations as long as such regulations are consistent with OAR Chapter 837, Division 39. A water district under ORS 264.342, a city or county subject to consent as required by ORS 478.924, or a rural fire protection district under ORS 478. 910.

ORS 264.342, 478.924, 478.910 and OAR 837, Division 39 are not a part of this code but are reproduced or paraphrased here for the reader's convenience

ORS 264.342 allows a domestic water district to adopt a fire prevention code.

ORS 478.924 states that the provisions of a fire prevention code adopted, by a district after October 4, 1977, shall not apply unless approved by the governing body of the city or county in which the district exists.

ORS 478.910 allows a rural fire protection district to adopt a fire prevention code.

OAR Chapter 837, Division 39 regulates the administration of fire prevention programs

101.2.1 Appendices specifically adopted. The provisions of the following appendices are adopted as part of this code: B, C, D, H, I, and L.

101.3 Intent. The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations as authorized by Portland City Code Title 31, Fire Regulations, and ORS 476.0.30.

ORS 476.030 and PCC Title 31 are not part of this code but are reproduced or paraphrased here for the reader's convenience.

ORS 476.030 defines the duties and the powers of the State Fire Marshal to adopt a state fire code.

PCC 31.10.050 describes the parameters for adoption of the fire code as amended by the City of Portland.

101.4 Severability. If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

101.5 Validity. In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

SECTION 102
APPLICABILITY

102.1 Construction and design provisions. The construction and design provisions of this code shall apply to:

1. Structures, facilities and conditions arising after the adoption of this code.
2. Existing structures, facilities and conditions not legally in existence at the time of adoption of this code.
3. Existing structures, facilities and conditions when identified in specific sections of this code.
4. Existing structures, facilities and conditions which, in the opinion of the code official, constitute a distinct hazard to life or property.

102.2 Administrative, operational and maintenance provisions. The administrative, operational and maintenance provisions of this code shall apply to:

1. Conditions and operations arising after the adoption of this code.
2. Existing conditions and operations.

See also Section 110.1.1, ORS 476.030(c) and OAR Chapter 837, Division 41.

ORS 476.030 is not part of this code but is reproduced or paraphrased here for the reader's convenience.

ORS 476.030 (c) defines the rules for maintenance and regulations of structural fire safety features in occupied structures and overseeing the safety and directing the means and adequacy of exits in case of fire except that structural changes shall not be required in buildings built, occupied and maintained in conformity with state building code regulations applicable at the time of construction.

OAR Chapter 837, Division 41 defines the fire protection regulations relating to existing facilities.

102.3 Change of use or occupancy. No change shall be made in the use or occupancy of any structure that would place the structure in a different division of the same group or occupancy or in a different group of occupancies, unless such structure is made to comply with the requirements of this code and the *International Building Code*. Subject to the approval of the fire code official, the use or occupancy of an existing structure shall be allowed to be changed and the structure is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code and the *International Building Code* for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

102.4 Application of building code. The design and construction of new structures shall comply with the *International Building Code*, and any alterations, additions, changes in use or changes in structures required by this code, which are within the scope of the *International Building Code*, shall be made in accordance therewith.

102.5 Historic buildings. The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings when such buildings or structures do not constitute a distinct hazard to life or property. Fire protection in designated historic buildings and structures shall be provided in accordance with an approved fire protection plan.

102.6 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in Chapter 45 and such codes and standards shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between the provisions of this code and the referenced standards, the provisions of this code shall apply.

102.7 Subjects not regulated by this code. Where no applicable standards or requirements are set forth in this code, or are contained within other laws, codes, regulations, ordinances or bylaws adopted by the jurisdiction, compliance with applicable standards of the National Fire Protection Association or other nationally recognized fire safety standards, as approved, shall be deemed as prima facie evidence of compliance with the intent of this code. Nothing herein shall derogate from the authority of the fire code official to determine compliance with codes or standards for those activities or installations within the code official's jurisdiction or responsibility.

102.8 Matters not provided for. Requirements that are essential for the public safety of an existing or proposed activity, building or structure, or for the safety of the occupants thereof, which are not specifically provided for by this code shall be determined by the fire code official.

102.9 Conflicting provisions. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

SECTION 103
DEPARTMENT OF FIRE PREVENTION

103.1 (Not adopted see PCC 31.10) General

PCC Title 31 is not part of this code but is reproduced or paraphrased here for the reader's convenience.

PCC 31.10.040 details the structure of the Fire Prevention Division.

PCC 31.10.050 details the authority of the Fire Prevention Division.

103.2 (Not adopted see PCC 31.10) Appointment

103.3 (Not adopted see PCC 31.10) Deputies.

103.4 (Not adopted. See ORS 30.265) Liability.

ORS 30.265 is not a part of this code but is reproduced or paraphrased here for the reader's convenience.

ORS 30.265 defines the scope of liability of public body officers, employees and agents.

103.4.1 Legal defense. Any suit instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The fire code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code; and any officer of the department of fire prevention, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith.

103.5 Cooperation with other agencies. For regulations regarding interagency cooperation, see ORS 455.150(8), ORS 479.165, OAR 918-020-0010, OAR 918-020-0020 and OAR 837-039-0110.

455.150(8). ORS 479.165, OAR 918-020-0010, OAR 918-020-0020 and OAR 837-039-0110 are not a part of this code but are reproduced or paraphrased here for the reader's convenience.

ORS 455.150(8) requires municipalities to create a written plan that specifies how cooperation with the State Fire Marshal or designee of the State Fire Marshal will be achieved and how a uniform fire code will be considered in the review process of the design and construction phases of buildings or structures.

ORS 479.165 requires the State Fire Marshal to develop rules establishing certification of fire officials who review plans, new construction, alterations and specifications from a uniform fire code.

OAR 918-020-0010 and 918-020-0020 establish a minimum standard for procedures of cooperation between local municipalities and the State Fire Marshal or a designee of the State Fire Marshal.

OAR 837-039-0110 establishes standards for certification of fire officials who review plans, new construction, alterations and specifications from a fire code.

SECTION 104
GENERAL AUTHORITY AND RESPONSIBILITIES

104.1 General. The fire code official is hereby authorized to enforce the provisions of this code and shall have the authority to adopt policies, procedures, rules and regulations in order to clarify the application of its provisions. Such interpretations, policies, procedures, rules and regulations shall be in compliance with the intent and purpose of this code and shall not have the effect of waiving requirements specifically provided for in this code.

ORS 476.060 and OAR 837-039-0015(2)(b) are not a part of this code but are reproduced or paraphrased here for the reader's convenience.

ORS 476.060 designates local fire marshals, local fire chiefs and chiefs of police as assistants to the State Fire Marshal by virtue of office held.

OAR 837-039-0015(2)(b) allows a governmental subdivision to adopt a code that is consistent with state fire protection statutes and is equal to or more stringent than the fire code promulgated by the State Fire Marshal.

104.2 Applications and permits. The fire code official is authorized to receive applications, review construction documents and issue permits for construction regulated by this code, issue permits for operations regulated by this code, inspect the premises for which such permits have been issued, and enforce compliance with the provisions of this code.

104.3 (Not adopted) Right of entry.

104.3.1 Right of entry. The State Fire Marshal, Deputy State Fire Marshal or assistants to the State Fire Marshal may at all reasonable hours, enter into all buildings and upon all premises, except private residences, for the purpose of inspection to ascertain if fire hazards exist therein or thereon as authorized by ORS 476.150(1).

ORS 476.150(1) is not a part of this code but is reproduced or paraphrased here for the reader's convenience.

ORS 476150(1) grants permission to the State Fire Marshal and deputies, at all reasonable hours, to enter into all buildings and upon all premises, except private residences, for the purpose of inspection to ascertain if fire hazards exist therein or thereon.

104.3.2 Warrant. When the fire code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner or occupant or person having charge, care or control of the building or premises shall not fail or neglect, after proper request is made as herein provided, to permit entry therein by the fire code official for the purpose of inspection and examination pursuant to this code (see ORS 476.155, 476.160, 476.165 and 476.170).

ORS 476.155, 476.160, 476.165 and 476.170 are not a part of this code but are reproduced or paraphrased here for the reader's convenience.

ORS 476.155 defines when judges are authorized to issue inspection warrants.

ORS 476.160 defines circumstances under which a warrant may be issued.

ORS 476.165 defines established cause to issue a warrant.

ORS 476.170 defines execution of a warrant.

104.4 Identification. The fire code official shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

104.5 Notices and orders. The fire code official is authorized to issue such notices or orders as are required to affect compliance with this code in accordance with Sections 109.1 and 109.2.

104.6 Official records. The fire code official shall keep official records as required by Sections 104.6.1 through 104.6.4. Such official records shall be retained for not less than five years or for as long as the structures or activity to which such records relate remains in existence, unless otherwise provided by other regulations in accordance with Oregon Revised Statute 192, Public and Private Records; Public Reports and Meetings.

104.6.1 Approvals. A record of approvals shall be maintained by the fire code official and shall be available for public inspection during business hours in accordance with applicable laws.

104.6.2 Inspections. The fire code official shall keep a record of each inspection made, including notices and orders issued, showing the findings and disposition of each.

104.6.3 (Not adopted) Fire records.

104.6.3.1 Fire records and reports. Reports shall be kept by the State Fire Marshal in accordance with ORS 476.090.

Fire reports shall be provided to the State Fire Marshal in accordance with ORS 476.210(2), ORS 476.220 and ORS 476.270.

ORS 476.090, ORS 476.210(2), ORS 476.220 and ORS 476.270 are not a part of this code but are reproduced or paraphrased here for the reader's convenience.

ORS 476.090 requires that State Fire Marshal to keep records of all fires occurring within the state and all facts concerning the fires.

ORS 476.210(2) requires the fire chief of every city or rural fire protection district to provide the State Fire Marshal with a report of every fire occurring within the jurisdiction of the fire chief.

ORS 476.220 requires the officer making an investigation of a fire to notify the State Fire Marshal and within one week of the occurrence, shall forward the State Fire Marshal a written statement of all facts as requested by the forms provided by the State Fire Marshal.

ORS 476.270 requires an insurance company to immediately make a report to the State Fire Marshal if the insurance company has reason to believe that a fire loss to its insured was caused by incendiary means.

104.6.4 Administrative. Application for modification, alternative methods or materials and the final decision of the fire code official shall be in writing and shall be officially recorded in the permanent records of the fire code official.

104.7 Approved materials and equipment. All materials, equipment and devices approved by the fire code official shall be constructed and installed in accordance with such approval.

104.7.1 Material and equipment reuse. Materials, equipment and devices shall not be reused or reinstalled unless such elements have been reconditioned, tested and placed in good and proper working condition and approved.

104.7.2 Technical assistance. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building or premises subject to inspection by the fire code official, the fire code official is authorized to require the owner or agent to provide, without charge to the jurisdiction, a technical opinion and report. The opinion and report shall be prepared by a qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the fire code official and shall analyze the fire safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon, to recommend necessary changes. The fire code official is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

104.8 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the fire code official shall have the authority to grant modifications for individual cases, provided the fire code official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the department of fire prevention. The State Fire Marshal may make adjustments and variances to this code under ORS 476.035.

ORS 476.035 is not a part of this code but is reproduced or paraphrased here for the reader's convenience.

ORS 476.035 gives the State Fire Marshal the power to make adjustments, variances or exceptions to specific requirements of this code on a statewide, regional, jurisdictional or geographical use basis when the State fire Marshal determines that application of the requirements are impossible, impractical, create unnecessary hardship or create consequences inconsistent with the general purpose of the code.

104.9 Alternative materials and methods. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been approved. The fire code official is authorized to approve an alternative material or method of construction where the fire code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

104.10 (Not adopted see PCC 31.10) Fire investigations.

104.10.1 Fire investigations. Fire investigations shall be in accordance with ORS 476.030(4) and ORS 476.210(1).

PCC Title 31 and ORS 476.030(4) and 476.210(1) are not part of this code but are reproduced or paraphrased here for the reader's convenience.

PCC 31.10.040 establishes the arson investigation unit, describes their duties, and outlines their authority.

ORS 476.030(4) specifies the authority for investigators.

ORS 476.210(1) requires the investigation of cause, origin and circumstances of each fire in the jurisdiction.

104.10.2 Assistance from other agencies. Police and other enforcement agencies shall have the authority to render necessary assistance in the investigation of fires when requested to do so.

104.11 Authority at fires and other emergencies. The fire chief or officer of the fire department in charge at the scene of a fire or other emergency involving the protection of life or property or any part thereof, shall have the authority to direct such operation as necessary to extinguish or control any fire, perform any rescue operation, investigate the existence of suspected or reported fires, gas leaks or other hazardous conditions or situations, or take any other action necessary in the reasonable performance of duty. In the exercise of such power, the fire chief is authorized to prohibit any person, vehicle, vessel or thing from approaching the scene and is authorized to remove, or cause to be removed or kept away from the scene, any vehicle, vessel or thing which could impede or interfere with the operations of the fire department and , in the judgment of the fire chief, any person not actually and usefully employed in the extinguishing of such fire or in the preservation of property in the vicinity thereof.

104.11.1 Barricades. The fire chief or officer of the fire department in charge at the scene of an emergency is authorized to place ropes, guards, barricades or other obstructions across any street, alley, place or private property in the vicinity of such operations so as to prevent accidents or interference with the lawful efforts of the fire department to manage and control the situation and to handle fire apparatus.

104.11.2 Obstructing operations. No person shall obstruct the operations of the fire department in connection with extinguishment or control of any fire, or actions relative to other emergencies, or disobey an lawful command of the fire chief or officer of the fire department in charge of the emergency, or any part thereof, or any lawful order of a police officer assisting the fire department.

104.11.3 Systems and devices. No person shall render a system or device inoperative during an emergency unless by direction of the fire chief or fire department official in charge of the incident.

SECTION 105
PERMITS

105.1 General. Permits shall be in accordance with Section 105. (Also see PCC 31.40).

PCC Title 31 is not part of this code but is reproduced or paraphrased here for the reader's convenience.

PCC 31.30.040, 31.40.010, and 31.40.020 provide details on permits required.

105.1.1 Permits required. Permits required by this code shall be obtained from the fire code official. Permit fees, if any, shall be paid prior to issuance of the permit. When otherwise required by law or rule, a permit, license or certification shall also be obtained from the State Fire Marshal. Issued permits shall be kept on the premises designated therein at all times and shall be kept readily available for inspection by the fire code official.

105.1.2 Types of permits. There shall be two types of permits as follows:

1. Operational permit (referred to as a *Temporary permit* in PCC Title 31.40.020). An operational permit allows the applicant to conduct an operation or a business for which a permit is required by Section 105.6 for either:
   1.1 A prescribed period.
   1.2. Until renewed or revoked.
2. Construction permit. A construction permit allows the applicant to install or modify systems and equipment for which a permit is required by Section 105.7.

105.1.3 Permits for the same location. When more than one permit is required for the same location, the fire code official is authorized to consolidate such permits into a single permit provided that each provision is listed in the permit.

105.2 Application. When a permit is required by Section 105.6 or 105.7 the application shall be made to the fire code official in such form and detail as prescribed by the fire code official. Applications for permits shall be accompanied by such plans as prescribed by the fire code official.

105.2.1 Refusal to issue permit. If the application for a permit describes a use that does not conform to the requirements of this code and other pertinent laws and ordinances, the fire code

official shall not issue a permit, but shall return the application to the applicant with the refusal to issue such permit. Such refusal shall, when requested, be in writing and shall contain the reasons for refusal.

105.2.2 Inspection authorized. Before a new operational permit is approved, the fire code official is authorized to inspect the receptacles, vehicles, buildings, devices, premises, storage spaces or areas to be used to determine compliance with this code or any operational constraints required.

105.2.3 Time limitation of application. An application for a permit for any proposed work or operation shall be deemed to have been abandoned six months after the date of filing, unless such application has been diligently prosecuted or a permit shall have been issued; except that the fire code official is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each if there is reasonable cause.

105.2.4 Action on application. The fire code official shall examine or cause to be examined applications for permits and amendments thereto within a reasonable time after filing. If the application or the construction documents do not conform to the requirements of pertinent laws, the fire code official shall reject such application in writing, stating the reasons therefore. If the fire code official is satisfied that the proposed work or operation conforms to the requirements of this code and laws and ordinances applicable thereto, the fire code official shall issue a permit therefore as soon as practicable.

105.3 Conditions of a permit. A permit shall constitute permission to maintain, store or handle materials; or to conduct processes which produce conditions hazardous to life or property; or to install equipment utilized in connection with such activities; or to install or modify any fire protection system or equipment or any other construction, equipment installation or modification in accordance with the provisions of this code where a permit is required by Section 105.6 or 105.7. Such permission shall not be construed as authority to violate, cancel or set aside any of the provisions of this code or other applicable regulations or laws of the jurisdiction.

105.3.1 Expiration. An operational permit shall remain in effect until reissued, renewed, or revoked or for such a period of time as specified in the permit. Construction permits shall automatically be come invalid unless the work authorized by such permit is commenced within 180 days after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. Before such work recommences, a new permit shall be first obtained and the fee to recommence work, if any, shall be one-half the amount required for a new permit for such work, provided no changes have been made or will be made in the original construction documents for such work, and provided further that such suspension or abandonment has not exceeded one year. Permits are not transferable and any change in occupancy, operation, tenancy or ownership shall require that a new permit be issued.

105.3.2 Extensions. A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required by this section for good and satisfactory reasons. The fire code official is authorized to grant, in writing, one or more extensions of the time period of a permit for periods of not more than 90 days each. Such extensions shall be requested by the permit holder in writing and justifiable cause demonstrated.

