



2020

# MINNESOTA STATE FIRE CODE



## 2020 Minnesota State Fire Code

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# Minnesota Department of Public Safety State Fire Marshal Division

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There you can find information sheets, policies, code interpretations, links to *Minnesota Statutes and Rules*, the online version of the fire code and other helpful information to assist you in using the *Minnesota State Fire Code*.

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# SELECTED MINNESOTA FIRE PREVENTION STATUTES

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## 299F.011 STATE FIRE CODE; ADMINISTRATION AND ENFORCEMENT.

Subdivision 1. MS 2006 [Renumbered 326B.02, subd 6]

Subd. 2. [Repealed, 1981 c 106 s 16]

Subd. 3. **Rules for code administration and enforcement.** The commissioner of public safety shall adopt rules as may be necessary to administer and enforce the code, specifically including but not limited to rules for inspection of buildings and other structures covered by the code and conforming the code to the governmental organization of Minnesota state agencies, political subdivisions and local governments.

Subd. 4. **Applicability; local authority.** The State Fire Code shall be applicable throughout the state and in all political subdivisions and municipalities therein. However, nothing in this subdivision shall prohibit a local unit of government otherwise authorized by law from adopting or enforcing any ordinance or regulation which specifies requirements equal to, in addition to, or more stringent than the requirements of the State Fire Code. Any ordinance or regulation adopted by a local unit which differs from the State Fire Code must be directly related to the safeguarding of life and property from the hazards of fire, must be uniform for each class or kind of building covered, and may not exceed the applicable requirements of the State Building Code adopted pursuant to sections 326B.101 to 326B.151.

Subd. 4a. **Day care home regulation.**

- (a) Notwithstanding any contrary provision of this section, the fire marshal shall not adopt or enforce a rule:
  - (1) establishing staff ratios, age distribution requirements, and limitations on the number of children in care;
  - (2) regulating the means of egress from family or group family day care homes in addition to the egress rules that apply to the home as a single family dwelling; or
  - (3) confining family or group family day care home activities to the floor of exit discharge.
- (b) For purposes of this subdivision, “family or group family day care home” means a dwelling unit in which the day care provider provides the services referred to in Section 245A.02, subdivision 10, to one or more persons.
- (c) Nothing in this subdivision prohibits the Department of Human Services from adopting or enforcing rules regulating day care, including the subjects in paragraph (a), clauses (1) and (3). The department may not, however, adopt or enforce a rule stricter than paragraph (a), clause (2).
- (d) The Department of Human Services may by rule adopt procedures for requesting the state fire marshal or a local fire marshal to conduct an inspection of day care homes to ensure compliance with state or local fire codes.
- (e) The commissioners of public safety and human services may enter into an agreement for the commissioner of human services to perform follow-up inspections of programs, subject to licensure under chapter 245A, to determine whether certain violations cited by the state fire marshal have been corrected. The agreement shall identify specific items the commissioner of human services is permitted to inspect. The list of items is not subject to rulemaking and may be changed by mutual agreement between the state fire marshal and the commissioner. The agreement shall provide for training of individuals who will conduct follow-up inspections. The agreement shall contain procedures for the commissioner of human services to follow when the commissioner requires assistance from the state fire marshal to carry out the duties of the agreement.
- (f) No tort liability is transferred to the commissioner of human services as a result of the commissioner of human services performing activities within the limits of the agreement.

Subd. 4b. **Stairway.** The State Fire Code shall not require stairways of existing multiple dwelling buildings of two stories or less to be enclosed. For the purposes of this subdivision the term “stories” has the meaning given it in the State Building Code.

Subd. 4c. [Repealed, 2005 c 136 art 9 s 15]

Subd. 5. **Appeal policy; variance.** Upon application, the state fire marshal may grant variances from the minimum requirements specified in the code if there is substantial compliance with the provisions of the code, the safety of the public and occupants of such building will not be jeopardized, and undue hardship will result to the applicant unless such variance is granted. No appeal to the state fire marshal for a variance from orders issued by a local fire official from the State Fire Code shall be accepted until the applicant has first made application to the local governing body and the local unit has acted on the application. The state fire marshal shall consider any decisions or recommendations of the local governing body. Any person aggrieved by a decision made

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by the fire marshal under this subdivision may proceed before the fire marshal as with a contested case in accordance with the Administrative Procedure Act.

**Subd. 5a. Local board of appeal.** Local governing bodies may appoint boards of appeal to hear and rule on appeals from orders issued under the fire code. An appeal from a local board of appeal may be made to the local governing body. If a board of appeal is not appointed, the appeals of orders must be made directly to the governing body. Local boards of appeal and governing bodies are not liable for damages in connection with granting variances, abatements, denials, or modifications of orders from the fire code that are made in good faith.

**Subd. 5b. Variance considerations.** When considering appeals for variances from the fire code, the local appeal board or governing body, the state fire marshal, a state administrative law judge, and a court shall take into consideration the benefit to be obtained by complying with the fire marshal's orders and the effect on affordable housing, provided that the spirit of the code is complied with and public safety secured.

**Subd. 6. Misdemeanor.** A person who violates a provision of the State Fire Code shall be guilty of a misdemeanor. No person shall be convicted for violating the State Fire Code unless the person shall have been given notice of the violation in writing and reasonable time to comply. The notice must contain a statement explaining the right to appeal the orders.

**Subd. 7. Fees.** The state fire marshal shall charge a fee of \$100 for each plan review involving:

- (1) flammable liquids;
- (2) motor vehicle fuel-dispensing stations; or
- (3) liquefied petroleum gases.

**History:** 1974 c 550 s 1; 1978 c 777 s 1; 1981 c 106 s 1; 1982 c 424 s 114,130; 1984 c 544 s 89; 1984c 654 art 5 s 58; 1984 c 658 s 3; 1985 c 248 s 70; 1986 c 444; 1Sp1986 c 3 art 4 s 10; 1987 c 201 s 1-3; 1987 c 333 s 22; 1990 c 388 s 1; 1991 c 149 s 3; 1991 c 235 art 3 s 2; 1992 c 513 art 9 s 33; 1992 c 597s 16; 1993 c 327 s 16; 2002 c 220 art 7 s 13; 2005 c 136 art 9 s 4,14; 2006 c 260 art 3 s 19; 2007 c 140art 2 s 1; art 3 s 6; art 4 s 61; art 13 s 4; 2008 c 337 s 4

### 299F.013 FUEL DISPENSING.

- (a) Any rule of the commissioner of public safety that adopts provisions of the State Fire Code relating to flammable and combustible liquids must permit the dispensing of class I and class II liquids from a fuel-dispensing system supplied by exterior aboveground tanks, for operations not open to the public.
- (b) The following dispensing operations are permitted:
  - (1) dispensing of class I liquids from one tank having a capacity of up to 560 gallons having the dispenser located on or adjacent to the tank;
  - (2) dispensing of class II liquids from up to two tanks having a capacity of up to 1,000 gallons each and having the dispenser located on or adjacent to the tank.
- (c) Dispensing operations authorized under this section are subject to all other applicable requirements of the State Fire Code.