105.3.3 Occupancy prohibited before approval. The building or structure shall not be occupied prior to the fire code official issuing a permit that indicates that applicable provisions of this code have been met.

105.3.4 Conditional permits. Where permits are required and upon the request of a permit applicant, the fire code official is authorized to issue a conditional permit to occupy the premises or portion thereof before the entire work or operations on the premises is completed, provided that such portion or portions will be occupied safely prior to full completion or installation of equipment and operations without endangering life or public welfare. The fire code official shall notify the permit applicant in writing of any limitations or restrictions necessary to keep the permit area safe. The holder of a conditional permit shall proceed only to the point for which approval has been given, at the permit holder's own risk and without assurance that approval for the occupancy or the utilization of the entire premises, equipment or operations will be granted.

105.3.5 Posting the permit. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the fire code official.

105.3.6 Compliance with code. The issuance of granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the fire code official from requiring the correction of errors in the construction documents and other data. Any addition to or alteration of approved construction documents shall be approved in advance by the fire code official, as evidenced by the issuance of a new or amended permit.

105.3.7 Information on the permit. The fire code official shall issue all permits required by this code on an approved form furnished for that purpose. The permit shall contain a general description of the operation or occupancy and its location and any other information required by the fire code official. Issued permits shall bear the signature of the fire code official or other approved legal authorization.

105.4 Construction documents. Construction documents shall be in accordance with this section.

105.4.1 Submittals. Construction documents shall be submitted in one or more sets and in such form and detail as required by the fire code official. The construction documents shall be prepared by a registered design professional where required by the statues of the jurisdiction in which the project is to be constructed.

105.4.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are allowed to be submitted when approved by the fire code official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations as determined by the fire code official.

105.4.3 Applicant responsibility. It shall be the responsibility of the applicant to ensure that the construction documents include all of the fire protection requirements and the shop drawings are complete and in compliance with the applicable codes and standards.

105.4.4 Approved documents. Construction documents approved by the fire code official are approved with the intent that such construction documents comply in all respects with this code. Review and approval by the fire code official shall not relieve the applicant of the responsibility of compliance with this code.

105.4.5 Corrected documents. Where field conditions necessitate any substantial change from the approved construction documents, the fire code official shall have the authority to require the corrected construction documents to be submitted for approval.

105.4.6 Retention of construction documents. One set of construction documents shall be retained by the fire code official until final approval of the work covered therein. One set of approved construction documents shall be returned to the applicant, and said set shall be kept on the site of the building or work at all time during which the work authorized thereby is in progress.

105.5 Revocation. The fire code official is authorized to revoke a permit issued under the provisions of this code when it is found by inspection or otherwise that there has been a false statement or misrepresentation as to the material facts in the application or construction documents on which the permit or approval was based including, but not limited to, any one of the following:

1. The permit is used for a location or establishment other than that for which it was issued.
2. The permit is used for a condition or activity other than that listed in the permit.
3. Conditions and limitations set forth in the permit have been violated.
4. There have been any false statements or misrepresentations as to the material fact in the application for permit or plans submitted or a condition of the permit.
5. The permit is used by a different person or firm that the name for which it was issued.
6. The permittee failed, refused or neglected to comply with orders or notices duly served in accordance with the provisions of this code within the time provided therein.
7. The permit was issued in error or in violation of the ordinance, regulation or this code.

105.6 Required operational permits. An operational permit as authorized by law or regulation shall be obtained from the State Fire Marshal for the operations set forth in Sections 105.6A through 105.6E. When a governmental subdivision has enacted regulations the local fire code official may issue operational permits for the operations set forth in Sections 105.6A through 105.6.46. (Also see PCC 31.40)

PCC Title 31 is not part of this code but is reproduced or paraphrased here for the reader's convenience.

PCC 31.40.020 provides details on permits required.

105.6A Fireworks, Agricultural. An operational Agricultural Fireworks Permit is required to use or explode fireworks to scare or repel birds or animals under ORS 480.122.

105.6B Fireworks, Public Display of. An operational Public Display of Fireworks Permit is required to hold a display of fireworks under ORS 480.130. (Also see PCC 31.40.020.)

105.6C Fireworks, Retail Sales. An operational Retail Sales of Fireworks Permit is required to sell fireworks at retail to individual members of the general public as described in ORS 480.127. (Also see PCC 31.40.020.)

105.6D Fireworks, Wholesale. An operational Wholesale Fireworks Permit is required to sell fireworks to agricultural, public display and retail sales permit holders

under ORS 480.130. It does not authorize the sale of fireworks to the general public.

105.6E Institutions. A temporary operational permit may be issued in lieu of inspection approval by the State Fire Marshal or governmental subdivision having authority in an area exempted for licensed institutions inspected under ORS 479.215.

105.6.1 Aerosol products. (Not Adopted) *An operational permit is required to manufacture, store or handle an aggregate quantity of Level 2 or Level 3 aerosol products in excess of 500 pounds (227 kg) net weight.*

105.6.2 Amusement buildings. (Not Adopted) *An operational permit is required to operate a special amusement building.*

105.6.3 Aviation facilities. (Not Adopted) *An operational permit is required to use a Group H or Group S occupancy for aircraft servicing or repair and aircraft fuel-servicing vehicles. Additional permits required by other sections of this code include, but are not limited to, hot work, hazardous materials and flammable or combustible finishes.*

105.6.4 Carnivals and fairs. (Not Adopted) *An operational permit is required to conduct a carnival or fair.*

106.6.5 Cellulose nitrate film. (Not Adopted) *An operational permit is required to store, handle or use cellulose nitrate film in a Group A occupancy.*

105.6.6 Combustible dust-producing operations. (Not Adopted) *An operational permit is required to operate a grain elevator, flour starch mill, feed mill, or a plant pulverizing aluminum, coal, cocoa, magnesium, spices or sugar, or other operations producing combustible dusts as defined in Chapter 2.*

105.6.7 Combustible fibers. (Not Adopted) *An operational permit is required for the storage and handling of combustible fibers in quantities greater than 100 cubic feet (2.8 m^3).*

Exception: *A permit is not required for agricultural storage.*

105.6.8 Compressed gases. (Not Adopted) *An operational permit is required for the storage, use or handling at normal temperature and pressure (NTP) of compressed gases in excess of the amounts listed in Table 105.6.8*

Exception: *Vehicles equipped for and using compressed gas as a fuel for propelling the vehicle.*

TABLE 105.6.8
PERMIT AMOUNTS FOR COMPRESSED GASES

TYPE OF GAS	AMOUNT (cubic feet at NTP)
Corrosive	200
Flammable (except cryogenic fluids and liquefied petroleum gases	200
Highly toxic	Any Amount
Inert and simple asphyxiant	6,000
Oxidizing (including oxygen)	504
Pyrophoric	Any Amount
Toxic	Any Amount

For SI: 1 cubic foot = 0.02832 m3.

105.6.9 Covered mall buildings. (Not Adopted) *An operational permit is required for:*

1. *The placement of retail fixtures and displays, concession equipment, displays of highly combustible goods and similar items in the mall.*
2. *The display of liquid- or gas-fired equipment in the mall.*
3. *The use of open-flame or flame-producing equipment in the mall.*

105.6.10 Cryogenic fluids. (Not Adopted) *An operational permit is required to produce, store, transport on site, use, handle or dispense cryogenic fluids in excess of the amounts listed in Table 105.6.10.*

Exception: *Permits are not required for vehicles equipped for and using cryogenic fluids as a fuel for propelling the vehicle or for refrigerating the lading.*

TABLE 105.6.10
PERMIT AMOUNTS FOR CRYOGENIC FLUIDS

TYPE OF CRYOGENIC FLUID	INSIDE BUILDING (gallons)	OUTSIDE BUILDING (gallons)
Flammable	More than 1	60
Inert	60	500
Oxidizing (includes oxygen)	10	50
Physical or health hazard not indicated above	Any Amount	Any Amount

For SI: 1 gallon = 3.785 L.

105.6.11 Cutting and welding. (Not Adopted) *An operational permit is required to conduct cutting or welding operations within the jurisdiction.*

105.6.12 Dry cleaning plants. (Not Adopted) *An operational permit is required to engage in the business of dry cleaning or to change to amore hazardous cleaning solvent used in existing dry cleaning equipment.*

105.6.13 Exhibits and trade shows. Exhibitions and trade shows with gatherings of fewer than 500 people when, in the opinion of the Fire Marshal, conditions warrant additional safety precautions.

Exhibitions and trade shows where Occupant load of 500 or more people as calculated by the Fire Marshal, for events of a temporary nature in assembly buildings without fixed seating. (Also see PCC 31.40.020.)

105.6.14 Explosives. An operational permit is required for the manufacture, storage, handling, transportation sale or use of any quantity of explosives, explosive materials, fireworks, or pyrotechnic special effects within the scope of Chapter 33. (Also see PCC 31.40.020.)

105.6.15 Fire hydrants and valves. (Not Adopted) *An operational permit is required to use or operate fire hydrants or valves intended for fire suppression purposes which are installed on water systems and accessible to a fire apparatus access road that is open to or generally used by the public.*

Exception: *A permit is not required for authorized employees of the water company that supplies the system or the fire department to use or operate fire hydrants or valves.*

105.6.16 Flammable and combustible liquids. (Not Adopted) *An operational permit is required:*

1. *To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the off-site transportation in pipelines regulated by the Department of Transportation (DOT) nor does it apply to piping systems.*
2. *To store, handle or use Class I liquids in excess of 5 gallons (19L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following:*
   - *2.2 The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the code official, would cause an unsafe condition.*
   - *2.2 The storage or use of paints, oils, varnishes or similar flammable mixtures when such liquids are stored for maintenance, painting or similar purposes for a period of not more than 30 days.*
3. *To store, handle or use Class II or Class IIIA liquids in excess of 25 gallons (95 L) in a building or in excess of 60 gallons (227 L) outside a building, except for fuel oil used in connection with oil-burning equipment.*
4. *To remove Class I or Class II liquids from an underground storage tank used for fueling motor vehicles by any means other than the approved, stationary on-site pumps normally used for dispensing purposes.*
5. *To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed or used.*
6. *To place temporarily out of service (for more than 90 days) an underground, protected above-ground or above-ground flammable or combustible liquid tank.*
7. *To change the type of contents stored in a flammable or combustible liquid tank to a material which poses a greater hazard than that for which the tank was designed and constructed.*
8. *To manufacture, process, blend or refine flammable or combustible liquids.*
9. *To engage in the dispensing of liquid fuels into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments.*
10. *To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments.*

105.6.17 Floor finishing. (Not Adopted) *An operational permit is required for floor finishing or surfacing operations exceeding 350 square feet (33 m^2) using Class I or Class II liquids.*

105.6.18 Fruit and crop ripening. (Not Adopted) *An operational permit is required to operate a fruit- or crop-ripening facility or conduct a fruit-ripening process using ethylene gas.*

105.6.19 Fumigation and thermal insecticidal fogging. (Not Adopted) *An operational permit is required to operate a business of fumigation or thermal insecticidal fogging and to maintain a room, vault or chamber in which a toxic or flammable fumigant is used.*

105.6.20 Hazardous materials. (Not Adopted) *An operational permit is required to store, transport on site, dispense, use or handle hazardous materials in excess of the amounts listed in Table 105.6.20.*

105.6.21 HPM facilities. (Not Adopted) *An operational permit is required to store, handle or use hazardous production materials.*

105.6.22 High-piled storage. (Not Adopted) *An operational permit is required to use a building or portion thereof as a high-piled storage area exceeding 500 square feet (46 m^2).*

105.6.23 Hot work operations. (Not Adopted) *An operational permit is required for hot work including, but not limited to:*

1. *Public exhibitions and demonstrations where hot work is conducted.*
2. *Use of portable hot work equipment inside a structure.*

   Exception: *Work that is conducted under a construction permit.*
3. *Fixed-site hot work equipment such as welding booths.*
4. *Hot work conducted within a hazardous fire area.*
5. *Application of roof coverings with the use of an open-flame device.*
6. *When approved, the fire code official shall issue a permit to carry out a Hot work Program. This program allows approved personnel to regulate their facility's hot work operation. The approved personnel shall be trained in the fire safety aspects denoted in this chapter and shall be responsible for issuing permits requiring compliance with the requirements found in Chapter 26. These permits shall be issued only to their employees or hot work operations under their supervision.*

105.6.24 Industrial ovens. (Not Adopted) *An operational permit is required for operation of industrial ovens regulated by Chapter 21.*

105.6.25 Lumber yards and woodworking plants. (Not Adopted) *An operational permit is required for the storage or processing of lumber exceeding 100,000 board feet (8,333 ft^3) (236 m^3).*

105.6.26 Liquid- or gas-fueled vehicles or equipment in buildings. An operational permit is required to display four or more motorized vehicles in a building other than a automotive dealership when not associated with a permitted event. (Also see PCC 31.40.020.)

105.6.27 LP-gas. An operational permit is required for: (Also see PCC 31.40.020.)

1. Storage and use of LP-Gas.

   Exception: A permit is not required for individual containers with a 500-gallon (1839 L) water capacity or less serving occupancies in Group R-3.
2. Temporary use of LP-gas within buildings in excess of the amounts allowed by PCC Title 31.
3. Storage or use of propane in outdoor markets with gatherings of 50 or more people.
4. An annual permit and associated fee is required for use for 90 days or more of propane from permanent installed containers greater than 25 gallons WC or 100 pounds LP-gas.

105.6.28 Magnesium. (Not Adopted)I *An operational permit is required to melt, cast, heat treat or grind more than 10 pounds (4.54 kg) of magnesium.*

105.6.29 Miscellaneous combustible storage. (Not Adopted) *An operational permit is required to store in any building or upon any premises in excess of 2,500 cubic feet (71 m^3) gross volume of combustible empty packing cases, boxes, barrels or similar containers, rubber tires, rubber, cork or similar combustible material.*

105.6.30 Open burning. An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground. Instructions and stipulations of the permit shall be adhered to. (Also see PCC 31.40.020.)

Exception: Recreational fires.

105.6.31 Open flames and torches. (Not Adopted) *An operational permit is required to remove paint with a torch: or to use a torch or open-flame device in a hazardous fire area.*

105.6.32 Open flames and candles. (Not Adopted) *An operational permit is required to use open flames or candles in connection with assembly areas, dining areas of restaurants or drinking establishments.*

105.6.33 Organic coatings. (Not Adopted) *An operational permit is required for any organic-coating manufacturing operation producing more than 1 gallon (4 L) of an organic coating in one day.*

105.6.34 Places of assembly. Festivals, celebrations and special events of a temporary nature where Occupant load of 500 or more people as calculated by the Fire Marshal, in an assembly building without fixed seating.

Also, when approved by the Fire Marshal, gatherings for limited durations of 50 or more people for civic, social, recreational or religious functions in structures not approved for assembly.

Also, gatherings of 50 or more people fenced on four sides. (Also see PCC 31.40.020.)

TABLE 105.6.20
PERMIT AMOUNTS FOR HAZARDOUS MATERIALS

TYPE OF MATERIAL		AMOUNT
Combustible liquids		See Section 105.6.16
Corrosive materials	Gases	See Section 105.6.8
	Liquids	55 gallons
	Solids	1000 pounds
Explosive materials		See Section 105.6.14
Flammable materials	Gases	See Section 105.6.8
	Liquids	See Section 105.6.16
	Solids	100 pounds
Highly toxic materials	Gases	See Section 105.6.8
	Liquids	Any Amount
	Solids	Any Amount
Oxidizing materials		--
Gases		See Section 105.6.8
Liquids		--
Class 4		Any Amount
Class 3		1 gallon[a]
Class 2		10 gallons
Class 1		55 gallons
Solids		--
Class 4		Any Amount
Class 3		10 pounds[b]
Class 2		100 pounds
Class 1		500 pounds
Organic peroxides		--
Liquids		--
Class I		Any Amount
Class II		Any Amount
Class III		1 gallon
Class IV		2 gallons
Class V		No Permit Required
Solids		--
Class I		Any Amount
Class II		Any Amount
Class III		10 pounds
Class IV		20 pounds
Class V		No Permit Required
Pyrophoric materials		--
Gases		Any Amount
Liquids		Any Amount
Solids		Any Amount
Toxic materials		--
Gases		See Section 105.6.8
Liquids		10 gallons
Solids		100 pounds
Unstable (reactive) materials		--
Liquids		--
Class 4		Any Amount
Class 3		Any Amount
Class 2		5 gallons
Class 1		10 gallons
Solids		--
Class 4		Any Amount
Class 3		Any Amount
Class 2		50 pounds
Class 1		100 pounds
Water-reactive Materials		--
Liquids		--
Class 3		Any Amount
Class 2		5 gallons
Class 1		55 gallons
Solids		--
Class 3		Any Amount
Class 2		50 pounds
Class 1		500 pounds

For SI: 1 gallon = 3.785 L, 1 pound = 0.454 kg.

a. 20 gallons when Table 2703.1.1(1) Note k applies and hazard identification signs in accordance with Section 2703.5 are provided for quantities of 20 gallons or less.

b. 20 gallons when Table 2703.1.1(1) Note k applies and hazard identification signs in accordance with Section 2703.5 are provided for quantities of 200 pounds or less.

105.6.35 Private fire hydrants. (Not Adopted). *An operational permit is required for the removal from service, use or operation of private fire hydrants.*

Exception: *A permit is not required for private industry with trained maintenance personnel, private fire brigade or fire departments to maintain, test and use private hydrants.*

105.6.36 Pyrotechnic special effects material. An operational permit is required for use and handling of pyrotechnic special effects material. (Also see PCC 31.40.020.)

105.7.37 Pyroxylin plastics. (Not Adopted) *An operational permit is required for storage or handling of more than 25 pounds (11 kg) of cellulose nitrate (pyroxylin) plastics and for the assembly or manufacture of articles involving pyroxylin plastics.*

105.6.38 Refrigeration equipment. (Not Adopted) *An operational permit is required to operate a mechanical refrigeration unit or system regulated by Chapter 6.*

105.6.39 Repair garages and motor fuel-dispensing facilities. (Not Adopted) *An operational permit is required for operation of repair garages and automotive, marine and fleet motor fuel-dispensing facilities.*

105.6.40 Rooftop heliports. (Not Adopted) *An operational permit is required for the operation of a rooftop heliport.*

105.6.41 Spraying or dipping. (Not Adopted) *An operational permit is required to conduct a spraying or dipping operation utilizing flammable or combustible liquids or the application of combustible powders regulated by Chapter 15.*

105.6.42 Storage of scrap tires and tire byproducts. (Not Adopted) *An operational permit is required to establish, conduct or maintain storage of scrap tires and tire byproducts that exceeds 2,500 cubic feet (71 m^3) of total volume of scrap tires and for indoor storage of tires and tire byproducts.*

106.5.43 Temporary membrane structures, tents and canopies. An operational permit is required to operate an air-supported temporary membrane structure or a tent having four sides, where 250 or more people may attend. (Also see PCC 31.40.020.)

106.5.44 Tire-rebuilding plants. (Not Adopted) *An operational permit is required for the operation and maintenance of a tire-rebuilding plant.*

105.6.45 Waste handling. (Not Adopted) *An operational permit is required for the operation of wrecking yards, junk yards and waste material-handling facilities.*

105.6.46 Wood products. (Not Adopted) *An operational permit is required to store chips, hogged material, lumber or plywood in excess of 200 cubic feet (6 m^3).*

105.6.47 Theatrical firearms. Theatrical firearms or use of blanks in a public assembly. (Also see PCC 31.40.020.)

105.6.48 Use of lasers. Use of lasers that require a Federal variance, in gatherings of 50 or more people. (Also see PCC 31.40.020.)

105.7 Required construction permits. The fire code official as authorized by law or regulation may issue construction permits for work as set forth in Sections 105.7.1 through 105.7.13.

105.7.1 Automatic fire-extinguishing systems. A construction permit is required for installation, modification or removal of an automatic fire-extinguishing system. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.2 Battery systems. A permit is required to install stationary storage battery systems having a liquid capacity of more than 50 gallons (189 L).

105.7.3 Compressed gases. When the compressed gases in use or storage exceed the amounts listed in Table 105.6.8, a construction permit is required to install, repair damage to, abandon, remove, place temporarily out of service or close or substantially modify a compressed gas system.

Exceptions:

1. Routine maintenance.
2. For emergency repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

The permit applicant shall apply for approval to close storage, use or handling facilities at least 30 days prior to the terminations of the storage, use or handling of compressed or liquefied gases. Such application shall include any change or alteration of the facility closure plan filed pursuant to Section 2701.6.3. The 30-day period is not applicable when approved based on special circumstances requiring such waiver.

105.7.4 Fire alarm and detection systems and related equipment. A construction permit is required for installation, modification or removal of fire alarm and detection systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.5 Fire pumps and related equipment. A construction permit is required for installation, modification or removal of fire pumps and related fuel tanks, jockey pumps, controllers, and generators. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.6 Flammable and combustible liquids. A construction permit is required:

1. To repair or modify a pipeline for the transportation of flammable or combustible liquids.
2. To install, construct or alter tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed or used.
3. To install, alter, remove, abandon or otherwise dispose of a flammable or combustible liquid tank.

105.7.7 Hazardous materials. A construction permit is required to install, repair damage to, abandon, remove, place temporarily out of service, or close or substantially modify a storage facility or other area regulated by Chapter 27 when the hazardous materials in use or storage exceed the amounts listed in Table 105.6.20.

Exceptions:

1. Routine maintenance.
2. For emergency repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

105.7.8 Industrial ovens. A construction permit is required for installation of industrial ovens covered by Chapter 21.

Execptions:

1. Routine maintenance.
2. For repair work performed on an emergency basis application for permit shall be made within two working days of commencement of work.

105.7.9 LP-gas. A construction permit is required for installation, modification or removal of an LP-gas system.

105.7.10 Private fire hydrants. A construction permit is required for the installation, modification or removal of private fire hydrants.

105.7.11 Spraying or dipping. A construction permit is required for the installation, modification or removal of a spray room, dip tank or booth.

105.7.12 Standpipe systems. A construction permit is required for the installation, modification, or removal from service of a standpipe system. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

105.7.13 Temporary membrane structures, tents and canopies. (Not Adopted) (Also see PCC 31.40.020.)

SECTION 106
INSPECTIONS

106.1 (Not adopted) Inspection authority.

106.1.1 (Not adopted see PCC 31.50.010). Inspection authority.

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PCC 31.50.010 The Fire Marshal or the Fire Marshal's designees may, at all reasonable hours, enter into all buildings and upon all premises, except private residences, to conduct an inspection to determine if fire hazards exist.

106.1.2 Interference. No person shall interfere with or prevent an inspection by officers as authorized by ORS 476.150(2). When any person interferes with or prevents the State Fire Marshal, deputies or assistants to the State Fire Marshal from making an inspection, the officer shall apply to the district attorney of the county wherein the inspection was made or attempted to be made, for a warrant for the arrest of the offending person, and it shall be the duty of such district attorney forthwith to prosecute such offending person as authorized by ORS 476.150(3).

106.2 Inspections. The fire code official is authorized to conduct such inspections as are deemed necessary to determine the extent of compliance with the provisions of this code and to approve reports of inspection by approved agencies or individuals. All reports of such inspections shall be prepared and submitted in writing for review and approval. Inspection reports shall be certified by a responsible officer of such approved agency or by the responsible individual. The fire code official is authorized to engage such expert opinion as deemed necessary to report upon unusual, detailed or complex technical issues subject to the approval of the governing body.

106.3 Concealed work. Whenever any installation subject to inspection prior to use is covered or concealed without having first been inspected, the fire code official shall have the authority to require that such work be exposed for inspection.

SECTION 107
MAINTENANCE

107.1 Maintenance of safeguards. Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, or any other feature is required for compliance with the provisions of this code, or otherwise installed, such device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be continuously maintained in accordance with this code and applicable referenced standards.

107.2 Testing and operation. Equipment requiring periodic testing or operation to ensure maintenance shall be tested or operated as specified in this code.

107.2.1 Testing and inspection records. Required test and inspection records shall be available to the fire code official at all times or such records as the fire code official designates shall be filed with the fire code official.

107.2.2 Re-inspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the fire code official for inspection and testing.

107.3 Supervision. Maintenance and testing shall be under the supervision of a responsible person who shall ensure that such maintenance and testing is conducted at specified intervals in accordance with this code.

107.4 Rendering equipment inoperable. Portable or fixed fire-extinguishing systems or devices and fire-warning systems shall not be rendered inoperative or inaccessible except as necessary during emergencies, maintenance, repairs, alterations, drills or prescribed testing.

107.5 Owner/occupant responsibility. Any owner/occupant, using or having charge or control of any premises, or any part of any premises, who creates or maintains a condition or situation which constitutes a fire or life safety hazard, or who fails to promptly comply with the written notice of the Fire bureau, shall be deemed guilty of violating Portland City Code Title 31, Fire Regulations.

107.6 Overcrowding. Overcrowding or admittance of any person beyond the approved capacity of a building or a portion thereof shall not be allowed. The fire code official, upon finding any overcrowding conditions or obstructions in aisles, passageways or other means or egress, or upon finding any condition which constitutes a life safety hazard, shall be authorized to cause the event to be stopped until such condition or obstruction is corrected.

SECTION 108
BOARD OF APPEALS

108.1 (Not adopted see PCC 31.10) Board of appeals established.

108.2 Limitations on authority. An application for appeal shall be based on a claim that the intent of this code or the rules legally adopted hereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed.

108.3 (Not adopted see PCC 31.10) Qualifications.

SECTION 109
VIOLATIONS

109.1 Unlawful acts. It shall be unlawful for a person, firm or corporation to erect, construct, alter, repair, remove, demolish or utilize a building, occupancy, premises or system regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

109.2 Notice of violation. When the fire code official finds a building, premises, vehicle, storage facility or outdoor area that is in violation of this code, the fire code official is authorized to prepare a written notice of violation describing the conditions deemed unsafe and, when compliance is not immediate, specifying a time for reinspection.

109.2.1 Service. A notice of violation issued pursuant to this code shall be served upon the owner, operator, occupant, or other person responsible for the condition or violation, either by personal service, mail, or by delivering the same to, and leaving it with, some person of responsibility upon the premises. For unattended or abandoned locations, a copy of such notice of violation shall be posted on the premises in a conspicuous place at or near the entrance to such premises and the notice of violation shall be mailed by certified mail with return receipt requested or a certificate of mailing, to the last known address of the owner, occupant or both.

109.2.2 Compliance with orders and notices. A notice of violation issued or served as provided by this code shall be complied with by the owner, operator, occupant or other person responsible for the condition or violation to which the notice of violation pertains.

109.2.3 (Not adopted) Prosecution of violation.

109.2.4 Unauthorized tampering. Signs, tags or seals posted or affixed by the fire code official shall not be mutilated, destroyed or tampered with or removed without authorization from the fire code official.

109.3 (Not adopted see PCC 31.50) Violation penalties.

109.3.1 (Not adopted see PCC 31.50) Violation penalties.

109.3.2 Abatement of violation. In addition to the imposition of the penalties herein described, the fire code official is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or to stop an illegal act, conduct of business or occupancy of a structure on or about any premises.

SECTION 110
UNSAFE BUILDINGS

110.1 General. If during the inspection of a premises, a building or structure or any building system, in whole or in part, constitutes a clear and inimical threat to human life, safety or health, the fire code official shall issue such notice or orders to remove or remedy the conditions as shall be deemed necessary in accordance with this section and shall refer the building to the building department for any repairs, alterations, remodeling, removing or demolition required.

110.1.1 Unsafe conditions. Structures or existing equipment that are or hereafter become unsafe or deficient because of inadequate means of egress or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or which involve illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition. A vacant structure which is not secured against unauthorized entry as required by Section 311 shall be deemed unsafe.

110.1.2 Structural hazards. When an apparent structural hazard is caused by the faulty installation, operation or malfunction of any of the items or devices governed by this code, the fire code official shall immediately notify the building code official in accordance with Section 110.1.

110.2 Evacuation. The fire code official or the fire department official in charge of an incident shall be authorized to order the immediate evacuation of any occupied building deemed unsafe when such building has hazardous conditions that present imminent danger to building occupants. Persons so notified shall immediately leave the structure or premises and shall not enter or re-enter until authorized to do so by the fire code official or the fire department official in charge of the incident.

110.3 Summary abatement. Where conditions exist that are deemed hazardous to life and property, the fire code official or fire department official in charge of the incident is authorized to abate summarily such hazardous conditions that are in violation of this code.

110.4 Abatement. The owner, operator, or occupant of a building or premises deemed unsafe by the fire code official shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other approved corrective action.

SECTION 111
STOP WORK ORDER

111.1 (Not adopted) Order.

111.1.1 (Not adopted) Order.

111.2 (Not adopted) Issuance.

111.3 (Not adopted) Emergencies.

111.4 (Not adopted) Failure to comply.

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CHAPTER 14

FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

SECTION 1401
GENERAL

1401.1 Scope. This chapter shall apply to structures in the course of construction, alteration, or demolition, including those in underground locations. Compliance with NFPA 241 is required for items not specifically addressed herein.

1401.2 Purpose. This chapter prescribes minimum safeguards for construction, alteration, and demolition operations to provide reasonable safety to life and property from fire during such operations.

SECTION 1402
DEFINITIONS

1402.1 Terms defined in Chapter 2. Words and terms used in this chapter and defined in Chapter 2 shall have the meanings ascribed to them as defined therein.

SECTION 1403
TEMPORARY HEATING EQUIPMENT

1403.1 Listed. Temporary heating devices shall be listed and labeled in accordance with the *International Mechanical Code or* the *International Fuel Gas Code*. Installation, maintenance and use of temporary heating devices shall be in accordance with the terms of the listing.

1403.2 Oil-fired heaters. Oil-fired heaters shall comply with Section 603.

1403.3 LP-gas heaters. Fuel supplies for liquefied petroleum gas-fired heaters shall comply with Chapter 38 and the *International Fuel Gas Code.*

1403.4 Refueling. Refueling operations shall be conducted in accordance with Section 3405. The appliance shall be allowed to cool prior to refueling.

1403.5 Installation. Clearance to combustibles from temporary heating devices shall be maintained in accordance with the labeled equipment. When in operation, temporary heating devices shall be fixed in place and protected from damage, dislodgement or overturning in accordance with the manufacturer's instructions.

1403.6 Supervision. The use of temporary heating devices shall be supervised and maintained only by competent personnel.

SECTION 1404
PRECAUTIONS AGAINST FIRE

1404.1 Smoking. Smoking shall be prohibited except in approved areas. Signs shall be posted in accordance with Section 310. In approved areas where smoking is permitted, approved ashtrays shall be provided in accordance with Section 310.

1404.2 Waste disposal. Combustible debris shall not be accumulated within buildings. Combustible debris, rubbish and waste material shall be removed from buildings at the end of each shift of work. Combustible debris, rubbish and waste material shall not be disposed of by burning on the site unless approved.

1404.3 Open burning. Open burning shall comply with Section 307.

1404.4 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.

1404.5 Fire watch. When required by the fire code official for building demolition that is hazardous in nature, qualified personnel shall be provided to serve as an on-site fire watch. Fire watch personnel shall be provided with at least one approved means for notification of the fire department and their sole duty shall be to perform constant patrols and watch for the occurrence of fire.

1404.6 Cutting and welding. Operations involving the use of cutting and welding shall be done in accordance with Chapter 26.

1404.7 Electrical. Temporary wiring for electrical power and lighting installations used in connection with the construction, alteration or demolition of buildings, structures, equipment or similar activities shall comply with the ICC *Electrical Code.*

SECTION 1405
FLAMMABLE AND COMBUSTIBLE LIQUIDS

1405.1 Storage of flammable and combustible liquids. Storage of flammable and combustible liquids shall be in accordance with Section 3404.

1405.2 Class I and Class II liquids. The storage, use and handling of flammable and combustible liquids at construction sites shall be in accordance with Section 3406.2. Ventilation shall be provided for operations involving the application of materials containing flammable solvents.

1405.3 Housekeeping. Flammable and combustible liquid storage areas shall be maintained clear of combustible vegetation and waste materials. Such storage areas shall not be used for the storage of combustible materials.

1405.4 Precautions against fire. Sources of ignition and smoking shall be prohibited in flammable and combustible liquid storage areas. Signs shall be posted in accordance with Section 310.

1405.5 Handling at point of final use. Class I and II liquids shall be kept in approved safety containers.

1405.6 Leakage and spills. Leaking vessels shall be immediately repaired or taken out of service and spills shall be cleaned up and disposed of properly.

SECTION 1406
FLAMMABLE GASES

1406.1 Storage and handling. The storage, use and handling of flammable gases shall comply with Chapter 35.

SECTION 1407
EXPLOSIVE MATERIALS

1407.1 Storage and handling. Explosive materials shall be stored, used and handled in accordance with Chapter 33.

1407.2 Supervision. Blasting operations shall be conducted in accordance with Chapter 33.

1407.3 Demolition using explosives. Approved fire hoses for use by demolition personnel shall be maintained at the demolition site whenever explosives are used for demolition. Such fire hoses shall be connected to an approved water supply and shall be capable of being brought to bear on post-detonation fires anywhere on the site of the demolition operation.

SECTION 1408
OWNER'S RESPONSIBILITY FOR FIRE PROTECTION

1408.1 Program superintendent. The owner shall designate a person to be the Fire Prevention Program Superintendent who shall be responsible for the fire prevention program and ensure that it is carried out through completion of the project. The fire prevention program superintendent shall have the authority to enforce the provisions of this chapter and other provisions as necessary to secure the intent of this chapter. Where guard service is provided, the superintendent shall be responsible for the guard service.

1408.2 Prefire plans. The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.

1408.2.1 Prefire plans for construction of 4- and 5-story woodframe structures. Prior to combustible construction of 4- and 5-story woodframe structures the fire prevention program superintendent shall have a prefire and construction scheduling plan approved by the fire marshal. The plan shall include but not be limited to a plan that addresses the following issues:

1. Minimize the size of fire compartment during construction and control radiant heat that could threaten buildings in close proximity.
2. Control sources of ignition and provide for early detection including times when workers are not present.
3. Control both horizontal and vertical fire spread.
4. Maintain structural stability during a fire to prevent early structural collapse.

1408.3 Training. Training of responsible personnel in the use of fire protection equipment shall be the responsibility of the fire prevention program superintendent.

1408.4 Fire protection devices. The fire prevention program superintendent shall determine that all fire protection equipment is maintained and serviced in accordance with this code. The quantity and type of fire protection equipment shall be approved.

1408.5 Hot work operations. The superintendent shall be responsible for supervising the permit system for hotwork operations in accordance with Chapter 26.