**History:** 1994 c 536 s 24; 2005 c 136 art 9 s 14

### 299F.014 PETROLEUM STORAGE TANKS; TANK VEHICLE PARKING.

- (a) Any rule of the commissioner of public safety that adopts provisions of the State Fire Code relating to aboveground tanks for petroleum storage that are not used for dispensing to the public is superseded by Minnesota Rules, Chapter 7151, in regard to: secondary containment, substance transfer areas, tank and piping standards, overfill protection, corrosion protection, leak detection, labeling, monitoring, maintenance, record keeping, and decommissioning. If Minnesota Rules, Chapter 7151, does not address an issue relating to aboveground tanks for petroleum storage that are not used for dispensing to the public, any applicable provision of the State Fire Code applies.
- (b) A motorized tank vehicle used to transport petroleum products may be parked within 500 feet of a residence if the vehicle is parked at an aboveground tank facility used for dispensing petroleum into cargo tanks for sale at another location.

**History:** 1999 c 203 s 8; 2005 c 136 art 9 s 5

**299F.30 FIRE DRILL IN SCHOOL; DOORS AND EXITS.**

Subdivision 1. **Duties of fire marshal.** Consistent with Sections 121A.035, 121A.037, and this section, it shall be the duty of the state fire marshal, deputies and assistants, to require public and private schools and educational institutions to have at least five fire drills each school year and to keep all doors and exits unlocked from the inside of the building during school hours.

Subd. 2. **Fire drill.** Each superintendent, principal, or other person in charge of a public or private school, educational institution, children's home or orphanage housing 20 or more students or other persons, shall instruct and train such students or other persons to quickly and expeditiously quit the premises in case of fire or other emergency by means of drills or rapid dismissals while such school, institution, home, or orphanage is in operation. Records of such drills shall be posted so that such records are available for review by the state fire marshal at all times and shall include the drill date and the time required to evacuate the building.

Subd. 3. **School doors and exits.** Consistent with Section 121A.035 and this section, each superintendent, principal, or other person in charge of a public or private school, educational institution, children's home, or orphanage shall keep all doors and exits of such school, institution, home, or orphanage unlocked so that persons can leave by such doors or exits at any time during the hours of normal operation.

**History:** (5978) 1913 c 564 s 28; 1971 c 516 s 1; 1973 c 11 s 1; 1986 c 444; 2006 c 263 art 2 s 19

**299F.362 SMOKE DETECTOR; INSTALLATION; RULES; PENALTY.**

Subdivision 1. **Definitions.** For the purposes of this section, the following definitions shall apply:

- (a) "Apartment house" is any building, or portion thereof, which is designed, built, rented, leased, let, or hired out to be occupied, or which is occupied as the home or residence of three or more families living independently of each other and doing their own cooking in the building, and shall include buildings containing three or more flats or apartments.
- (b) "Dwelling" is any building, or any portion thereof, which is not an apartment house, lodging house, or a hotel and which contains one or two "dwelling units" which are, or are intended or designed to be, occupied for living purposes.
- (c) "Dwelling unit" is a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking, and sanitation, or a single unit used by one or more persons for sleeping and sanitation pursuant to a work practice or labor agreement.
- (d) "Hotel" is any building, or portion thereof, containing six or more guest rooms intended or designed to be used, or which are used, rented, or hired out to be occupied, or which are occupied for sleeping purposes by guests.
- (e) "Lodging house" is any building, or portion thereof, containing not more than five guest rooms which are used or are intended to be used for sleeping purposes by guests and where rent is paid in money, goods, labor, or otherwise.

Subd. 2. **Rules, smoke detector location.** The commissioner of public safety shall promulgate rules concerning the placement of smoke detectors in dwellings, apartment houses, hotels, and lodging houses. The rules shall take into account designs of the guest rooms or dwelling units.

Subd. 3. **Smoke detector for any dwelling.** Every dwelling unit within a dwelling must be provided with a smoke detector meeting the requirements of the State Fire Code. The detector must be mounted in accordance with the rules regarding smoke detector location adopted under subdivision 2. When actuated, the detector must provide an alarm in the dwelling unit.

Subd. 3a. **Smoke detector for new dwelling.** In construction of a new dwelling, each smoke detector must be attached to a centralized power source.

Subd. 4. **Smoke detector for apartment, lodging house, or hotel.** Every dwelling unit within an apartment house and every guest room in a lodging house or hotel used for sleeping purposes must be provided with a smoke detector conforming to the requirements of the State Fire Code. In dwelling units, detectors must be mounted in accordance with the rules regarding smoke detector location adopted under subdivision 2. When actuated, the detector must provide an alarm in the dwelling unit or guest room.

Subd. 5. **Maintenance responsibilities.** For all occupancies covered by this section where the occupant is not the owner of the dwelling unit or the guest room, the owner is responsible for maintenance of the smoke detectors. An owner may file inspection and maintenance reports with the local fire marshal for establishing evidence of inspection and maintenance of smoke detectors.

Subd. 5a. **Inform owner; no added liability.** The occupant of a dwelling unit must inform the owner of the dwelling unit of a nonfunctioning smoke detector within 24 hours of discovering that the smoke detector in the dwelling unit is not functioning. If the occupant fails to inform the owner under this subdivision, the occupant's liability for damages is not greater than it otherwise would be.

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### Subd. 6. **Penalties.**

- (a) Any person who violates any provision of this section shall be subject to the same penalty and the enforcement mechanism that is provided for violation of the State Fire Code, as specified in Section 299F.011, subdivision 6.
- (b) An occupant who willfully disables a smoke detector or causes it to be nonfunctioning, resulting in damage or injury to persons or property, is guilty of a misdemeanor.

Subd. 7. **Local government preempted.** This section prohibits a local unit of government from adopting standards different from those provided in this section.

Subd. 8. [Repealed, 1991 c 199 art 1 s 67]

Subd. 9. **Local government ordinance; installation in single-family residence.** Notwithstanding sub-division 7, or other law, a local governing body may adopt, by ordinance, rules for the installation of a smoke detector in single-family homes in the city that are more restrictive than the standards provided by this section. Rules adopted pursuant to this subdivision may be enforced through a truth-in-housing inspection.

Subd. 10. MS 1988 [Repealed, 1989 c 322 s 5]

Subd. 10. **Public fire safety educator.** The position of Minnesota public fire safety educator is established in the Department of Public Safety.

Subd. 11. **Insurance claim.** No insurer shall deny a claim for loss or damage by fire for failure of a person to comply with this section.

**History:** 1977 c 333 s 2; 1978 c 777 s 7; 1987 c 122 s 1; 1987 c 201 s 4-6; 1989 c 322 s 1-5,7; 1991c 233 s 110; 1993 c 329 s 1,2; 2005 c 136 art 9 s 11,12,14

## 299F.40 LIQUEFIED PETROLEUM OR INDUSTRIAL GAS CONTAINER.

Subdivision 1. **Public policy.** It is the intent of the Minnesota legislature to protect the public welfare and promote safety in the filling and use of pressure vessels containing liquefied petroleum or industrial gases through implementing the regulations of the Interstate Commerce Commission or successor agency, within the state of Minnesota, the rules of the Minnesota state fire marshal, and the national standards of safety on the filling of these containers. It is deemed necessary to ensure that containers properly constructed and tested be used and that only liquefied petroleum or industrial gases of suitable and safe vapor pressure be placed in these containers. To attain this end the filling or refilling of liquefied petroleum and industrial gas containers by other than the owner or authorized person must be controlled and specific authority to prevent violation and encourage enforcement be established.

### Subd. 2. **Definitions.**

- (a) The term “person” shall mean and include any person, persons, firm, firms, corporation, or corporations.
- (b) The term “owner” shall mean and include (1) any person who holds a written bill of sale or other instrument under which title to the container was transferred to such person, (2) any person who holds a paid or receipted invoice showing purchase and payment of the container, (3) any person whose name, initials, mark, or other identifying device has been plainly and legibly stamped or otherwise shown upon the surface of the container for a period of not less than one year prior to the final enactment and approval of this section, or (4) any manufacturer of a container who has not sold or transferred ownership thereof by written bill of sale or otherwise.
- (c) The term “liquefied petroleum gas” as used in this section shall mean and include any material which is composed predominantly of any of the following hydrocarbons or mixtures of the same: propane, propylene, butanes (normal butane and iso-butane), and butylenes.
- (d) The term “industrial gas” as used in this section shall mean and include any material which is composed exclusively of any of the following gases or mixtures of them: oxygen, acetylene, nitrogen, argon, and carbon dioxide.

Subd. 3. **Container identification; unlawful acts.** If a liquefied petroleum or industrial gas container shall bear upon the surface thereof in plainly legible characters the name, mark, initials, or other identifying device of the owner thereof, it shall be unlawful for any person except the owner or a person authorized in writing by the owner:

- (1) to fill or refill such container with liquefied petroleum or industrial gas or any other gas or compound;
- (2) to buy, sell, offer for sale, give, take, loan, deliver or permit to be delivered, or otherwise use, dispose of, or traffic in any such container; or
- (3) to deface, erase, obliterate, cover up, or otherwise remove or conceal or change any name, mark, initials, or other identifying device of the owner or to place the name, mark, initials, or other identifying device of any person other than the owner on the container.



Subd. 4. **Presumptive evidence of unlawful use of container.** The use of a liquefied petroleum or industrial gas container or containers by any person other than the person whose name, mark, initial, or device shall be or shall have been upon the liquefied petroleum or industrial gas container or containers, without written consent or purchase of the marked and distinguished liquefied petroleum or industrial gas container, for the sale of liquefied petroleum or industrial gas or filling or refilling with liquefied petroleum or industrial gas, or the possession of liquefied petroleum or industrial gas containers by any person other than the person whose name, mark, initial, or other device is thereon, without the written consent of the owner, shall and is hereby declared to be presumptive evidence of the unlawful use, filling or refilling, transition of, or trafficking in liquefied petroleum or industrial gas containers.

Subd. 5. **Violation, search warrant.** Whenever any person or officer of any corporation mentioned in this section, or the person's or officer's duly authorized agent who has personal knowledge of the facts, makes an oath in writing before any judge, that the party making affidavit has reason to and does believe that any of the person's or the corporation's liquefied petroleum or industrial gas containers marked with the name, initials, mark, or other device of the owner, are in the possession of or being used, filled, refilled, or transferred by any person whose name, initials, mark, or other device does not appear on the containers, and who is in the possession of, filling or refilling, or using the containers without the written consent of the owner of the name, initials, or trade mark, the judge may, when satisfied that there is reasonable cause, issue a search warrant and cause the premises designated to be searched for the purpose of discovering and obtaining the containers. The judge may also order the person in whose possession the containers are found to appear, and inquire into the circumstances of the possession. If the judge finds that the person has been guilty of a violation of this section, the judge shall impose the punishment prescribed, and award the property taken upon the search warrant to its owner.

Subd. 6. **Misdemeanor.** Any person who shall fail to comply with any of the foregoing provisions of this section shall be deemed guilty of a misdemeanor for each separate offense.

**History:** 1957 c 768 s 1-6; 1977 c 152 s 1; 1983 c 359 s 25; 1986 c 444; 2003 c 2 art 4 s 17

## 299F.50 DEFINITIONS (*Carbon Monoxide*).

Subdivision 1. **Scope.** As used in Sections 299F.50 and 299F.51, the terms defined in this section have the meanings given them.

Subd. 2. MS 2006 [Renumbered subdivision 8]

Subd. 3. MS 2006 [Renumbered subdivision 10]

Subd. 4. MS 2006 [Renumbered subdivision 7]

Subd. 5. **Approved carbon monoxide alarm.** "Approved carbon monoxide alarm" means a device meant for the purpose of detecting carbon monoxide that is certified by a nationally recognized testing laboratory to conform to the latest Underwriters Laboratories Standards (known as UL2034 standards).

Subd. 6. MS 2006 [Renumbered subdivision 9]

Subd. 7. **Dwelling unit.** "Dwelling unit" means an area meant for living or sleeping by human occupants.

Subd. 8. **Installed.** "Installed" means that an approved carbon monoxide alarm is hardwired into the electrical wiring, directly plugged into an electrical outlet without a switch, or, if the alarm is battery-powered, attached to the wall of the dwelling.

Subd. 9. **Operational.** "Operational" means working and in service.

Subd. 10. **Single and multifamily dwelling.** "Single and multifamily dwelling" means any building or structure which is wholly or partly used or intended to be used for living or sleeping by human occupants.