1408.6 Impairment of fire protection systems. Impairments to any fire protection system shall be in accordance with Section 901.

1408.7 Temporary covering of fire protection devices. Coverings placed on or over fire protection devices to protect them from damage during construction processes shall be immediately removed upon the completion of the construction processes in the room or area in which the devices are installed.

SECTION 1409
FIREALARM REPORTING

1409.1 Emergency telephone. Readily accessible emergency telephone facilities shall be provided in an approved location at the construction site. The street address of the construction site and the emergency notification number (9-1-1) shall be posted adjacent to the telephone.

SECTION 1410
ACCESS FOR FIRE FIGHTING

1410.1 Required access. Approved vehicle access for fire fighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet (30 480 mm) of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

1410.2 Key boxes. Key boxes shall be provided as required by Chapter 5.

SECTION 1411
MEANS OF EGRESS

1411.1 Stairways required. Where a building has been constructed to a height greater than 50 feet (15 240mm) or four stories, or where an existing building exceeding 50 feet (15 240 mm) in height is altered, at least one temporary lighted stairway shall be provided unless one or more of the permanent stairways are erected as the construction progresses.

1411.2 Maintenance. Required means of egress shall be maintained during construction and demolition, remodeling or alterations and additions to any building.

Exception: Approved temporary means of egress systems and facilities.

[B] 1411.3 Stairway floor number signs. Temporary stairway floor number signs shall be provided in accordance with the requirements of Section 1020.1.6.

SECTION 1412
WATER SUPPLY FOR FIRE PROTECTION

1412.1 When required. An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site.

SECTION 1413
STANDPIPES

1413.1 Where required. Buildings four or more stories in height shall be provided with not less than one standpipe for use during construction. Such standpipes shall be installed when the progress of construction is not more than 40 feet (12 192 mm) in height above the lowest level of fire department access. Such standpipe shall be provided with fire department hose connections at accessible locations adjacent to usable stairs. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

1413.2 Buildings being demolished. Where a building is being demolished and a standpipe is existing within such a building, such standpipe shall be maintained in an operable condition so as to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished.

1413.3 Detailed requirements. Standpipes shall be installed in accordance with the provisions of Section 905.

Exception: Standpipes shall be either temporary or permanent in nature, and with or without a water supply, provided that such standpipes comply with the requirements of Section 905 as to capacity, outlets and materials.

SECTION 1414
AUTOMATIC SPRINKLER SYSTEM

1414.1 Completion before occupancy. In buildings where an automatic sprinkler system is required by this code or the *International Building Code*, it shall be unlawful to occupy any portion of a building or structure until the automatic sprinkler system installation has been tested and approved, except as provided in Section 105.3.3.

1414.2 Operation of valves. Operation of sprinkler control valves shall be allowed only by properly authorized personnel and shall be accompanied by notification of duly designated parties. When the sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work period to ascertain that protection is in service.

SECTION 1415
PORTABLE FIRE EXTINGUISHERS

1415.1 Where required. Structures under construction, alteration or demolition shall be provided with not less than one approved portable fire extinguisher in accordance with Section 906 and sized for not less than ordinary hazard as follows:

1. At each stairway on all floor levels where combustible materials have accumulated.
2. In every storage and construction shed.
3. Additional portable fire extinguishers shall be provided where special hazards exist including, but not limited to, the storage and use of flammable and combustible liquids.

SECTION 1416
MOTORIZED EQUIPMENT

1416.1 Conditions of use. Internal-combustion-powered construction equipment shall be used in accordance with all of the following conditions:

1. Equipment shall be located so that exhausts do not discharge against combustible material.
2. Exhausts shall be piped to the outside of the building.
3. Equipment shall not be refueled while in operation.
4. Fuel for equipment shall be stored in an approved area outside of the building.

SECTION 1417
SAFEGUARDING ROOFING OPERATIONS

1417.1 General. Roofing operations utilizing heat-producing systems or other ignition sources shall be performed by a contractor licensed and bonded for the type of roofing process to be performed.

1417.2 Asphalt and tar kettles. Asphalt and tar kettles shall be operated in accordance with Section 303.

1417.3 Fire extinguishers for roofing operations. Fire extinguishers shall be installed in accordance with Section 906. There shall be not less than one multi-purpose portable fire extinguisher with a minimum 3-A 40-B: C rating on the roof being covered or repaired.

Exception: Approved temporary means of egress systems and facilities.

SECTION 1418
COMBUSTIBLE TRASH CHUTES

1418.1 General. Combustible trash chutes shall not be used on nonsprinkled buildings.

Exception: Combustible trash chutes are allowed in nonsprinkled Type I or II structures under initial construction prior to the installation of the combustible interior finish or on preexisting noncombustible exterior buildings not exceeding four stories in height [48 feet (14 630 mm)] with an approved safety plan.

1418.2 Safety plans. An approved safety plan, as applicable to this section, shall address the following:

1. A continuous fire watch (during working hours) shall be assigned at all drop boxes with a continuous means of water application and a means of communication (radio or cell phone).
2. Water application or an approved barrier shall be provided at each chute access opening. The approved barrier shall extend 3 feet (914 mm) to each side of the chute.
3. Where water application is provided at the chute access, a trained person shall be continuously assigned (during working hours) to stand watch with an approved means of communication.
4. Signage shall be posted at each chute access to read as follows:

NO SMOKING, OPEN FLAME, WELDING
OR CUTTING WITHIN 20 FEET (6096 mm)
OF CHUTE ACCESS.

purging systems shall not be discharged inside buildings or under canopies used for weather protection.

2209.5.4.2 Pressure relief devices. Portions of the system subject to overpressure shall be protected by pressure relief devices designed and installed in accordance with the requirements of CGA S-1.1, S-1.2, S-1.3 or the ASME *Boiler and Pressure Vessel Code*, as applicable. Containers used for the storage of liquefied hydrogen shall be provided with pressure relief devices in accordance with Section 3203.2.

2209.5.4.2.1 Minimum rate of discharge. The minimum flow capacity of pressure relief devices on the hydrogen storage containers shall be at least the capacity required by Section 2209.5.4.2 or the capacity required to accommodate a hydrogen compressor that fails to shut down or unload, whichever is greater.

2209.5.4.3 Vent pipe. Stationary containers and tanks shall be provided with a vent pipe system that will divert gas discharged from pressure relief devices to the atmosphere. Vent pipe systems serving pressure relief devices and purging systems used for operational control shall be designed and constructed in accordance with Sections 2209.5.4.3.1 through 2209.5.4.3.6.

2209.5.4.3.1 Materials of construction. The vent pipe system shall be constructed of materials approved for hydrogen service in accordance with ASME B31.3 for the rated pressure, volume and temperature of gas to be transported. The vent piping shall be designed for the maximum backpressure within the pipe, but not less than 335 pounds per square inch gauge (psig) (2310 kPa).

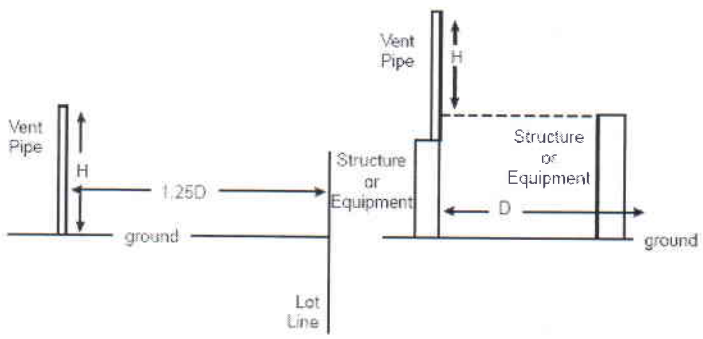
2209.5.4.3.2 Structural support. The vent pipe system shall be supported to prevent structural collapse and shall be provided with a rain cap or other feature that would not limit or obstruct the gas flow from venting vertically upward.

2209.5.4.3.3 Obstructions. A means shall be provided to prevent water, ice and other debris from accumulating inside the vent pipe or obstructing the vent pipe.

2209.5.4.3.4 Height of vent and separation. The height (*H*) and separation distance (*D*) of the vent pipe shall meet the criteria set forth in Table 2209.5.4.3.4 for the combinations of maximum hydrogen flow rates and vent stack opening diameters listed. Alternative venting systems shall be allowed when in accordance with Section 2209.5.4.3.6.

2209.5.4.3.5 Maximum flow rate. The vent pipe system shall be sized based on the maximum flow rate for the system served and be specified on the construction documents. The maximum flow rate shall be determined in accordance with the requirements of CGA S-1.3 using the aggregate gas flow rate from all connected vent, purge and relief devices that operated simultaneously during a venting operation, purging operation or emergency relief event.

2209.5.4.3.6 Alternative venting systems. Where alternative venting systems are used in lieu of the requirements of Section 2209.5.4.3.5, an analysis of radiant heat exposures and hydrogen concentrations shall be provided. The analysis of exposure to radiant heat shall assume a wind speed of 30 feet/second (9.14 m/sec) and provide a design that limits radiant heat exposure to the maximum values shown in Table 2209.5.4.3.6 (1). The analysis of exposure to hydrogen concentration shall provide a design that limits the maximum hydrogen concentration to the values shown in Table 2209.5.4.3.6 (2).



H = Minimum height in feet of vent pipe above the ground or above any structure or equipment within distance (D) where personnel might be present.
D = Distance in feet to adjacent structure or equipment where personnel might be present.

FIGURE 2209.5.4.1
HYDROGEN VENT PIPE HEIGHT (H) VERSUS DISTANCE (D) REQUIREMENTS

TABLE 2209.5.4.3.4
VENT PIPE HEIGHT AND SEPARATION DISTANCE
VERSUS HYDROGEN FLOW RATE AND VENT PIPE DIAMETER [a, b, c, d, e, f]

HYDROGEN FLOW RATE	≤ 500CFM at NTP[g]	>500≤1000 CFM at NTP[g]	>1,000≤2,000 CFM at NTP[g]	>2,000≤5,000 CFM at NTP[h]	>5,000≤10,000 CFM at NTP[h]	>10,000≤20,000 CFM at NTP[h]
Height (ft)	8	8	12	17	25	36
Distance (ft)	13	17	26	40	53	81

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 Btuh/ft^2 = 3.153 W/m^2, 1 foot/second = 304.8 mm/sec.

a. Minimum distance to property line is 1.25D.

b. Designs seeking to achieve greater heights with commensurate reductions in separation distances shall be designed in accordance with accepted engineering practice.

c. With this table, personnel on the ground or on the building/equipment are exposed to a maximum of 1,500 Btu/hr. ft^2, and are assumed to be provided with a means to escape to a shielded area within 3 minutes, including the case of a 30 ft/sec. wind.

d. Designs seeking to achieve greater radiant exposures to noncombustible equipment shall be designed in accordance with accepted engineering practice.

e. The analysis reflected in this table does not permit hydrogen air mixtures that would exceed one-half of the lower flammable limit (LFL) for hydrogen (2 percent by volume) at the building or equipment, including the case of a 30 ft/sec. wind.

f. See Figure 2209.5.4.3.4.

g. For vent pipe diameters up to and including 2 inches.

h. For vent pipe diameters up to and including 3 inches.

TABLE 2209.5.4.3.6(1)
MAXIMUM RADIANT HEAT EXPOSURE

EXPOSED OBJECT	MAXIMUM RADIANT HEAT	TIME DURATION (minutes)
Personnel	1,500 Btu/hr • ft^2 (W/m^2)	3
Noncombustible equipment	8,000 Btu/hr • ft^2 (25 237 W/m^2)	Any
Lot line	500 Btu/hr • ft^2 (1577 W/m^2)	Any

TABLE 2209.5.4.3.6(2)
MAXIMUM HYDROGEN CONCENTRATION EXPOSURE

EXPOSED OBJECT	MAXIMUM HYDROGEN CONCENTRATION
Personnel, buildings or equipment	50% LFL within a distance of D and H of Table 2209.5.4.3.4
Lot line	50% LFL within 1.25 times the distance of D and H of Table 2209.5.4.3.4

SECTION 2210
MARINE MOTOR FUEL-DISPENSING FACILITIES

2210.1 General. The construction of marine motor fuel-dispensing facilities shall be in accordance with the *International Building Code* and NFPA30A. The storage of Class I, II or IIIA liquids at marine motor fuel-dispensing facilities shall be in accordance with this chapter and Chapter 34.

PCC Titles 19 and 28 are not part of this code but are reproduced or paraphrased here for the reader's convenience.

Title 19, 19.16.135 A through E (Harbor Code) provides details on fueling at other than marine motor fuel dispensing facilities.

Title 28, 28.06.050 E (Floating Structures Code), provides details on standpipes systems for moorages.

2210.2 Storage and handling. The storage and handling of Class I, II or IIIA liquids at marine motor fuel-dispensing facilities shall be in accordance with Sections 2210.2.1 through 2210.2.3.

2210.2.1 Class I, II or IIIA liquid storage. Class I, II or IIIA liquids stored inside of buildings used for marine motor fuel-dispensing facilities shall be stored in approved containers or portable tanks. Storage of Class I liquids shall not exceed 10 gallons (38 L).

Exception: Storage in liquid storage rooms in accordance with Section 3404.3.7.

2210.2.2 Class II or IIIA liquid storage and dispensing. Class II or IIIA liquids stored or dispensed inside of buildings used for marine motor fuel-dispensing facilities shall be stored in and dispensed from approved containers or portable tanks. Storage of Class II and IIIA liquids shall not exceed 120 gallons (454 L).

2210.2.3 Heating equipment. Heating equipment installed in Class I, II or IIIA liquid storage or dispensing areas shall comply with Section 2201.6.

TABLE 2209.5.4.3.4
VENT PIPE HEIGHT AND SEPARATION DISTANCE
VERSUS HYDROGEN FLOW RATE AND VENT PIPE DIAMETER [a, b, c, d, e, f]

HYDROGEN FLOW RATE	≤ 500CFM at NTP[g]	>500≤1000 CFM at NTP[g]	>1,000≤2,000 CFM at NTP[g]	>2,000≤5,000 CFM at NTP[h]	>5,000≤10,000 CFM at NTP[h]	>10,000≤20,000 CFM at NTP[h]
Height (ft)	8	8	12	17	25	36
Distance (ft)	13	17	26	40	53	81

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 Btuh/ft^2 = 3.153 W/m^2, 1 foot/second = 304.8 mm/sec.

a. Minimum distance to property line is 1.25D.

b. Designs seeking to achieve greater heights with commensurate reductions in separation distances shall be designed in accordance with accepted engineering practice.

c. With this table, personnel on the ground or on the building/equipment are exposed to a maximum of 1,500 Btu/hr. ft^2, and are assumed to be provided with a means to escape to a shielded area within 3 minutes, including the case of a 30 ft/sec. wind.

d. Designs seeking to achieve greater radiant exposures to noncombustible equipment shall be designed in accordance with accepted engineering practice.

e. The analysis reflected in this table does not permit hydrogen air mixtures that would exceed one-half of the lower flammable limit (LFL) for hydrogen (2 percent by volume) at the building or equipment, including the case of a 30 ft/sec. wind.

f. See Figure 2209.5.4.3.4.

g. For vent pipe diameters up to and including 2 inches.

h. For vent pipe diameters up to and including 3 inches.

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2210.2.1 Class I, II or IIIA liquid storage. Class I, II or IIIA liquids stored inside of buildings used for marine motor fuel-dispensing facilities shall be stored in approved containers or portable tanks. Storage of Class I liquids shall not exceed 10 gallons (38 L).

Exception: Storage in liquid storage rooms in accordance with Section 3404.3.7.

2210.2.2 Class II or IIIA liquid storage and dispensing. Class II or IIIA liquids stored or dispensed inside of buildings used for marine motor fuel-dispensing facilities shall be stored in and dispensed from approved containers or portable tanks. Storage of Class II and IIIA liquids shall not exceed 120 gallons (454 L).

2210.2.3 Heating equipment. Heating equipment installed in Class I, II or IIIA liquid storage or dispensing areas shall comply with Section 2201.6.

DECK SPACES ARE VENTILATED.

2210.3 Dispensing. The dispensing of liquid fuels at marine motor fuel-dispensing facilities shall comply with Sections 2210.3.1 through 2210.3.5.

2210.3.1 General. Wharves, piers or floats at marine motor fuel-dispensing facilities shall be used exclusively for the dispensing or transfer of petroleum products to or from marine craft, except that transfer of essential ship stores is allowed.

2210.3.2 Supervision. Marine motor fuel-dispensing facilities shall have an attendant or supervisor who is fully aware of the operation, mechanics and hazards inherent to fueling of boats on duty whenever the facility is open for business. The attendant's primary function shall be to supervise, observe and control the dispensing of Class I, II or IIIA liquids or flammable gases.

2210.3.3 Hoses and nozzles. Dispensing of Class I, II or IIIA liquids into the fuel tanks of marine craft shall be by means of an approved-type hose equipped with a listed automatic- closing nozzle without a latch-open device.

Hoses used for dispensing or transferring Class I, II or IIIA liquids, when not in use, shall be reeled, racked or otherwise protected from mechanical damage.

2210.3.4 Portable containers. Class I, II or IIIA liquids shall not be dispensed into a portable container unless such container is approved.

2210.3.5 Liquefied petroleum gas. Liquefied petroleum gas cylinders shall not be filled at marine motor fuel-dispensing facilities unless approved. Approved storage facilities for LP-gas cylinders shall be provided. See also Section 2207.