**History:** 2006 c 260 art 3 s 20

## 299F.51 REQUIREMENTS FOR CARBON MONOXIDE ALARMS.

Subdivision 1. **Generally.** Every single family dwelling and every dwelling unit in a multifamily dwelling must have an approved and operational carbon monoxide alarm installed within ten feet of each room lawfully used for sleeping purposes.

Subd. 2. **Owner's duties.** The owner of a multifamily dwelling unit which is required to be equipped with one or more approved carbon monoxide alarms must:

- (1) provide and install one approved and operational carbon monoxide alarm within ten feet of each room lawfully used for sleeping; and
- (2) replace any required carbon monoxide alarm that has been stolen, removed, found missing, or rendered inoperable during a prior occupancy of the dwelling unit and which has not been replaced by the prior occupant prior to the commencement of a new occupancy of a dwelling unit.

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Subd. 3. **Occupant's duties.** The occupant of each dwelling unit in a multifamily dwelling in which an approved and operational carbon monoxide alarm has been provided and installed by the owner must:

- (1) keep and maintain the device in good repair; and
- (2) replace any device that is stolen, removed, missing, or rendered inoperable during the occupancy of the dwelling unit.

Subd. 4. **Battery removal prohibited.** No person shall remove batteries from, or in any way render inoperable, a required carbon monoxide alarm.

Subd. 5. **Exceptions; certain multifamily dwellings and state-operated facilities.**

- (a) In lieu of requirements of subdivision 1, multifamily dwellings may have approved and operational carbon monoxide alarms installed between 15 and 25 feet of carbon monoxide-producing central fixtures and equipment, provided there is a centralized alarm system or other mechanism for responsible parties to hear the alarm at all times.
- (b) An owner of a multifamily dwelling that contains minimal or no sources of carbon monoxide may be exempted from the requirements of subdivision 1, provided that such owner certifies to the commissioner of public safety that such multifamily dwelling poses no foreseeable carbon monoxide risk to the health and safety of the dwelling units.
- (c) The requirements of this section do not apply to facilities owned or operated by the state of Minnesota.

**History:** 2006 c 260 art 3 s 21

## FIRE SPRINKLER STATUTES

### 299M.01 DEFINITIONS.

Subdivision 1. **Scope.** For the purposes of this chapter, the following terms have the meanings given them in this section.

Subd. 2. **Apprentice sprinkler fitter.** "Apprentice sprinkler fitter" means a person, other than a fire protection contractor or journeyman sprinkler fitter, who is regularly engaged in learning the trade under the direct supervision of a licensed fire protection contractor or journeyman sprinkler fitter and is registered with a state or federal approval agency.

Subd. 3. **Commissioner.** "Commissioner" means the commissioner of public safety.

Subd. 4. **Council.** "Council" means the Minnesota Advisory Council on Fire Protection Systems.

Subd. 5. **Department.** "Department" means the Department of Public Safety.

Subd. 6. **Fire protection contractor.** "Fire protection contractor" means a person who contracts to sell, design, install, modify, alter, or inspect a fire protection system or its parts or related equipment.

Subd. 7. **Fire protection system.** "Fire protection system" means a sprinkler, standpipe, hose system, or other special hazard system for fire protection purposes only, that is composed of an integrated system of underground and overhead piping connected to a water source. "Fire protection system" does not include the water service piping to a city water main, or piping used for potable water purposes, or piping used for heating or cooling purposes. Openings from potable water piping for fire protection systems must be made by persons properly licensed under Section 326B.46. Persons properly licensed under Section 326B.46 may also sell, design, install, modify or inspect a standpipe, hose system only.

Subd. 8. **Journeyman sprinkler fitter.** "Journeyman sprinkler fitter" means a person who is certified as competent to engage in installing, connecting, altering, repairing, or adding to a fire protection system for and under the supervision of a fire protection contractor.

Subd. 8a. **Multipurpose potable water piping system contractor.** "Multipurpose potable water piping system contractor" means a person who contracts to sell, design, install, modify, or inspect a multipurpose potable water piping system, its parts, or related equipment.

Subd. 8b. **Multipurpose potable water piping system.** "Multipurpose potable water piping system" means a potable water piping system that is intended to serve both domestic and fire protection needs throughout a one- or two-family dwelling unit. No person may install a multipurpose potable water piping system unless that person is licensed pursuant to Section 326B.46 and is certified pursuant to Section 299M.03.

Subd. 8c. **Multipurpose potable water piping system installer.** "Multipurpose potable water piping system installer" means a person who is certified as competent to engage in installing, connecting, altering, repairing, or adding to a residential multipurpose potable water piping system in a one- or two-family dwelling unit.

Subd. 9. **Municipality.** "Municipality" means a town or statutory or home rule charter city.

**History:** 1992 c 508 s 1; 1998 c 367 art 11 s 10; 1Sp2003 c 2 art 4 s 14-16; 2007 c 140 art 6 s 15; art 13 s 4

### 299M.03 LICENSE OR CERTIFICATE REQUIRED.

Subdivision 1. **Contractor license.** Except for residential installations by the owner of an occupied one- or two-family dwelling, a person may not sell, design, install, modify, or inspect a fire protection system, its parts, or related equipment, or offer to do so, unless annually licensed to perform these duties as a fire protection contractor. No license is required under this section for a person licensed as a professional engineer under Section 326.03 who is competent in fire protection system design or a person licensed as an alarm and communication contractor under Section 326B.34 for performing activities authorized by that license.

Subd. 1a. **Multipurpose potable water piping system contractor license.** Except for residential installations by the owner-occupant of a one- or two-family dwelling, a person may not sell, design, install, modify, or inspect a multipurpose potable water piping system, its parts, or related equipment, or offer to do so, unless annually licensed to perform these duties as a multipurpose potable water piping system contractor. No license is required under this section for a person licensed as a professional engineer under Section 326.03 who is competent in fire protection system design.

Subd. 2. **Journeyman certificate.** Except for residential installations by the owner of an occupied one- or two-family dwelling, a person may not install, connect, alter, repair, or add to a fire protection system, under the supervision of a fire protection contractor, unless annually certified to perform those duties as a journeyman sprinkler fitter or as a registered apprentice sprinkler fitter. This subdivision does not apply to a person maintaining or repairing a fire protection system if the system is located in a facility regulated under the federal Mine Safety and Health Act of 1977, United States Code, Title 30, Section 801 et seq.