2210.4 Fueling of marine vehicles at other than approved marine motor fuel-dispensing facilities. Fueling of floating marine craft with Class I fuels at other than a marine motor fuel-dispensing facility is prohibited. Fueling of floating marine craft with Class II or III fuels at other than a marine motor fuel-dispensing facility shall be in accordance with all of the following:

1. The premises and operations shall be approved by the fire code official.
2. Tank vehicles and fueling operations shall comply with Section 3406.6.
3. The dispensing nozzle shall be of the listed automatic-closing type without a latch-open device.
4. Nighttime deliveries shall only be made in lighted areas.
5. The tank vehicle flasher lights shall be in operation while dispensing.
6. Fuel expansion space shall be left in each fuel tank to prevent overflow in the event of temperature increase.

2210.5 Fire prevention regulations. General fire safety regulations for marine motor fuel-dispensing facilities shall comply with Sections 2210.5.1 through 2210.5.7.

2210.5.1 Housekeeping. Marine motor fuel-dispensing facilities shall be maintained in a neat and orderly manner. Accumulations of rubbish or waste oils in excessive amounts shall be prohibited.

2210.5.2 Spills. Spills of Class I, II or IIIA liquids at or on the water shall be reported immediately to the fire department and jurisdictional authorities.

2210.5.3 Rubbish containers. Metal containers with tight-fitting or self-closing metal lids shall be provided for the temporary storage of combustible trash or rubbish.

2210.5.4 Marine vessels and craft. Vessels or craft shall not be made fast to fuel docks serving other vessels or craft occupying a berth at a marine motor fuel-dispensing facility.

2210.5.5 Sources of ignition. Construction, maintenance, repair and reconditioning work involving the use of open flames, arcs or spark-producing devices shall not be performed at marine motor fuel-dispensing facilities or within 50 feet (15 240 mm) of the dispensing facilities, including piers, wharves or floats, except for emergency repair work approved in writing by the fire code official. Fueling shall not be conducted at the pier, wharf or float during the course of such emergency repairs.

2210.5.5.1 Smoking. Smoking or open flames shall be prohibited within 50 feet (15 240 mm) of fueling operations. "No Smoking" signs complying with Section 310 shall be posted conspicuously about the premises. Such signs shall have letters not less than 4 inches (102 mm) in height on a background of contrasting color.

2210.5.6 Preparation of tanks for fueling. Boat owners and operators shall not offer their craft for fueling unless the tanks being filled are properly vented to dissipate fumes to the outside atmosphere.

2210.5.7 Warning signs. Warning signs shall be prominently displayed at the face of each wharf, pier or float at such elevation as to be clearly visible from the decks of marine craft being fueled. Such signs shall have letters not less than 3 inches (76 mm) in height on a background of contrasting color bearing the following or approved equivalent wording:

WARNING
NO SMOKING—STOP ENGINE WHILE
FUELING, SHUT OFF ELECTRICITY.

DO NOT START ENGINE UNTIL AFTER BELOW
DECK SPACES ARE VENTILATED.

2210.6 Fire protection. Fire protection features for marine motor fuel-dispensing facilities shall comply with Sections 2210.6.1 through 2210.6.4.

2210.6.1 Standpipe and hose station. Standpipe and hose stations shall be installed and maintained at floating marine motor vehicle fueling dispensing stations as required by PCC Title 28, Floating Structures Code.

Exception: Standpipe systems may be dry when approved by the fire code official.

Fire hose, where provided, shall be enclosed within a cabinet, and hose stations shall be labeled: FIRE HOSE—EMERGENCY USE ONLY.

2210.6.1.1 Water supply. Piers and wharves shall be provided with water supply systems. Water supply systems shall be in the form of on site fire hydrants or as required by the fire code official.

2210.6.1.2 Sprinkler systems. Piers and wharves shall be installed with an automatic sprinkler system when required by the *International Building Code*.

2210.6.2 Obstruction of fire protection equipment. Materials shall not be placed on a pier in such a manner as to obstruct access to fire-fighting equipment or piping system control valves.

2210.6.3 Access. Where the pier is accessible to vehicular traffic, an unobstructed roadway to the shore end of the wharf shall be maintained for access by fire apparatus.

2210.6.4 Portable fire extinguishers. Portable fire extinguishers in accordance with Section 906, each having a minimum rating of 20-B:C, shall be provided as follows:

1. One on each float.
2. One on the pier or wharf within 25 feet (7620 mm) of the head of the gangway to the float, unless the office is within 25 feet (7620 mm) of the gangway or is on the float and an extinguisher is provided thereon.

SECTION 2211
REPAIR GARAGES

2211.1 General. Repair garages shall comply with this section and the *International Building Code*. Repair garages for vehicles that use more than one type of fuel shall comply with the applicable provisions of this section for each type of fuel used.

Where a repair garage also includes a motor fuel-dispensing facility, the fuel-dispensing operation shall comply with the requirements of this chapter for motor fuel-dispensing facilities.

2211.2 Storage and use of flammable and combustible liquids. The storage and use of flammable and combustible liquids in repair garages shall comply with Chapter 34 and Sections 2211.2.1 through 2211.2.4.

2211.2.1 Cleaning of parts. Cleaning of parts shall be conducted in listed and approved parts-cleaning machines in accordance with Chapter 34.

2211.2.2 Waste oil, motor oil and other Class IIIB liquids. Waste oil, motor oil and other Class IIIB liquids shall be stored in approved tanks or containers, which are allowed to be stored and dispensed from inside repair garages.

2211.2.2.1 Tank location. Tanks storing Class IIIB liquids in repair garages are allowed to be located at, below or above grade, provided that adequate drainage or containment is provided.

2211.2.2.2 Liquid classification. Crankcase drainings shall be classified as Class IIIB liquids unless otherwise determined by testing.

2211.2.3 Drainage and disposal of liquids and oil-soaked waste. Garage floor drains, where provided, shall drain to approved oil separators or traps discharging to a sewer in accordance with the *International Plumbing Code*. Contents of oil separators, traps and floor drainage systems shall be collected at sufficiently frequent intervals and removed from the premises to prevent oil from being carried into the sewers.

2211.2.3.1 Disposal of liquids. Crankcase drainings and liquids shall not be dumped into sewers, streams or on the ground, but shall be stored in approved tanks or containers in accordance with Chapter 34 until removed from the premises.

2211.2.3.2 Disposal of oily waste. Self-closing metal cans shall be used for oily waste.

2211.2.4 Spray finishing. Spray finishing with flammable or combustible liquids shall comply with Chapter 15.

2211.3 Sources of ignition. Sources of ignition shall not be located within 18 inches (457 mm) of the floor and shall comply with Chapters 3 and 26.

2211.3.1 Equipment. Appliances and equipment installed in a repair garage shall comply with the provisions of the *International Building Code,* the *International Mechanical Code* and the *International Code Council Electrical Code Administrative Provisions.*

2211.3.2 Smoking. Smoking shall not be permitted in repair garages except in approved locations.

2211.4 Below-grade areas. Pits and below-grade work areas in repair garages shall comply with Sections 2211.4.1 through 2211.4.3.

2211.4.1 Construction. Pits and below-grade work areas shall be constructed in accordance with the *International Building Code.*

2211.4.2 Means of egress. Pits and below-gradework areas shall be provided with means of egress in accordance with Chapter 10.

2211.4.3 Ventilation. Where Class I liquids or LP-gas are stored or used within a building having a basement or pit wherein flammable vapors could accumulate, the basement or pit shall be provided with mechanical ventilation in accordance with the *International Mechanical Code,* at a minimum rate of 1.5 cubic feet per minute per square foot (cfm/ft^2) [0.008 m^3/(s • m^2)] to prevent the accumulation of flammable vapors.

2211.5 Preparation of vehicles for repair. For vehicles powered by gaseous fuels, the fuel shutoff valves shall be closed prior to repairing any portion of the vehicle fuel system.

Vehicles powered by gaseous fuels in which the fuel system has been damaged shall be inspected and evaluated for fuel system integrity prior to being brought into the repair garage. The inspection shall include testing of the entire fuel delivery system for leakage.

2211.6 Fire extinguishers. Fire extinguishers shall be provided in accordance with Section 906.

2211.7 Repair garages for vehicles fueled by lighter-than-air fuels. Repair garages for the conversion and repair of vehicles which use CNG, liquefied natural gas (LNG), hydrogen or other lighter-than-air motor fuels shall be in accordance with Section 2211.7 through 2211.7.2.3 in addition to the other requirements of Section 2211.

Exception: Repair garages where work is not performed on the fuel system and is limited to exchange of parts and maintenance requiring no open flame or welding.

2211.7.1 Ventilation. Repair garages used for the repair of natural gas- or hydrogen-fueled vehicles shall be provided with an approved mechanical ventilation system. The mechanical ventilation system shall be in accordance with the *International Mechanical Code* and Sections 2211.7.1.1 and 2211.7.1.2.

Exception: Repair garages with natural ventilation when approved.

2211.7.1.1 Design. Indoor locations shall be ventilated utilizing air supply inlets and exhaust outlets arranged to provide uniform air movement to the extent practical. Inlets shall be uniformly arranged on exterior walls near floor level. Outlets shall be located at the high point of the room in exterior walls or the roof.

Ventilation shall be by a continuous mechanical ventilation system or by a mechanical ventilation system activated by a continuously monitoring natural gas detection system or, for hydrogen, a continuously monitoring flammable gas detection system, each activating at a gas concentration of not more than 25 percent of the lower flammable limit (LFL). In all cases, the system shall shut down the fueling system in the event of failure of the ventilation system.

The ventilation rate shall be at least 1 cubic foot per minute per 12 cubic feet (0.00139 m^3 • m^3) of room volume.

2211.7.1.2 Operation. The mechanical ventilation system shall operate continuously.

Exceptions:

1. Mechanical ventilation systems that are interlocked with a gas detection system designed in accordance with Section 2211.7.2 through 2211.7.2.3.
2. Mechanical ventilation systems in repair garages that are used only for repair of vehicles fueled by liquid fuels or odorized gases, such as CNG, where the ventilation system is electrically interlocked with the lighting circuit.

2211.7.2 Gas detection system. Repair garages used for repair of vehicles fueled by nonodorized gases, such as hydrogen and nonodorized LNG, shall be provided with an approved flammable gas detection system.

2211.7.2.1 System design. The flammable gas detection system shall be calibrated to the types of fuels or gases used by vehicles to be repaired. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammable limit (LFL). Gas detection shall also be provided in lubrication or chassis repair pits of repair garages used for repairing nonodorized LNG-fueled vehicles.

2211.7.2.2 Operation. Activation of the gas detection system shall result in all the following:

1. Initiation of distinct audible and visual alarm signals in the repair garage.
2. Deactivation of all heating systems located in the repair garage.
3. Activation of the mechanical ventilation system, when the system is interlocked with gas detection.

2211.7.2.3 Failure of the gas detection system. Failure of the gas detection system shall result in the deactivation of the heating system, activation of the mechanical ventilation system and where the system is interlocked with gas detection and causes a trouble signal to sound in an approved location.

2211.8 Defueling of hydrogen from motor vehicle fuel storage containers. The discharge or defueling of hydrogen from motor vehicle fuel storage tanks for the purpose of maintenance, cylinder certification, calibration of dispensers or other activities shall be in accordance with Section 2211.8.1 through 2211.8.1.2.4.

2211.8.1 Methods of discharge. The discharge of hydrogen from motor vehicle fuel storage tanks shall be accomplished through a closed transfer system in accordance with Section 2211.8.1.1 or an approved method of atmospheric venting in accordance with Section 2211.8.1.2.

2211.8.1.1 Closed transfer system. A documented procedure that explains the logic sequence for discharging the storage tank shall be provided to the code official for review and approval. The procedure shall include what actions the operator is required to take in the event of a low-pressure or high-pressure hydrogen release during discharging activity. Schematic design documents shall be provided illustrating the arrangement of piping, regulators and equipment settings. The construction documents shall illustrate the piping and regulator arrangement and shall be shown in spatial relation to the location of the compressor, storage vessels and emergency shutdown devices.

2211.8.1.2 Atmospheric venting of hydrogen from motor vehicle fuel storage containers. When atmospheric venting is used for the discharge of hydrogen from motor vehicle fuel storage tanks, such venting shall be in accordance with Sections 2211.8.1.2.1 through 2211.8.1.2.4.

2211.8.1.2.1 Defueling equipment required at vehicle maintenance and repair facilities. All facilities for repairing hydrogen systems on hydrogen-fueled vehicles shall have equipment to defuel vehicle storage tanks. Equipment used for defueling shall be listed and labeled for the intended use.

2211.8.1.2.1.1 Manufacturer's equipment required. Equipment supplied by the vehicle manufacturer shall be used to connect the vehicle storage tanks to be defueled to the vent pipe system.

2211.8.1.2.1.2 Vent pipe maximum diameter. Defueling vent pipes shall have a maximum inside diameter of 1 inch (25 mm) and be installed in accordance with Section 2209.5.4.

2211.8.1.2.1.3 Maximum flow rate. The maximum rate of hydrogen flow through the vent pipe system shall not exceed 1,000 cfm at NTP (0.47 m^3/s) and shall be controlled by means of the manufacturer's equipment, at low pressure and without adjustment.

2211.8.1.2.1.4 Isolated use. The vent pipe used for defueling shall not be connected to another venting system used for any other purpose.

2211.8.1.2.2 Construction documents. Construction documents shall be provided illustrating the defueling system to be utilized. Plan details shall be of sufficient detail and clarity to allow for evaluation of the piping and control systems to be utilized and include the method of support for cylinders, containers or tanks to be used as part of a closed transfer system, the method of grounding and bonding, and other requirements specified herein.

2211.8.1.2.3 Stability of cylinders, containers and tanks. A method of rigidly supporting cylinders, containers or tanks used during the closed transfer system discharge or defueling of hydrogen shall be provided. The method shall provide not less than two points of support and shall be designed to resist lateral movement of the receiving cylinder, container or tank. The system shall be designed to resist movement of the receiver based on the highest gas-release velocity through valve orifices at the receiver's rated service pressure and volume. Supporting structure or appurtenance used to support receivers shall be constructed of noncombustible materials in accordance with the *International Building Code*.

2211.8.1.2.4 Grounding and bonding. Cylinders, containers or tanks and piping systems used for defueling shall be bonded and grounded. Structures or appurtenances used for supporting the cylinders, containers or tanks shall be grounded in accordance with the *International Code Council Electrical Code Administrative Provisions*. The valve of the vehicle storage tank shall be bonded with the defueling system prior to the commencement of discharge or defueling operations.

2211.8.2 Repair of hydrogen piping. Piping systems containing hydrogen shall not be opened to the atmosphere for repair without first purging the piping with an inert gas to achieve 1 percent hydrogen or less by volume. Defueling operations and exiting purge flow shall be vented in accordance with Section 2211.8.1.2.

2211.8.3 Purging. Each individual manufactured component of a hydrogen generating, compression, storage or dispensing system shall have a label affixed as well as a description in the installation and owner's manuals describing the procedure for purging air from the system during startup, regular maintenance and for purging hydrogen from the system prior to disassembly (to admit air). For the interconnecting piping between the individual manufactured components, the pressure rating must be at least 20 times the absolute pressure present in the piping when any hydrogen meets any air.

For the interconnecting piping between the individual manufactured components, the pressure rating must be at least 20 times the absolute pressure present in the piping when any hydrogen meets any air.

2211.8.3.1 System purge required. After installation, repair or maintenance, the hydrogen piping system shall be purged of air in accordance with the manufacturer's procedure for purging air from the system.

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CHAPTER 24
TENTS, CANOPIES AND OTHER MEMBRANE STRUCTURES

SECTION 2401
GENERAL

2401.1 Scope. Tents, canopies and membrane structures shall comply with this chapter.

SECTION 2402
DEFINITIONS

2402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein

AIR-SUPPORTED STRUCTURE. A structure wherein the shape of the structure is attained by air pressure, and occupants of the structure are within the elevated pressure area.

CANOPY. A structure, enclosure or shelter constructed of fabric or pliable materials supported by any manner, except by air or the contents it protects, and is open without sidewalls or drops on 75 percent or more of the perimeter.

MEMBRANE STRUCTURE. An air-inflated, air-supported, cable or frame-covered structure as defined by the *International Building Code* and not otherwise defined as a tent or canopy. See Chapter 31 of the *International Building Code*.

TENT. A structure, enclosure or shelter constructed of fabric or pliable material supported by any manner except by air or the contents it protects.

SECTION 2403
TEMPORARY TENTS, CANOPIES AND MEMBRANE STRUCTURES

2403.1 General. All temporary tents, canopies and membrane structures shall comply with this section.

2403.2 Approval Required. Tents and membrane structures having an area in excess of 200 square feet (19m^2) and canopies in excess of 400 square feet (37 m^2) shall not be erected, operated or maintained for any purpose without first obtaining a permit and approval from the fire code official.

Exceptions:

1. Tents used exclusively for recreational camping purposes.

2. Fabric canopies open on all sides which comply with all of the following:
   2.1 Individual canopies having a maximum size of 700 square feet (65 m^2)
   2.2 The aggregate area of multiple canopies placed size by side without a fire break clearance of 12 feet (3658 mm), not exceeding 700 square feet (65 m^2) total.
   2.3 A minimum clearance of 12 feet (3658 mm) to all structures and other tents.

2403.3 Place of assembly. For the purposes of this chapter, a place of assembly shall include a circus, carnival, tent show, theatre, skating rink, dance hall or other place of assembly in or under which persons gather for any purpose.

2403.4 Permits. Permits shall be required ass set forth in Section 105.6.43, 105.7.13, and Portland City Code Title 31, Fire Regulations.