Subd. 3. **Multipurpose potable water piping system installer certificate.** Except for residential installations by the owner-occupant of a one- or two-family dwelling, a person may not install, connect, alter, repair, or add to a multipurpose potable water piping system, unless annually certified to perform these duties as a multipurpose potable water piping system installer. A multipurpose potable water piping system installer certificate only allows the certificate holder to work on one- and two-family residential units.

Subd. 4. **Certification fee; annual appropriation.** The state fire marshal shall charge \$55 to conduct and administer the journeyman sprinkler fitter certification process. Money received by the State Fire Marshal Division for the administration of this program must be deposited in the state treasury and credited to a state fire marshal dedicated account in the special revenue fund. All money in the state fire marshal account is annually appropriated to the commissioner of public safety to administer this program.

**History:** 1992 c 508 s 3; 1995 c 265 art 2 s 27; 1998 c 367 art 11 s 12,13; 1Sp2003 c 2 art 4 s 17-19; 2007 c 140 art 5 s 32; art 13 s 4; 2008 c 300 s 19; 2011 c 76 art 1 s 50

## FIRE INVESTIGATIONS AND CRIMINAL STATUTES

### 299F.04 ORIGIN OF FIRE INVESTIGATED; COMPUTERIZED ARSON DATA.

Subdivision 1. **Duty.** The chief of the fire department of each city in which a fire department is established, and the mayor of each city in which no fire department exists, and the president of the statutory city board of each statutory city in which no fire department exists, and the town clerk of each town without the limits of any city or statutory city, shall investigate, or cause to be investigated, the cause, origin, and circumstances of each fire occurring in the city, statutory city or town by which property has been destroyed or damaged when the damage exceeds \$100, except that all fires of unknown origin shall be reported, and shall especially make investigation as to whether the fire was the result of carelessness, accident, or design.

Subd. 2. **Coordination by state fire marshal.** The investigation shall be begun within two days of the occurrence of the fire and the state fire marshal shall have the right to coordinate the investigation on deeming it necessary.

Subd. 3. **Reporting and records requirements.** The officer making investigation of fires occurring in cities, statutory cities and towns shall forthwith notify the state fire marshal and shall, within one week of the occurrence of the fire, furnish to the state fire marshal a written statement of all the facts relating to the cause and origin of the fire and such further information as may be called for by the blanks furnished by the state fire marshal. The state fire marshal shall keep a record of all fires occurring in the state, together with all facts, statistics, and circumstances, including the origin of the fires, which may be determined by the investigation provided by this chapter. These statistics shall be at all times open to public inspection.

Subd. 3a. [Repealed, 2014 c 212 art 3 s 1]

Subd. 4. **Investigation by state fire marshal.** The state fire marshal may conduct further investigation necessary to establish reasonable grounds to believe that a violation of Minnesota Statutes 1976, Sections 609.561 to 609.576, has occurred.

Subd. 5. **Notification.**

- (a) As used in this subdivision, “chief officer” means the city fire marshal or chief officer of a law enforcement agency’s arson investigation unit in a city of the first class.
- (b) The officer making investigation of a fire resulting in a human death shall immediately notify either the state fire marshal or a chief officer. The state fire marshal or chief officer may conduct an investigation to establish the origin and cause regarding the circumstance of the death. If the chief officer undertakes the investigation, the officer shall promptly notify the state fire marshal of the investigation and, after the investigation is completed, shall forward a copy of the investigative report to the state fire marshal. Unless the investigating officer does so, the state fire marshal or chief officer shall immediately notify the appropriate coroner or medical examiner of a human death occurring as a result of a fire. The coroner or medical examiner shall perform an autopsy in the case of a human death as provided in Section 390.11, subdivision 2a, or 390.32, subdivision 2a, as appropriate.

**History:** (5955) 1913 c 564 s 6; 1967 c 543 s 1; 1973 c 123 art 5 s 7; 1978 c 777 s 2,3; 1986 c 444; 1993 c 326 art 5 s 1; 1998 c 367 art 11 s 9; 1999 c 139 art 4 s 2

**299F.08 PREMISES, WHEN ENTERED.**

Subdivision 1. **Immediate entry.** In the performance of the duties imposed by the provisions of this chapter, the state fire marshal and subordinates, during and within a reasonable time after a fire has been extinguished, may enter any building or premises where a fire has occurred and other buildings and premises adjoining or near thereto to investigate and gather evidence. In determining whether a search is reasonable within the meaning of this subdivision, the need for investigatory search for the cause of the fire shall be balanced against the privacy rights of the occupant or owner of the building or premises.

Subd. 2. **Administrative search warrant.**

- (a) After the reasonable time prescribed by subdivision 1 for an investigatory search has expired, subsequent entries to the building or premises to investigate and gather evidence may be made only if there is consent from the owner or occupant of the building or premises or pursuant to an administrative search warrant issued by a judge.
- (b) In determining whether to issue an administrative search warrant for the purposes of this subdivision, the judge, in conforming the decision to constitutional doctrine governing warrant procedures for administrative searches, shall consider but not be limited to the following factors:
  - (1) scope of the proposed search;
  - (2) number of prior entries by fire officials;
  - (3) time of day when the search is proposed to be made;
  - (4) lapse of time since the fire;
  - (5) continued use of the building; and
  - (6) the owner’s or occupant’s efforts to secure the building against intruders.

Subd. 3. **Criminal search warrant.** If during the course of an investigatory search under an administrative search warrant issued in accordance with subdivision 2, the fire marshal or subordinates find probable cause to believe arson has occurred and require further access to the building or premises to gather evidence for possible prosecution, a criminal search warrant must be obtained from a judge.

Subd. 4. **Securing the scene.** In order to prevent the loss, destruction, or alteration of evidence at a fire scene, fire officials may secure fire scenes for up to 48 hours after having extinguished the fire while warrants are obtained or while the investigation authorized in this section is conducted. Fire scene security may be accomplished by preventing any person from entering the fire scene or from removing property from the fire scene. An individual may enter the fire scene if accompanied by the fire official conducting the investigation, or if the individual obtains the fire official’s written permission. Persons not complying with the fire security measures under this subdivision are guilty of obstructing legal process as defined in Section 609.50. Nothing in this subdivision shall be construed to increase the civil liability of fire officials or to decrease municipal or state immunities as set forth in Section 3.736 or 466.03.

**History:** (5959) 1913 c 564 s 10; 1981 c 106 s 2; 1985 c 141 s 1; 1986 c 444

### 609.561 ARSON IN THE FIRST DEGREE.

Subdivision 1. **First degree; dwelling.** Whoever unlawfully by means of fire or explosives, intentionally destroys or damages any building that is used as a dwelling at the time the act is committed, whether the inhabitant is present therein at the time of the act or not, or any building appurtenant to or connected with a dwelling whether the property of the actor or of another, commits arson in the first degree and may be sentenced to imprisonment for not more than 20 years or to a fine of not more than \$20,000, or both.