> PCC Title 31 is not part of this code but is reproduced or paraphrased here for the reader's convenience.
>
> PCC 31.40.020.A.3 specifies when temporary permits are required.

2403.5 Use period. Temporary tents, air-supported, air-inflated or tensioned membrane structures and canopies shall be used for a period of not more than 180 days within a 12-month period on a single premise.

2403.6 Construction documents. A detailed site and floor plan for tents, canopies or membrane structures with an occupancy load of 50 or more shall be provided with each application for approval. The tent, canopy or membrane structure floor plan shall indicate details of the means of egress facilities, seating capacity, arrangement of the seating, location and type of fire extinguishers, heating equipment, and electrical equipment.

2403.7 Inspections. The entire tent, air-supported, air-inflated or tensioned membrane structure system shall be inspected at regular intervals, but not less than two times per permit use period, by the permittee, owner or agent to determine that the installation is maintained in accordance with this chapter.

Exception: Permit use periods of less than 30 days.

2403.7.1 Inspection report. When required by the fire code official, an inspection report shall be provided and shall consist of maintenance, anchors and fabric inspections.

2403.8 Access, location and parking. Access location and parking for temporary tents, canopies and membrane structures shall be in accordance with this section.

2403.8.1 Access. Fire apparatus access roads shall be provided in accordance with Section 503.

2403.8.2 Location. Tents, canopies or membrane structures shall not be located within 20 feet (6096mm) of lot lines, buildings, other tents, canopies or membrane structures, parked vehicles or internal combustion engines. Designated parking areas shall be approved by the fire code official and maintained in accordance with Section 304. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure, tent or canopy.

Exceptions:

1. Separation distance between membrane structures, tents and canopies not used for cooking, is not required when the aggregate floor area does not exceed 15,000 square feet (1394 m^2).
2. Membrane structures, tents or canopies need not be separated from buildings when all of the following conditions are met:
   - 2.1 The aggregate floor area of the membrane structure, tent or canopy shall not exceed 10,000 feet (929m^2)
   - 2.2 The aggregate floor area of the building and membrane structure, tent or canopy shall not exceed the allowable floor area including increases as indicated in the *International Building Code.*
   - 2.3 Required means of egress provisions are provided for both the building and the membrane structure, tent or canopy, including travel distances.
   - 2.4 Fire apparatus access roads are provided in accordance with Section 503.

2403.8.3 Location of structures in excess of 15,000 square feet in area. Membrane structures having an area of 15,000 square feet (1394m^2) or more shall be located not less than 50 feet (15 240mm) from any other tent or structure as measured from the sidewall of the tent or membrane structure unless joined together by a corridor.

2403.8.4 Connecting corridors. Tents or membrane structures are allowed to be joined together by means of corridors. Exit doors shall be provided at each end of such corridor. On each side of such corridor and approximately opposite each other, there shall be provided openings not less than 12 feet (3658 mm) wide.

2403.8.5 Fire break. An unobstructed fire break passageway or fire road not less than 12 feet (3658 mm) wide and free from guy ropes or other obstructions shall be maintained on all sides of all tents, canopies and membrane structures unless otherwise approved by the fire code official.

2403.9 Anchorage required. Tents, canopies or membrane structures and their appurtenances shall be adequately roped, braced and anchored to withstand the elements of weather and prevent against collapsing. Documentation of structural stability shall be furnished to the fire code official on request.

2403.10 Temporary air-supported and air-inflated membrane structures. Temporary air-supported and air-inflated membrane structures shall be in accordance with Sections 2403.10.1 through 2403.10.4.

2403.10.1 Door operation. During high winds exceeding 50 miles per hour (22m/s) or in snow conditions, the use of doors in air-supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open.

2403.10.2 Fabric envelope design and construction. Air-supported and air-inflated structures shall have the design and construction of the fabric envelope and the method of anchoring in accordance with Architectural Fabric Structures Institute ASI 77.

2403.10.3 Blowers. An air-supported structure used as a place of assembly shall be furnished with not less than two blowers, each of which has adequate capacity to maintain full inflation pressure with normal leakage. The design of the blower shall be so as to provide integral limiting pressure at the design pressure specified by the manufacturer.

2403.10.4 Auxiliary power. Places of public assembly for more than 200 persons shall be furnished with either a fully automatic auxiliary engine-generator set capable of powering one blower continuously for 4 hours, or a supplementary blower powered by an internal combustion engine which shall be automatic in operation.

2403.11 Seating arrangements. Seating in tents, canopies or membrane structures shall be in accordance with Chapter 10.

2403.12 Means of egress. Means of egress for temporary tents, canopies and membrane structures shall be in accordance with Sections 2403.12.1 through 2403.12.8.

2403.12.1 Distribution. Exits shall be spaced at approximately equal intervals around the perimeter of the tent, canopy or membrane structure, and shall be located such that all points are 100 feet (30 480 mm) or less from an exit.

2403.12.2 Number. Tents, canopies or membrane structures or a usable portion thereof shall have at least one exit and not less than the number of exits required by Table 2403.12.2. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by a means of egress multiplied by 0.2 inches (5 mm) per person.

TABLE 2403.12.2
MINIMUM NUMBER OF MEANS OF EGRESS AND MEANS OF EGRESS WIDTHS FROM TEMPORARY MEMBRANE STRUCTURES, TENTS AND CANOPIES

OCCUPANT LOAD	MINIMUM NUMBER OF MEANS OF EGRESS	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches)	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches)
		Tent or Canopy	Membrane Structure
10 to 199	2	72	36
200 to 499	3	72	72
500 to 999	4	96	72
1,000 to 1,999	5	120	96
2,000 to 2,999	6	120	96
Over 3,000	7	120	96

For SI: 1 inch = 25.4 mm

a. When the occupant load exceeds 3,000, the total width of means of egress (in inches) shall not be less than the total occupant load multiplied by 0.2 inches per person.

2403.12.3 Exit openings from tents. Exit openings from tents shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

1. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches (2032 mm) above the floor level at the exit. The curtains shall be so arranged that, when open, no part of the curtain obstructs the exit.
2. Curtains shall be of a color, or colors, that contrasts with the color of the tent.

2403.12.4 Doors. Exit doors shall swing in the direction of exit travel. To avoid hazardous air and pressure loss in air-supported membrane structures, such doors shall be automatic closing against operating pressures. Opening force at the door edge shall not exceed 15 pounds (66 N).

2403.12.5 Aisle. The width of aisles without fixed seating shall be in accordance with the following:

1. In areas serving employees only, the minimum aisle width shall be 24 inches (610 mm) but not less than the width required by the number of employees served.
2. In public areas, smooth-surfaced, unobstructed aisles having a minimum width of not less than 44 inches (1118 mm) shall be provided from seating areas, and aisles shall be progressively increased in width to provide, at all points, not less than 1 foot (305 mm) of aisle width for each 50 persons served by such aisle at that point.

2403.12.5.1 Arrangement and maintenance. The arrangement of aisles shall be subject to approval by the fire code official and shall be maintained clear at all times during occupancy.

2403.12.6 Exit signs. Exits shall be clearly marked. Exit signs shall be installed at required exit doorways and where otherwise necessary to indicate clearly the direction of egress when the exit serves an occupant load of 50 or more.

2403.12.6.1 Exit sign illumination. Exit signs shall be of an approved self-luminous type or shall be internally or externally illuminated by luminaries supplied in the following manner:

1. Two separate circuits, one of which shall be separated form all other circuits, for occupant loads of 300 or less; or
2. Two separate sources of power, one of which shall be an approved emergency system, shall be provided when the occupant load exceeds 300. Emergency systems shall be supplied from storage batteries or from the on-site generator set, and the system shall be installed in accordance with the ICC *Electrical Code*.

2403.12.7 Means of egress illumination. Means of egress shall be illuminated with light having an intensity of not less than 1 foot-candle (11 lux) at floor level while the structure is occupied. Fixtures required for means of egress illumination shall be supplied from a separate circuit or source of power.

2403.12.8 Maintenance of means of egress. The required width of exits, aisles and passageways shall be maintained at all times to a public way. Guy wires, guy ropes and other support members shall not cross a means of egress at a height of less than 8 feet (2438 mm). The surface of means of egress shall be maintained in an approved manner.

SECTION 2404
TEMPORARY AND PERMANENT TENTS, CANOPIES AND MEMBRANE STRUCTURES

2404.1 General. All tents, canopies and membrane structures, both temporary and permanent, shall be in accordance with this section. Permanent tents, canopies and membrane structures shall also comply with the *International Building Code*.

2404.2 Flame propagation performance treatment. Before a permit is granted, the owner or agent shall file with the fire code official a certificate executed by an approved testing laboratory, certifying that the tents, canopies and membrane structures and their appurtenances, sidewalls, drops and tarpaulins, floor coverings, bunting, combustible decorative materials and effects, including sawdust when used on floors or passageways, shall be composed of material meeting the flame propagation performance criteria of NFPA 701 or shall be treated with a flame retardant in an approved manner and meet the flame propagation performance criteria of NFPA 701, and that such flame propagation performance criteria are effective for the period specified by the permit (also see ORS 479.130).

ORS 476.130 is not a part of this code but is reproduced or paraphrased here for the reader's convenience.

ORS 479.130 Tents or canvas-covered structures for public assembly are to be flame resistant. No person shall erect, maintain or use within Oregon any tent or canvas-covered structure with the intent that such a tent or structure be used for a place of public assembly unless the tent and canvas-covered parts of the structure and all combustible decorative materials have been rendered flame resistant.

2404.3 Label. Membrane structures, tents or canopies shall have a permanently affixed label bearing the identification of size and fabric or material type.

2404.4 Certification. An affidavit or affirmation shall be submitted to the fire code official and a copy retained on the premises on which the tent or air-supported structure is located. The affidavit shall attest to the following information relative to the flame propagation performance criteria of the fabric:

1. Names and address of the owners of the tent, canopy or air-supported structure.
2. Date the fabric was last treated with flame-retardant solution.
3. Trade name or kind of chemical used in treatment.
4. Name of person or firm treating the material.
5. Name of testing agency and test standard by which the fabric was tested.

2404.5 Combustible materials. Hay, straw, shavings or similar combustible materials shall not be located within any tent, canopy or membrane structure containing an assembly occupancy, except the materials necessary for the daily feeding and care of animals. Sawdust and shavings utilized for a public performance or exhibit shall not be prohibited provided the sawdust and shavings are kept damp. Combustible materials shall not be permitted under stands or seats at any time. The areas within and adjacent to the tent or air-supported structure shall be maintained clear of all combustible materials or vegetation that could create a fire hazard within 20 feet (6096 mm) of the structure. Combustible trash shall be removed at least once a day from the structure during the period the structure is occupied by the public.

2404.6 Smoking. Smoking shall not be permitted in tents, canopies or membrane structures. Approved "No Smoking" signs shall be conspicuously posted in accordance with Section 310.

2404.7 Open or exposed flame. Open flame or other devices emitting flame, fire or heat or any flammable or combustible liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be permitted inside or located within 20 feet (6096 mm) of the tent, canopy or membrane structures while open to the public unless approved by the fire code official.

2404.8 Fireworks. Fireworks shall not be used within 100 feet (30 480 mm) of tents, canopies or membrane structures.

2404.9 Spot lighting. Spot or effect lighting shall only be by electricity, and all combustible construction located within 6 feet (1829 mm) of such equipment shall be protected with approved noncombustible insulation not less than 9.25 inches (235 mm) thick.

2404.10 Safety film. Motion pictures shall not be displayed in tents, canopies or membrane structures unless the motion picture film is safety film.

2404.11 (not adopted) Clearance. *There shall be a minimum clearance of at least 3 feet (914 mm) between the fabric envelope and all contents located inside the tent or membrane structure.*

2404.12 Portable fire extinguishers. Portable fire extinguishers shall be provided as required by Section 906.

2404.13 Fire protection equipment. Fire hose lines, water supplies and other auxiliary fire equipment shall be maintained at the site in such numbers and sizes as required by the fire code official.

2404.14 Occupant load factors. The occupant load allowed in an assembly structure, or portion thereof, shall be determined in accordance with Chapter 10.

2404.15 Heating and cooking equipment. Heating and cooking equipment shall be in accordance with Sections 2404.15.1 through 2404.15.7.

2404.15.1 Installation. Heating or cooking equipment, tanks, piping, hoses, fittings, valves, tubing and other related components shall be installed as specified in the *International Mechanical Code* and the *International Fuel Gas Code,* and shall be approved by the fire code official.

2404.15.2 Venting. Gas, liquid and solid fuel-burning equipment designed to be vented shall be vented to the outside air as specified in the *International Fuel Gas Code* and the *International Mechanical Code*. Such vents shall be equipped with approved spark arresters when required. Where vents or flues are used, all portions of the tent, canopy or membrane structure shall be not less than 12 inches (305 mm) from the flue or vent.

2404.15.3 Location. Cooking and heating equipment shall not be located within 10 feet (3048 mm) of exits or combustible materials.

2404.15.4 Operations. Operations such as warming of foods, cooking demonstrations and similar operations that use solid flammables, butane or other similar devices which do not pose an ignition hazard, shall be approved.

2404.15.5 Cooking tents. Tents where cooking is performed shall be separated from other tents, canopies or membrane structures by a minimum of 20 feet (6096 mm).

2404.15.6 Outdoor cooking. Outdoor cooking that produces sparks or grease-laden vapors shall not be performed within 20 feet (6096 mm) of a tent, canopy or membrane structure.

2404.15.7 Electrical heating and cooking equipment. Electrical cooking and heating equipment shall comply with the *International Code Council Electrical Code Administrative Provisions*.

2404.16 LP-gas. The storage, handling and use of LP-gas and LP-gas equipment shall be in accordance with Sections 2404.16.1 through 2404.16.3.

2404.16.1 General. LP-gas equipment such as tanks, piping, hoses, fittings, valves, tubing and other related components shall be approved and in accordance with Chapter 38 and with the *International Fuel Gas Code*.

2404.16.2 Location of containers. LP-gas containers shall be located outside. Safety release valves shall be pointed away from the tent, canopy or membrane structure.

2404.16.2.1 Containers 500 gallons or less. Portable LP-gas containers with a capacity of 500 gallons (1893 L) or less shall have a minimum separation between the container and structure not less than 10 feet (3048 mm).

2404.16.2.2 Containers more than 500 gallons. Portable LP-gas containers with a capacity of more than 500 gallons (1893 L) shall have a minimum separation between the container and structures not less than 25 feet (7620 mm).

2404.16.3 Protection and security. Portable LP-gas containers, piping, valves and fittings which are located outside and are being used to fuel equipment inside a tent, canopy or membrane structure shall be adequately protected to prevent tampering, damage by vehicles or other hazards and shall be located in an approved location. Portable LP-gas containers shall be securely fastened in place to prevent unauthorized movement.

2404.17 Flammable and combustible liquids. The storage of flammable and combustible liquids and the use of flammable-liquid-fueled equipment shall be in accordance with Sections 2404.17.1 through 2404.17.3.

2404.17.1 Use. Flammable-liquid-fueled equipment shall not be used in tents, canopies or membrane structures.

2404.17.2 Flammable and combustible liquid storage. Flammable and combustible liquids shall be stored outside in an approved manner not less than 50 feet (15 240 mm) from tents, canopies or membrane structures. Storage shall be in accordance with Chapter 34.

2404.17.3 Refueling. Refueling shall be performed in an approved location not less than 20 feet (6096 mm) from tents, canopies or membrane structures.

2404.18 Display of motor vehicles. Liquid- and gas-fueled vehicles and equipment used for display within tents, canopies or membrane structures shall be in accordance with Sections 2404.18.1 through 2404.18.5.3.

2404.18.1 Batteries. Batteries shall be disconnected in an appropriate manner.

2404.18.2 Fuel systems. Vehicles or equipment shall not be fueled or defueled within the tent, canopy or membrane structure.

2404.18.2.1 Quantity limit. Fuel in the fuel tank shall not exceed one-quarter of the tank capacity or 5 gallons (19 L), whichever is less.

2404.18.2.2 Inspection. Fuel systems shall be inspected for leaks.

2404.18.2.3 Closure. Fuel tank openings shall be locked and sealed to prevent the escape of vapors.

2404.18.3 Location. The location of vehicles or equipment shall not obstruct means of egress.

2404.18.4 Places of assembly. When a compressed natural gas (CNG) or liquefied petroleum gas (LP-gas) powered vehicle is parked inside a place of assembly, all the following conditions shall be met:

1. The quarter-turn shutoff valve or other shutoff valve on the outlet of the CNG or LP-gas container shall be closed and the engine shall be operated until it stops. Valves shall remain closed while the vehicle is indoors.
2. The hot lead of the battery shall be disconnected.
3. Dual-fuel vehicles equipped to operate on gasoline and CNG or LP-gas shall comply with this section and Sections 2404.18.1 through 2404.18.5.3 for gasoline-powered vehicles.

2404.18.5 Competitions and demonstrations. Liquid- and gas-fueled vehicles and equipment used for competition or demonstration within a tent, canopy or membrane structure shall comply with Sections 2404.18.5.1 through 2404.18.5.3.

2404.18.5.1 Fuel storage. Fuel for vehicles or equipment shall be stored in approved containers in an approved location outside of the structure in accordance with Section 2404.17.2.