Subd. 2. **First degree; other buildings.** Whoever unlawfully by means of fire or explosives, intentionally destroys or damages any building not included in subdivision 1, whether the property of the actor or another commits arson in the first degree and may be sentenced to imprisonment for not more than 20 years or to a fine of not more than \$35,000, or both if:

- (a) another person who is not a participant in the crime is present in the building at the time and the defendant knows that; or
- (b) the circumstances are such as to render the presence of such a person therein a reasonable possibility.

#### Subd. 3. **First degree; flammable material.**

- (a) Whoever unlawfully by means of fire or explosives, intentionally destroys or damages any building not included in subdivision 1, whether the property of the actor or another, commits arson in the first degree if a flammable material is used to start or accelerate the fire. A person who violates this paragraph may be sentenced to imprisonment for not more than 20 years or a fine of not more than \$20,000, or both.
- (b) As used in this subdivision:
  - (1) “combustible liquid” means a liquid having a flash point at or above 100 degrees Fahrenheit;
  - (2) “flammable gas” means any material which is a gas at 68 degrees Fahrenheit or less and 14.7 psi of pressure and which: (i) is ignitable when in a mixture of 13 percent or less by volume with air at atmospheric pressure; or (ii) has a flammable range with air at atmospheric pressure of at least 12 percent, regardless of the lower flammable limit;
  - (3) “flammable liquid” means any liquid having a flash point below 100 degrees Fahrenheit and having a vapor pressure not exceeding 40 pounds per square inch (absolute) at 100 degrees Fahrenheit, but does not include intoxicating liquor as defined in Section 340A.101;
  - (4) “flammable material” means a flammable or combustible liquid, a flammable gas, or a flammable solid; and
  - (5) “flammable solid” means any of the following three types of materials:
    - (i) wetted explosives;
    - (ii) self-reactive materials that are liable to undergo heat-producing decomposition; or
    - (iii) readily combustible solids that may cause a fire through friction or that have a rapid burning rate as determined by specific flammability tests.

**History:** 1976 c 124 s 4; 1984 c 628 art 3 s 11; 1986 c 444; 1994 c 636 art 2 s 42; 1995 c 186 s 100; 1999 c 176 s 1

### 609.562 ARSON IN THE SECOND DEGREE.

Whoever unlawfully by means of fire or explosives, intentionally destroys or damages any building not covered by Section 609.561, no matter what its value, or any other real or personal property valued at more than \$1,000, whether the property of the actor or another, may be sentenced to imprisonment for not more than ten years or to payment of a fine of not more than \$20,000, or both.

**History:** 1976 c 124 s 5; 1979 c 258 s 16; 1984 c 628 art 3 s 11; 1985 c 141 s 2; 1986 c 444; 1993c 326 art 5 s 7

### 609.563 ARSON IN THE THIRD DEGREE.

Subdivision 1. **Crime.** Whoever unlawfully by means of fire or explosives, intentionally destroys or damages any real or personal property may be sentenced to imprisonment for not more than five years or to payment of a fine of \$10,000, or both, if:

- (a) the property intended by the accused to be damaged or destroyed had a value of more than \$300 but less than \$1,000; or
- (b) property of the value of \$300 or more was unintentionally damaged or destroyed but such damage or destruction could reasonably have been foreseen; or
- (c) the property specified in clauses (a) and (b) in the aggregate had a value of \$300 or more.

Subd. 2. [Repealed, 1998 c 367 art 2 s 33]

**History:** 1976 c 124 s 6; 1977 c 355 s 9; 1979 c 258 s 17; 1984 c 628 art 3 s 11; 1985 c 141 s 3; 1993 c 326 art 5 s 8

### 609.5631 ARSON IN THE FOURTH DEGREE.

#### Subdivision 1. **Definitions.**

- (a) For purposes of this section, the following terms have the meanings given.
- (b) “Multiple unit residential building” means a building containing two or more apartments.
- (c) “Public building” means a building such as a hotel, hospital, motel, dormitory, sanitarium, nursing home, theater, stadium, gymnasium, amusement park building, school or other building used for educational purposes, museum, restaurant, bar, correctional institution, place of worship, or other building of public assembly.

Subd. 2. **Crime described.** Whoever intentionally by means of fire or explosives sets fire to or burns or causes to be burned any personal property in a multiple unit residential building or public building and arson in the first, second, or third degree was not committed is guilty of a gross misdemeanor and may be sentenced to imprisonment for not more than one year or to payment of a fine of not more than \$3,000, or both.

**History:** 1998 c 367 art 2 s 19; 1999 c 176 s 2

### 609.5632 ARSON IN THE FIFTH DEGREE.

Whoever intentionally by means of fire or explosives sets fire to or burns or causes to be burned any real or personal property of value is guilty of a misdemeanor and may be sentenced to imprisonment for not more than 90 days or to payment of a fine of not more than \$1,000, or both.

**History:** 1998 c 367 art 2 s 20; 2004 c 228 art 1 s 72

### 609.5633 USE OF IGNITION DEVICES; PETTY MISDEMEANOR.

A student who uses an ignition device, including a butane or disposable lighter or matches, inside an educational building and under circumstances where there is an obvious risk of fire, and arson in the first, second, third, or fourth degree was not committed, is guilty of a petty misdemeanor. This section does not apply if the student uses the device in a manner authorized by the school.

For the purposes of this section, “student” has the meaning given in Section 123B.41, subdivision 11.

**History:** 1999 c 176 s 3

### 609.564 EXCLUDED FIRES.

A person does not violate Section 609.561, 609.562, 609.563, or 609.5641 if the person sets a fire pursuant to a validly issued license or permit or with written permission from the fire department of the jurisdiction where the fire occurs.

**History:** 1985 c 141 s 4; 1990 c 478 s 1

### 609.5641 WILDFIRE ARSON.

Subdivision 1. **Setting wildfires.** A person who intentionally sets a fire to burn out of control on land of another containing timber, underbrush, grass, or other vegetative combustible material is guilty of a felony and may be sentenced as provided in subdivision 1a.

#### Subd. 1a. **Penalty; felonies.**

- (a) Except as provided in paragraphs (b), (c), and (d), a person who violates subdivision 1 may be sentenced to imprisonment for not more than five years or to payment of a fine of not more than \$10,000, or both.
- (b) A person who violates subdivision 1 where the fire threatens to damage or damages in excess of five buildings or dwellings, burns 500 acres or more, or damages crops in excess of \$100,000, may be sentenced to imprisonment for not more than ten years or to payment of a fine of not more than \$15,000, or both.
- (c) A person who violates subdivision 1 where the fire threatens to damage or damages in excess of 100 buildings or dwellings, burns 1,500 acres or more, or damages crops in excess of \$250,000, may be sentenced to imprisonment for not more than 20 years or to payment of a fine of not more than \$25,000, or both.

(d) A person who violates subdivision 1 where the fire causes another person to suffer demonstrable bodily harm may be sentenced to imprisonment for not more than ten years or to payment of a fine of \$15,000, or both.

(e) For purposes of this section, a building or dwelling is threatened when there is a probability of damage to the building or dwelling requiring evacuation for safety of life.

Subd. 2. **Possession of flammables to set wildfires.** A person is guilty of a gross misdemeanor who possesses a flammable, explosive, or incendiary device, substance, or material with intent to use the device, substance, or material to violate subdivision 1.

Subd. 3. **Restitution.** In addition to the sentence otherwise authorized, the court may order a person who is convicted of violating this section to pay fire suppression costs, damages to the owner of the damaged land, costs associated with injuries sustained by a member of a municipal or volunteer fire department in the performance of the member's duties, and any other restitution costs allowed under Section 611A.04.

**History:** 1990 c 478 s 2; 2013 c 139 s 1-3

### 609.576 NEGLIGENT FIRES; DANGEROUS SMOKING.

Subdivision 1. **Negligent fire resulting in injury or property damage.** Whoever is grossly negligent in causing a fire to burn or get out of control thereby causing damage or injury to another, and as a result of this:

- (1) a human being is injured and great bodily harm incurred, is guilty of a crime and may be sentenced to imprisonment for not more than five years or to payment of a fine of not more than \$10,000, or both;
- (2) a human being is injured and bodily harm incurred, is guilty of a crime and may be sentenced to imprisonment for not more than one year or to payment of a fine of not more than \$3,000, or both; or
- (3) property of another is injured, thereby, is guilty of a crime and may be sentenced as follows:
  - (i) to imprisonment for not more than 90 days or to payment of a fine of not more than \$1,000, or both, if the value of the property damage is under \$300;
  - (ii) to imprisonment for not more than one year or to payment of a fine of not more than \$3,000, or both, if the value of the property damaged is at least \$300 but is less than \$2,500; or
  - (iii) to imprisonment for not more than three years or to payment of a fine of not more than \$5,000, or both, if the value of the property damaged is \$2,500 or more.

Subd. 2. **Dangerous smoking.** A person is guilty of a misdemeanor if the person smokes in the presence of explosives or inflammable materials. If a person violates this subdivision and knows that doing so creates a risk of death or bodily harm or serious property damage, the person is guilty of a felony and may be sentenced to imprisonment for not more than five years or to payment of a fine of not more than \$10,000, or both.

**History:** 1976 c 124 s 7; 1977 c 355 s 10; 1981 c 107 s 1; 1984 c 628 art 3 s 11; 1985 c 141 s 5; 1989c 5 s 8; 1989 c 290 art 6 s 20; 1993 c 326 art 5 s 9; 2001 c 155 s 1; 2003 c 82 s 1

### 609.686 FALSE FIRE ALARMS; TAMPERING WITH OR INJURING FIRE ALARM SYSTEM.

Subdivision 1. **Misdemeanor.** Whoever intentionally gives a false alarm of fire, or unlawfully tampers or interferes with any fire alarm system, fire protection device, or the station or signal box of any fire alarm system or any auxiliary fire appliance, or unlawfully breaks, injures, defaces, or removes any such system, device, box or station, or unlawfully breaks, injures, destroys, disables, renders inoperable, or disturbs any of the wires, poles, or other supports and appliances connected with or forming a part of any fire alarm system or fire protection device or any auxiliary fire appliance is guilty of a misdemeanor.

Subd. 2. **Felony.** Whoever violates subdivision 1 by tampering and knows or has reason to know that the tampering creates the potential for bodily harm or the tampering results in bodily harm is guilty of a felony and may be sentenced to imprisonment for not more than five years or to payment of a fine of not more than \$10,000, or both.

Subd. 3. **Tampering.** For purpose of this section, tampering means to intentionally disable, alter, or change the fire alarm system, fire protective device, or the station or signal box of any fire alarm system of any auxiliary fire appliance, with knowledge that it will be disabled or rendered inoperable.

**History:** 1971 c 77 s 1; 1993 c 326 art 5 s 10





## EFFECTIVE DATES OF MINNESOTA BUILDING AND FIRE CODES

July 1, 1972	1972 State Building Code (SBC) made to apply statewide and supersede and take the place of the building code of any municipality. The SBC adopts by reference the 1970 UBC.
October 1972	Supplements to the 1972 State Building Code.
June/July 1973	Amendments to 1972 State Building Code.
January 14, 1974	1973 <i>Uniform Building Code</i> (UBC) adoption by reference.
October 3, 1975	1975 Minnesota Uniform Fire Code (MUFC) adopts by reference the 1973 Uniform Fire Code.
November 18, 1975	Adoption of Handicapped Code, Chapter 55, and new UBC Section 1717, Foam Plastics.
January 14, 1976	1976 State Building Code.
September 19, 1978	1978 SBC adopts by reference the 1976 UBC.
September 9, 1980	1980 SBC adopts by reference the 1979 UBC.
March 1, 1983	1980 SBC, amended, adopts by reference the 1982 UBC.
April 11, 1983	1983 MUFC adopts by reference the 1982 Uniform Fire Code (UFC).
April 25, 1983	Optional Appendix "E," Automatic Fire Suppression Systems.
January 14, 1985	Adopted Rules updating the State Building Code and governing handicapped accessibility.
February 17, 1987	1985 SBC adopts by reference the 1985 UBC.
October 1, 1989	1989 MUFC adopts by reference the 1988 UFC.
July 16, 1990	1990 SBC adopts by reference the 1988 UBC.
August 23, 1993	1993 MUFC adopts by reference the 1991 UFC.
March 20, 1995	1995 SBC adopts by reference the 1994 UBC.
June 29, 1998	1998 MUFC adopts by reference the 1997 UFC.
October 5, 1998	1998 SBC adopts by reference the 1997 UBC.
March 31, 2003	2003 Minnesota State Building Code (MSBC) adopts by reference the 2000 <i>International Building Code</i> (IBC) with state amendments.
March 31, 2003	2003 Minnesota State Fire Code (MSFC) adopts by reference the 2000 <i>International Fire Code</i> (IFC) with state amendments.
July 10, 2007	2007 MSBC adopts by reference the 2006 IBC with state amendments.
July 10, 2007	2007 MSFC adopts by reference the 2006 IFC with state amendments.
June 2, 2015	2015 MBC adopts by reference the 2012 IBC with state amendments.
May 2, 2016	2015 MSFC adopts by reference the 2012 IFC with state amendments.
March 31, 2020	2020 MBC adopts by reference the 2018 IBC with state amendments.
March 31, 2020	2020 MSFC adopts by reference the 2018 IFC with state amendments.