2404.18.5.2 Fueling. Refueling shall be performed outside of the structure in accordance with Section 2404.17.3.

2404.18.5.3 Spills. Fuel spills shall be cleaned up immediately.

2404.19 Separation of generators. Generators and other internal combustion power sources shall be separated from tents, canopies or membrane structures by a minimum of 20 feet (6096mm) and shall be placed on an approved surface. Such equipment shall be isolated from contact with the public by fencing, enclosure or other approved means.

2404.20 Standby personnel. When, in the opinion of the fire code official, it is essential for public safety in a tent, canopy or membrane structure used as a place of assembly or any other use where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall employ one or more qualified persons, as required and approved, to remain on duty during the times such places are open to the public, or when such activity is being conducted.

Before each performance or the start of such activity, standby personnel shall keep diligent watch for fires during the time such place is open to the public or such activity is being conducted and take prompt measures for extinguishment of fires that occur and assist in the evacuation of the public from the structure.

There shall be trained crowd managers or crowd manager supervisors at a ratio of one crowd manager/supervisor for every 250 occupants, as approved.

2404.21 Vegetation removal. Combustible vegetation shall be removed from the area occupied by a tent, canopy or membrane structure, and from areas within 30 feet (9144 mm) of such structures.

2404.22 Waste material. The floor surface inside tents, canopies or membrane structures and the grounds outside and within a 30-foot (9144 mm) perimeter shall be kept clear of combustible waste. Such waste shall be stored in approved containers until removed from the premises.

CHAPTER 33

EXPLOSIVES AND FIREWORKS

SECTION 3301
GENERAL

3301.1 Scope. The provisions ORS 480.010 through 480.095, ORS 480.200 through ORS 480.290 and OAR 837-012-1200 through OAR 837-012-1420 shall govern the manufacture, sale, possession and transfer of explosives.

The provisions of ORS 480.110 through to ORS 480.165 and the following OARs shall govern sale, storage and use for fireworks and pyrotechnics:

1. Wholesale Fireworks Sales, OAR 837-012-0500 through OAR 837-012-0570.
2. .Public Display, OAR 837-012-0700 through OAR 837-012-0970.
3. Retail Sales, OAR 837-012-0600 through OAR 837-012-0675.
4. Agricultural Use, OAR 837-012-0305 through OAR 837-012-0370.
5. Civil Penalties, OAR 837-012-1000 through OAR 837-012- 1160.

A link to current Oregon Revises Statutes (ORS) and Oregon Administrative Rules (OAR) can be found at www.sfm.state.or.us.

3301.1.1 Small arms ammunitions standard. NFPA 495 shall govern the possession, manufacture, storage, sale, handling and use of small arms ammunition.

3301.1.2 Explosives material terminals. In addition the requirements of this chapter, the operation of explosive material terminals shall conform to the provisions of NFPA 498.

3301.1.3 (Not adopted) Fireworks.

3301.1.4 Rocketry. The storage, handling and use of model and high-power rockets shall comply with the requirements of NFPA 1122, NFPA 1125 and NFPA 1127.

3301.1.5 Ammonium nitrate. The storage and handling of ammonium nitrate shall comply with the requirements of NFPA 490 and Chapter 40.

Exception: Storage of ammonium nitrate in magazines with blasting agents shall comply with the requirements of NFPA 495.

3301.1.6 Manufacture, Assembly and testing of explosives, explosive materials and fireworks. The manufacture, assembly and testing of explosives, ammunition, blasting agents and fireworks shall comply with the requirements of NFPA 495 and NFPA 1124.

3301.2 Permits Required. Permits shall be required as set forth in Sections 105.6 through 105.6D, 105.6.14, and 105.6.36. (Also see PCC 31.40)

PCC Title 31 is not part of this code but is reproduced or paraphrased here for the reader's convenience.

PCC 31.40.020 provides details on permits required.

PC 31.40.060 General Requirements for Explosives, Pyrotechnics, Blasting Agents and Fireworks.

PCC 31.40.070 Additional Requirements for Sale, Use and Possession of Fireworks and Pyrotechnics.

PCC 31.40.080 Additional Requirements for Blasting Activities.

SECTION 3302
DEFINITIONS

3302.1 Definitions. The following words and terms shall, for the purposes as used elsewhere in this code, have the meanings shown herein.

AMMONIUM NITRATE. A chemical compound represented by the formula NH_4NO_3.

BARRICADE. A structure that consists of a combination of walls, floor and roof, which is designed to withstand the rapid release of energy in an explosion and which is fully confined, partially vented or fully vented; or other effective method of shielding from explosive materials by a natural or artificial barrier.

Artificial Barricade. An artificial mound or revetment a minimum thickness of 3 feet (914 mm).

Natural Barricade. Natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures that require protection cannot be seen from the magazine or building containing explosives when the trees are bare of leaves.

BARRICADED. The effective screening of a building containing explosive materials from the magazine or other building, railway, or highway by a natural or an artificial barrier. A straight line from the top of any sidewall of the building containing explosive materials to the eave line of any magazine or other building or to a point 12 feet (3658 mm) above the center of a railway or highway shall pass through such barrier.

BULLET RESISTANT. Constructed so as to resist penetration of a bullet of 150-grain M2 ball ammunition having a nominal muzzle velocity of 2,700 feet per second (fps) (824 mps) when fired from a 30-caliber rifle at a distance of 100 feet (30 480 mm), measured perpendicular to the target.

HIGHWAY. A public street, public alley or public road.

INHABITED BUILDING. A building regularly occupied in whole or in part as a habitation for people, or any place of religious worship, schoolhouse, railroad station, store or other structure where people are accustomed to assemble, except any building or structure occupied in connection with the manufacture, transportation, storage or use of explosive materials.

NET EXPLOSIVE WEIGHT (net weight). The weight of explosive material expressed in pounds. The net explosive weight is the aggregate amount of explosive material contained within buildings, magazines, structures or portions thereof, used to establish quantity-distance relationships.

OPERATING BUILDING. A building occupied in conjunction with the manufacture, transportation, or use of explosive materials. Operating buildings are separated from one another with the use of intraplant or intraline distances.

PLOSOPHORIC MATERIAL. Two or more unmixed, commercially manufactured, prepackaged chemical substances including oxidizers, flammable liquids or solids, or similar substances that are not independently classified as explosives but which, when mixed or combined, form an explosive that is intended for blasting.

RAILWAY. A steam, electric or other railroad or railway that carries passengers for hire.

SMALL ARMS AMMUNITION. A shotgun, rifle or pistol cartridge and any cartridge for propellant-actuated devices. This definition does not include military ammunition containing bursting charges or incendiary, trace, spotting or pyrotechnic projectiles.

SMALL ARMS PRIMERS. Small percussion-sensitive explosive charges, encased in a cap, used to ignite propellant powder.

SMOKELESS PROPELLANTS. Solid propellants, commonly referred to as smokeless powders, used in small arms ammunition, cannons, rockets, propellant-actuated devices and similar articles.

Note: Text on pages 297-314 not adopted by the City of Portland. The blank pages are not incorporated in this document. This publication resumes with page 315.

CHAPTER 5

FIRE SERVICE FEATURES

SECTION 501
GENERAL

501.1 Scope. Fire Service features for buildings, structures and premises shall comply with this chapter. See also ORS 92.044, 203, 221, 195.065, 368.039, 478.920. OAR 918-480-0100 and Oregon State Fire Marshal Interpretation #94-02.

ORS Chapters; 92.044, 203, 221, 368.039, 195.065 and 468.920 and OAR Chapter 918 are not part of this code but are reproduced or paraphrased here for the reader's convenience.

ORS 92.044. Adoptions of standards and procedures governing approval of plats and plans; delegation to planning commission; fees.

ORS 203. County Bodies; County Home Rule.

ORS 221. Organization and Government of Cities.

ORS 368.039. Allows road standards adopted by local government to supersede standards in fire codes and requires consultation with local fire agency.

ORS 195.065. Requires local governments and special districts that provide urban service to enter into urban service agreements. For the purpose of this statute, "urban service" means: sanitary sewers, water, fire protection, parks, open space, recreation and streets, roads and mass transit.

ORS 478.920. Describes elements that may be included in the scope of a fire prevention code adopted by a rural fire protection district, including but not limited to: mobile fire apparatus means of approach to buildings and structures, and providing firefighting water supplies and fire detection and suppression apparatus adequate for the protection of buildings and structures.

OAR 918-480-0100. Describes the procedure for approving the installation of automatic fire sprinklers where fire apparatus access or firefighting water supply do not meet local standards.

ORS 479.200. Regulates water supply requirements for certain public buildings erected after July 1, 1967, as defined in ORS 479.010(1)(1).

OSFM Interpretation #94-02 recommends methods for calculating water supply requirements based on local conditions or ISO grading using Appendix B or NFPA 1142.

501.2 Permits. A permit shall be required as set forth in Sections 105.6 and 105.7.

501.3 Construction documents. Construction documents for proposed fire apparatus access, location of fire lanes and construction documents and hydraulic calculations for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

501.4 Timing of installation. When fire apparatus access roads or water supply for fire protection is required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided. Temporary street signs shall be installed at each street intersection when construction of new roadways allows a passage by vehicles in accordance with Section 505.2.

SECTION 502
DEFINITIONS

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

FIRE APPARATUS ACCESS ROAD. A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, and parking lot lane and access roadway.

NOTE: Specifications and standards for public streets are regulated by county or city governing bodies in accordance with ORS 368.039, wherein input from the fire service is required during planning for community development projects.

FIRE COMMAND CENTER. The principal attended or unattended location where the status of the detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

FIRE DEPARTMENT MASTER KEY. A limited issue key of special or controlled design to be carried by fire department officials in command which will open key boxes on specified properties.

FIRE LANE. A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus.

KEY BOX. A secure device with a lock operable only by a fire department master key, and containing building entry keys and other keys that may be required for access in an emergency.

SECTION 503
FIRE APPARATUS ACCESS ROADS

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3 (see also Appendix D).

The specifications in Sections 503.1.1 through 503.1.3 shall be the basis for Portland Fire and Rescue recommended road designs in comments on land division cases.

Exception: Where all potential portions of future buildings and facilities will be within.150 feet of the nearest approved fire access road.

503.1.1 Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

Exception: The fire code official is authorized to modify Sections 503.1 and 503.2 where any of the following applies:

1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternate means of fire protection is approved.
3. There are not more than two Group R-3 or Group U occupancies.

503.1.2 Additional access. The fire code official is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

503.1.3 High-piled storage. Fire department vehicle access to buildings used for high-piled combustible storage shall comply with the applicable provisions of Chapter 23.

503.2 Specifications. Fire Apparatus access roads shall be installed and arranged in accordance with specifications adopted by the Fire Marshal. See Appendix D.

503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

503.2.2 Authority. The fire code official shall have the authority to modify the dimension specified in Section 503.2.1 See also Appendix D.

503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.

503.2.4 Turning radius. The required turning radius of a fire apparatus access road shall be determined by the fire code official.

503.2.5 Dead ends. Dead-end fire apparatus access roads in excess of 300 feet (91 440 mm) in length shall be provided with an approved area for turning around fire apparatus. See also Appendix D.

503.2.6 Bridges and elevated surfaces. Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO *Standard Specification for Highway Bridges.* Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges when required by the fire code official. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained when required by the fire code official.

503.2.7 Grade. The grade of the fire apparatus access road shall be within the limits established by the fire code official based on the fire department's apparatus.

503.3 Marking. Where required by the fire code official, approved signs or other approved notices shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. Signs or notices shall be maintained in a clean and legible condition at all times and is replaced or repaired when necessary to provide adequate visibility. See Section 2A-23 of the Oregon Department of Transportation adopted *Manual on Uniform Traffic Control Devices.*

503.4 Obstruction of fire apparatus access roads. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Section 503.2.1 shall be maintained at all times.

503.5 Required gates or barricades. The fire code official is authorized to require the installation and maintenance of gates or other approved barricades across fire apparatus access roads, trails or other access ways, not including public streets, alleys or highways.

503.5.1 Secured gates and barricades. When required, gates and barricades shall be secured in an approved manner. Roads, trails and other access ways that have been closed and obstructed in the manner prescribed by Section503.5 shall not be trespassed on or used unless authorized by the owner and the fire code official.

Exception: The restriction on use shall not apply to public officers acting within the scope of duty.

503.6 Security gates. The installation of security gates across a fire apparatus access road shall be approved by the fire chief. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times.

SECTION 504
ACCESS TO BUILDING OPENINGS AND ROOFS

504.1 Required access. Exterior doors and openings required by this code or the *International Building Code* shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus access roads to exterior openings shall be provided when required by the fire code official.

504.2 Maintenance of exterior doors and openings. Exterior doors and their function shall not be eliminated without prior approval. Exterior doors that have been rendered nonfunctional and that retain a functional door exterior appearance shall have a sign affixed to the exterior side of the door with the words THIS DOOR BLOCKED. The sign shall consist of letters having a principal stroke of not less than 0.75 inch (19.1 mm) wide and at least 6 inches (152 mm) high on a contrasting background. Required fire department access doors shall not be obstructed or eliminated. Exit and exit access doors shall comply with Chapter 10. Access doors for high-piled combustible storage shall comply with Section 2306.6.1.

504.3 Stairway access to roof. New buildings four or more stories in height, except those with a roof slope greater than four units vertical in 12 units horizontal (33.3 percent slope), shall be provided with a stairway to the roof. Stairway access to the roof shall be in accordance with Section 1009.12. Such stairway shall be marked at street and floor levels with a sign indicating that the stairway continues to the roof. Where roofs are used for roof gardens or for other purposes, stairways shall be provided as required for such occupancy classification.

SECTION 505
PREMISES IDENTIFICATION

505.1 Address numbers. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 0.5 inch (12.7 mm).

505.2 Street or road signs. Streets and roads shall be identified with approved signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an approved size, weather resistant and be maintained until replaced by permanent signs.

SECTION 506
KEY BOXES

506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type and shall contain keys to gain necessary access as required by the fire code official.

506.1.1 Locks. An approved lock shall be installed on gates or similar barriers when required by the fire code official.

506.2 Key box maintenance. The operator of the building shall immediately notify the fire code official and provide the new key when a lock is changed or rekeyed. The key to such lock shall be secured in the key box.

SECTION 507
HAZARDS TO FIRE FIGHTERS

507.1 Trapdoors to be closed. Trapdoors and scuttle covers, other than those that are within a dwelling unit or automatically operated, shall be kept closed at all times except when in use.

507.2 Shaftway markings. Vertical shafts shall be identified as required by this section.

507.2.1 Exterior access to shaftways. Outside openings accessible to the fire department and which open directly on a hoistway or shaftway communicating between two or more floors in a building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible from the outside of the building.

507.2.2 Interior access to shaftways. Door or window openings to a hoistway or shaftway from the interior of the building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible.

Exception: Marking shall not be required on shaftway openings which are readily discernible as openings onto a shaftway by the construction or arrangement.

507.3 Pitfalls. The intentional design or alteration of buildings to disable, injure, maim or kill intruders is prohibited. No person shall install and use firearms, sharp or pointed objects, razor wire, explosives, flammable or combustible liquid containers, or dispensers containing highly toxic, toxic, irritant or other hazardous materials in a manner which may passively or actively disable, injure, maim or kill a fire fighter who forcibly enters a building for the purpose of controlling or extinguishing a fire, rescuing trapped occupants or rendering other emergency assistance.

SECTION 508
FIRE PROTECTION WATER SUPPLIES

508.1 Required water supply. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction.

508.2 Type of water supply. A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

508.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24.

508.2.2 Water tanks. Water tanks for private fire protection shall be installed in accordance with NFPA 22.

508.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method (see Appendix B).

508.4 Water supply test. The fire code official shall be notified prior to the water supply test. Water supply tests shall be witnessed by the fire code official or approved documentation of the test shall be provided to the fire code official prior to final approval of the water supply system.

508.5 Fire hydrant systems. Fire hydrant systems shall comply with Sections 508.5.1 through 508.5.6 (see Appendix C).

508.5.1 Where required. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.

Exceptions:

1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).
2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).

508.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the fire code official. Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective. Additions, repairs, alterations and servicing shall comply with approved standards.

508.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25 at the following intervals:

1. **Private fire hydrants (all types):** Inspection annually and after each operation; flow test and maintenance at time of periodic inspection.
2. **Fire service main piping:** Inspection of exposed, annually; flow test every 5 years.
3. **Fire service main piping strainers:** Inspection and maintenance after each use.

508.5.4 Obstruction. Posts, fences, vehicles, growth, trash, storage and other materials or objects shall not be placed or kept near fire hydrants, fire department inlet connections or fire protection system control valves in a manner that would prevent such equipment or fire hydrants from being immediately discernible. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.

508.5.5 Clear space around hydrants. A 3-foot (914 mm) clear space shall be maintained around the circumference of fire hydrants except as otherwise required or approved.

ORS 811.550(16) and **OAR 860-024-0010** are not a part of this code but are reproduced or paraphrased here for the reader's convenience.

ORS 811.550(16) prohibits parking within 10 feet (3048 mm) of a fire hydrant.

OAR 860-024-0010 is an Oregon Public Utility Commission rule that adopts the *National Electrical Safety Code* (NESC). The NESC contains rules that limit the placement of fire hydrant to no closer than 4 feet (1219 mm) from any supporting structure for electrical equipment, such as transformers and poles.

508.5.6 Physical protection. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other approved means shall comply with Section 312.

508.5.7 Control valve. To facilitate maintenance and repair, each newly installed hydrant shall be equipped with a separate control valve. The control valve shall be installed within 10 feet of the hydrant. Control valve access shall be by an approved assembly mounted in a permanent hard surface such as concrete or asphalt.

Exception: Alternatives may be approved where the distance or surface requirements are impractical.

SECTION 509
FIRE COMMAND CENTER

509.1 Features. Where required by other sections of this code and in all buildings classified as high-rise buildings by the *International Building Code*, a fire command center for fire department operations shall be provided. The location and accessibility of the fire command center shall be approved by the fire department. The fire command center shall be separated from the remainder of the building by not less than a 1-hour fire-resistance-rated fire barrier. The room shall be a minimum of 96 square feet (9 m2) with a minimum dimension of 8 feet (2438 mm). A layout of the fire command center and all features required by this section to be contained therein shall be submitted for approval prior to installation. The fire command center shall comply with NFPA72 and shall contain the following features:

1. The emergency voice/alarm communication system unit.
2. The fire department communications system.
3. Fire-detection and alarm system annunciator system.
4. Annunciation visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air-handling systems.
6. The firefighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking stairway doors simultaneously.
8. Sprinkler valve and water-flow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans indicating the typical floor plan and detailing the building core, means of egress, fire protection systems, fire-fighting equipment and fire department access.
13. Work table.
14. Generator supervision devices, manual start and transfer features.
15. Public address system, where specifically required by other sections of this code.

SECTION 510
FIRE DEPARTMENT ACCESS TO EQUIPMENT

510.1 Identification. Fire protection equipment shall be identified in an approved manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. Approved signs required to identify fire protection equipment and equipment location, shall be constructed of durable materials, permanently installed and readily visible.

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807.4.2 Group A. The requirements in Sections 807.4.2.1 through 807.4.2.3 shall apply to occupancies in Group A.

807.4.2.1 Foam plastics. Exposed foam plastic materials and unprotected materials containing foam plastic used for decorative purposes, or stage scenery or exhibit booths shall have a maximum heat release rate of 100 kW when tested in accordance with UL 1975.

Exceptions:

1. Individual foam plastic items or items containing foam plastic where the foam plastic does not exceed 1 pound (0.45 kg) in weight.
2. Cellular or foam plastic shall be allowed for trim not in excess of 10 percent of the wall or ceiling area, provided it is not less than 20 pounds per cubic foot (320 kg/m^3) in density; is limited to 0.5 inch (12.7mm) in thickness and 8 inches (204 mm) in width; and complies with the requirements for Class B interior wall and ceiling finish, except that the smoke-developed index shall not be limited.

807.4.2.2 Motion picture screens. The screens upon which motion pictures are projected in new and existing buildings of Group A shall either meet the flame propagation performance criteria of NFPA 701 or shall comply with the requirements for a Class B interior finish in accordance with Section 803 of the *International Building Code*.

807.4.2.3 Wood use in Group A-3 places of religious worship. In places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishings shall be allowed.

807.4.3 Group E. The requirements in Sections 807.4.3.1 and 807.4.3.2 shall apply to occupancies in Group E.

807.4.3.1 Storage in corridors and lobbies. Clothing and personal effects shall not be stored in corridors and lobbies.

Exceptions:

1. Corridors protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.
2. Corridors protected by an approved smoke detection system installed in accordance with Section 907.
3. Storage in metal lockers provided the minimum required egress width is maintained.

807.4.3.2 Combustible artwork. Combustible artwork and teaching materials in corridors shall comply with 807.4.1 and the following:

1. Single thickness
2. Three-dimensional combustible artwork shall be limited if, in the opinion of the fire code official, it poses a threat to fire and life safety.
3. Limited to not more than 20 percent of the wall area.
4. Not allowed on or within 5 feet of any egress door.

807.4.3.3 Combustible artwork in classrooms. Combustible artwork and teaching materials inside the classroom shall comply with 807.4.1 and the following:

1. Single thickness
2. Three-dimensional combustible artwork shall be limited if, in the opinion of the fire code official, it poses a threat to fire and life safety
3. Maximum 50 percent of the available wall area

   Exception: Classrooms with automatic sprinkler protection installed in accordance with Section 903 shall be allowed a maximum 100 percent of the wall area.
4. Maximum of two wires for hanging items, wires to be not less than 84 inches (2134 mm) at the lowest point above the floor when loaded.

SECTION 808

FURNISHINGS OTHER THAN UPHOLSTERED FURNITURE AND MATTRESSES OR DECORATIVE MATERIALS IN NEW AND EXISTING BUILDINGS

808.1 Wastebaskets in Group I-3, detention and correction facilities. Wastebaskets and other waste containers, including their lids, located in Group I-3 detention and correction facilities shall be constructed of noncombustible materials or of materials that meet a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation. Metal wastebaskets and other metal waste containers with a capacity of 20 gallons (75.7 L) or more shall be listed in accordance with UL 1315 and shall be provided with a noncombustible lid.

808.2 Signs. Foam plastic signs that are not affixed to interior building surfaces shall have a maximum heat release rate of 150 kW when tested in accordance with UL 1975.

Exception: Where the aggregate area of foam plastic signs is less than 10 percent of the floor area or wall area of the room or space in which the signs are located, whichever is less, subject to the approval of the fire code official.

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CHAPTER 9

FIRE PROTECTION SYSTEMS

SECTION 901
GENERAL

901.1 Scope. The provisions of this chapter shall specify where fire protection systems are required and shall apply to the design, installation, inspection, operation, testing and maintenance of all fire protection systems. For the purposes of this Chapter where the term "b*uilding code official"* is used the term *"fire code official"* shall be substituted.

901.2 Construction documents. The fire code official shall have the authority to require construction documents and calculations for all fire protection systems and to require permits be issued for the installation, rehabilitation or modification of any fire protection system. Construction documents for fire protection systems shall be submitted for review and approval prior to system installation.

901.2.1 Statement of compliance. Before requesting final approval of the installation, where required by the fire code official, the installing contractor shall furnish a written statement to the fire code official that the subject fire protection system has been installed in accordance with approved plans and has been tested in accordance with the manufacturer's specifications and the appropriate installation standard. Any deviations from the design standards shall be noted and copies of the approvals for such deviations shall be attached to the written statement.

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

901.4 Installation. Fire protection systems shall be maintained in accordance with the original installation standards for that system. Required systems shall be extended, altered, or augmented as necessary to maintain and continue protection whenever the building is altered, remodeled or added to. Alterations to fire protection systems shall be done in accordance with applicable standards.

901.4.1 Required fire protection systems. Fire protection systems required by this code or the *International Building Code* shall be installed, repaired, operated, tested and maintained in accordance with this code.

901.4.2 Non-required fire protection systems. Any 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 requirements of this code and the *International Building Code.*

901.4.3 Additional fire protection systems. In occupancies of a hazardous nature, where special hazards exist in addition to the normal hazards of the occupancy, or where the fire code official determines that access for fire apparatus is unduly difficult, the fire code official shall have the authority to require additional safeguards. Such safeguards include, but shall not be limited to, the following: automatic fire diction systems, fire alarm system, automatic fire-extinguishing systems, standpipe systems, or portable or fixed extinguishers. Fire protection equipment required under this section shall be installed in accordance with this code and the applicable referenced standards.

901.4.4 Appearance of equipment. Any device that has the physical appearance of life safety or fire protection equipment but that does not perform that life safety or fire protection function shall be prohibited.

901.4.5 Tracer wire for underground piping. All non-conductive fire mains shall have a tracer wire, minimum 18 gauge copper, installed in the trench for locating the pipe. The tracer wire shall run the full length of the installed pipe, with ends terminating at the sprinkler riser, in the valve box, or an 18 inch tail terminating above grade at other locations such the FDC connection and fire hydrants.

901.5 Installation acceptance testing. Fire detection and alarm systems, fire-extinguishing system, fire hydrant systems, fire standpipe systems, fire pump systems, private fire service mains and all other fire protection systems and appurtenances thereto shall be subject to acceptance tests as contained in the installation standards and as approved by the fire code official. The fire code official shall be notified before any required acceptance testing.

901.5.1 Occupancy. It shall be unlawful to occupy any portion of a building or structure until the required fire detection, alarm and suppression systems have been tested and approved.

901.6 Inspection, testing and maintenance. Fire detection, alarm and extinguishing systems shale be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Nonrequired fire protecting systems and equipment shall be inspected, tested and maintained or removed.

901.6.1 Standards. Fire protection systems shall be inspected, tested and maintained in accordance with the referenced standards listed in Table 901.6.1.

TABLE 901.6.1
FIRE PROTECTION SYSTEM MAINTENANCE STANDARDS

Portable fire extinguishers	NFPA 10
Carbon dioxide fire-extinguishing systems	NFPA 12[1]
Halon 1301 fire-extinguishing systems	NFPA 12A[1]
Dry-chemical extinguishing systems	NFPA 12A, 17[1]
Wet-chemical extinguishing systems	NFPA 17A[1]
Water-based fire protection systems	NFPA 25[2][3]
Fire alarm systems	NFPA 72
Water-mist systems	NFPA 750[1]
Clean agent extinguishing systems	NFPA 2001

(1) Inspections and tests shall be performed by an individual with an appropriate certificate of fitness from the Portland Fire Marshal's Office.

(2) At least once every 5 years all inspection and tests shall be performed by an individual with a certificate of fitness for Automatic Fire sprinkler systems. An individual designated by the owner or their representative may perform all other inspections and tests, except as noted in item (3) below.

(3) Annual tests of drypipe valves, pre-action valves, and antifreeze systems shall be performed by an individual with a certificate of fitness for Automatic Fire Sprinkler Systems.

901.6.2 Records. Records of all system inspections, tests and maintenance required by the referenced standards shall maintained on the premises for a minimum of 3 years and shall be copied to the fire code official upon request.

901.6.2.1 Records Information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor. Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained on the premises.

901.7 Systems out of service. Where a required fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall either be evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shut down until the fire protection system has been returned to service.

Where utilized, fire watches shall be provided with at least one approved means for notification of the fire department and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires.

901.7.1 Impairment coordinator. The building owner shall assign an impairment coordinator to comply with the requirements of this section. In the absence of a specific designee, the owner shall be considered the impairment coordinator.

901.7.2 Tag required. A tag shall be used to indicate that a system, or portion thereof, has been removed from service.

901.7.3 Placement of tag. The tag shall be posted at each fire department connection, system control valve, fire alarm control unit, fire alarm annunciator and fire command center, indicating which system, or part thereof, has been removed from service. The fire code official shall specify where the tag is to be placed.

901.7.4 Preplanned impairment programs. Preplanned impairments shall be authorized by the impairment coordinator. Before authorization is given, a designated individual shall be responsible for verifying that all of the following procedures have been implemented:

1. The extent and expected duration of the impairment have been determined.
2. The areas or buildings involved have been inspected and the increased risks determined.
3. Recommendations have been submitted to management or building owner/manager.
4. The fire department has been notified.
5. The insurance carrier, the alarm company, building owner/manager, and other authorities having jurisdiction have been notified.
6. The supervisors in the areas to be affected have been notified.
7. A tag impairment system has been implemented.
8. Necessary tools and materials have been assembled on the impairment site.

901.7.5 Emergency impairments. When unplanned impairments occur, appropriate emergency action shall be taken to minimize potential injury and damage. The impairment coordinator shall implement the steps outlined in Section 901.7.4.

901.7.6 Restoring systems to service. When impaired equipment is restored to normal working order, the impairment coordinator shall verify that all of the following procedures have been implemented:

1. Necessary inspections and tests have been conducted to verify that affected systems are operational.
2. Supervisors have been advised that protection is restored.
3. The fire department has been advised that protection is restored.
4. The building owner/manager, insurance carrier, alarm company, and other involved parties have been advised that protection is restored.
5. The impairment tag has been removed.

901.8 Removal of or tampering with equipment. It shall be unlawful for any person to remove, tamper with or otherwise disturb any fire hydrant, fire detection and alarm system, fire suppression system, or other fire appliance required by this code except for the purpose of extinguishing fire, training purposes, recharging or making necessary repairs, or when approved by the fire code official.

901.8.1 Removal of or tampering with appurtenances. Locks, gates, doors, barricades, chains, enclosures, signs, tags or seals which have been installed by or at the direction of the fire code official shall not be removed, unlocked, destroyed, tampered with or otherwise vandalized in any manner.

901.9 Recall of fire protection components. Any fire protection system component regulated by this code that is the subject of a voluntary or mandatory recall under federal law shall be replaced with approved, listed components in compliance with the referenced standards of this code. The fire code official shall be notified in writing by the building owner when the recalled component parts have been replaced.

SECTION 902
DEFINITIONS

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

ALARM NOTIFICATION APPLIANCE. A fire alarm system component such as a bell, horn, speaker, light, or text display that provides audible, tactile, or visible outputs, or any combination thereof.

ALARM SIGNAL. A signal indicating an emergency requiring immediate action, such as a signal indicative of fire.

ALARM VERIFICATION FEATURE. A feature of automatic fire detection and alarm systems to reduce unwanted alarms wherein smoke detectors report alarm conditions for a minimum period of time, or confirm alarm conditions within a given time period, after being automatically reset, in order to be accepted as a valid alarm-initiation signal.

ANNUNCIATOR. A unit containing one or more indicator lamps, alphanumeric displays, or other equivalent means in

(continued on page 77)

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PREFACE

Introduction

Internationally, code officials recognize the need for a modern, up-to-date fire code addressing conditions hazardous to life and property from fire, explosion, handling or use of hazardous materials and the use and occupancy of buildings and premises. The *International Fire Code*®, in this 2006 edition, is designed to meet these needs through model code regulations that safeguard the public health and safety in all communities, large and small.

This comprehensive fire code establishes minimum regulations for fire prevention and fire protection systems using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new system designs. This 2006 edition is fully compatible with all the *International Codes*® (I-Codes®) published by the International Code Council (ICC)®, including the *International Building Code*®, *International Code Council Electrical Code Administrative Provisions*®, *International Energy Conservation Code*®, *International Existing Building Code*®, *International fuel Gas Code*®, *International Mechanical Code*®, *ICC Performance Code*®, *International Plumbing Code*®, *International Private Sewage Disposal Code*®, *International Property Maintenance Code*®, *International Residential Code*®, *International Wildland-Urban Interface Code*™ *and International Zoning Code*®.

The *International Fire Code* provisions provide many benefits, among which is the model code development process that offers an international forum for fire safety professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

Development

The first edition of the *International Fire Code* (2000) was the culmination of an effort initiated in 1997 by a development committee appointed by ICC and consisting of representatives of the three statutory members of the International Code Council: Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International (SBCCI). The intent was to draft a comprehensive set of fire safety regulations consistent with and inclusive of the scope of the existing model codes. Technical content of the latest model codes promulgated by BOCA, ICBO and SBCCI was utilized as the basis for the development, followed by public hearings in 1998 and 1999 to consider proposed changes. This 2006 edition presents the code as originally issued, with changes reflected in the 2003 edition and further changes approved through the ICC Code Development Process through 2005. A new edition such as this is promulgated every three years.

This code is founded on principles intended to establish provisions consistent with the scope of a fire code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

Adoption

The *International Fire Code* is available for adoption and use by jurisdictions internationally. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction's laws. At the time of adoption, jurisdictions should insert the appropriate information in provisions requiring specific local information, such as the name of the adopting jurisdiction. These locations are shown in bracketed words in small capital letters in the code and in the sample ordinance. The sample adoption ordinance on page v addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

Maintenance

The *International Fire Code* is kept up-to-date through the review of proposed changes submitted by code enforcing officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully considered through an open code development process in which all interested and affected parties may participate.

The contents of this work are subject to change both through the Code Development Cycles and the governmental body that enacts the code into law. For more information regarding the code development process, contact the Code and Standard Development Department of the International Code Council.

While the development procedure of the *International Fire Code* assures the highest degree of care, ICC, its members and those participating in the development of this code do not accept any liability resulting from compliance or noncompliance with the

provisions because ICC and its founding members do not have the power or authority to police or enforce compliance with the contents of this code. Only the governmental body that enacts the code into law has such authority.

Letter Designations in Front of Section Numbers

In each code development cycle, proposed changes to the code are considered at the Code Development Hearings by the ICC Fire Code Development Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change. Proposed changes to a code section that has a number beginning with a letter in brackets are considered by a different code development committee. For example, proposed changes to code sections that have [B] in front of them (e.g. [B] 607.2) are considered by the ICC Building Code Development Committee at the code development hearings.

The content of sections in this code that begin with a letter designation are maintained by another code development committee in accordance with the following:

[B] = International Building Code Development Committee;
[EB] = International Existing Building Code Development Committee;
[FG] = International Fuel Gas Code Development Committee;
[M] = International Mechanical Code Development Committee;
[P] = International Plumbing Code Development Committee.

Marginal Markings

A single solid vertical line in the margins within the body of the code indicate a technical change from the requirements of the 2003 edition.

Deletion indicators (➡) are provided in the margin where a paragraph or item has been deleted.

> indicates IFC model code language deleted by the State of Oregon.

Double solid vertical lines in the margin denote amendments and additions promulgated by the State of Oregon, modifying the *2006 International Fire Code.*

A single line of square dots in the margin (a broken line) denotes amendments and additions promulgated by the City of Portland, Oregon, modifying the *2007 Oregon Fire Code.*

Minor changes, such as section renumbering and removal of references to international codes are not indicated in the margin.

Page Numbering

In an effort to limit the total number of pages needing to be printed for the *2007 Portland Fire Code*, additional pages will be numbered sequentially using a decimal point (e.g. Chapter 1 changes include pages 13, 14.1, 14.2, and 14.3. This allows the continuation of Chapter 2 beginning on page 15 as presented in the *2007 Oregon Fire Code.*).