# OCCUPANCY CLASSIFICATIONS

## MN State Fire Code – 2020

### Group A – Assembly (50 or more persons):

- A-1 – Theaters (performing arts, fixed seats)
- A-2 – Dining and drinking (bars, restaurants, clubs)
- A-3 – Auditoriums, gymnasiums, museums, worship, libraries, recreation, amusement, etc.
- A-4 – Arenas, swimming pools, tennis courts (indoor spectator seating)
- A-5 – Stadiums, grandstands (outdoor seating)

### Group B – Business:

- Professional services
- College/university classrooms
- Offices
- Clinics (including outpatient)
- Motor vehicle showrooms
- Electronic data processing
- Assembly – less than 50 persons

### Group E – Educational (through 12th grade):

- Pre-school
- K-12
- Adult Day Care (occupants capable of escape)
- Day Care – older children (see I-4 for younger)

### Group F – Factory/Industrial:

- Group F-1 – Moderate Hazard (combustible materials):
  - Aircraft
  - Automobiles
  - Boats
  - Metals
  - Rugs
  - Woodworking
- Group F-2 – Low Hazard – Not a significant fire risk (mostly non-combustible materials):
  - Non-alcoholic beverages
  - Brick & Masonry
  - Ceramic products
  - Glass
  - Gypsum
  - Ice
  - Metal Products (fabrication & assembly)

### Group H – Hazardous Occupancies:

- Group H-1: detonation hazard (explosive materials)
- Group H-2: deflagration/accelerated burning (flammable/combustible liquids in use, dusts)
- Group H-3: readily support combustion or pose physical hazard (flammable/combustible liquids in storage, flammable solids, Class 2 or 3 oxidizers)
- Group H-4: health hazards (corrosives, toxic and highly toxic materials)
- Group H-5: semiconductor fabrication

### Group I – Institutional:

- Group I-1 (more than 16 persons):
  - Supervised custodial care (assisted living, group homes, congregate care, half-way houses, board & care, Supervised living facilities – Class A-2)
- Group I-2:
  - Hospitals
  - Nursing homes
  - Detox centers
  - Supervised living facilities – Class B-3
- Group I-3: jails, prisons, detention centers
- Group I-4: Adult day services and child day care facilities for 6 or more persons receiving custodial care

### Group M – Mercantile:

- Stores
- Retail/wholesale stores
- Sales rooms
- Motor vehicle fuel dispensing (no repairs)

### Group R – Residential:

- Group R-1 (transient in nature < 30 days):
  - Hotels/Motels
  - Boarding houses – Congregate living (>10)
  - Lodging house ≥ 6 guest rooms or > 10 occupants
- Group R-2 (Nontransient > 30 days):
  - Apartments – Condominiums
  - Dormitories
  - Congregate living facilities – (> 16)
  - Fraternities and sororities (>16)
  - Convents/Monasteries
- Group R-3:
  - One- & two-family homes
  - Lodging house < 6 rooms or < 10 occupants
  - Boarding houses/Congregate living (< 6)
  - Day care (family & group family) (< 6)
  - Housing w/services/Assisted Living (< 6)
  - Supervised living facilities (A-1 and B-1)
- Group R-4:
  - Supervised residential care (6 –16 people)
  - Housing w/services/Assisted living
  - Treatment facilities
  - Supervised living facilities (A-2 and B-2)

### Group S – Storage:

- Group S-1: moderate hazard (combustible):
  - Combustible materials
  - Vehicle repair garages
- Group S-2: low hazard (non-combustible):
  - Metal items
  - Glass, ceramic, food products
  - Parking garages

### Group U – Miscellaneous:

- Private garages/Carports
- Agricultural buildings/Barns/Greenhouses
- Fences/Retaining Walls
- Towers/Tanks
- Sheds



# PREFACE

## Introduction

The *International Fire Code*® (IFC®) establishes minimum requirements 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 2018 edition is fully compatible with all of the *International Codes*® (I-Codes®) published by the International Code Council® (ICC®), including the *International Building Code*®, *International Energy Conservation Code*®, *International Existing Building Code*®, *International Fuel Gas Code*®, *International Green Construction Code*®, *International Mechanical Code*®, *International Plumbing Code*®, *International Private Sewage Disposal Code*®, *International Property Maintenance Code*®, *International Residential Code*®, *International Swimming Pool and Spa Code*®, *International Wildland-Urban Interface Code*®, *International Zoning Code*® and *International Code Council Performance Code*®.

The I-Codes, including this *International Fire Code*, are used in a variety of ways in both the public and private sectors. Most industry professionals are familiar with the I-Codes as the basis of laws and regulations in communities across the U.S. and in other countries. However, the impact of the codes extends well beyond the regulatory arena, as they are used in a variety of nonregulatory settings, including:

- Voluntary compliance programs such as those promoting sustainability, energy efficiency and disaster resistance.
- The insurance industry, to estimate and manage risk, and as a tool in underwriting and rate decisions.
- Certification and credentialing of individuals involved in the fields of building design, construction and safety.
- Certification of building and construction-related products.
- U.S. federal agencies, to guide construction in an array of government-owned properties.
- Facilities management.
- “Best practices” benchmarks for designers and builders, including those who are engaged in projects in jurisdictions that do not have a formal regulatory system or a governmental enforcement mechanism.
- College, university and professional school textbooks and curricula.
- Reference works related to building design and construction.

In addition to the codes themselves, the code development process brings together building professionals on a regular basis. It provides an international forum for discussion and deliberation about building design, construction methods, safety, performance requirements, technological advances and innovative products.

## Development

This 2018 edition presents the code as originally issued, with changes reflected in the 2003 through 2015 editions and further changes approved through the ICC Code Development Process through 2017. A new edition such as this is promulgated every 3 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.

## Maintenance

The *International Fire Code* is kept up to date through the review of proposed changes submitted by code enforcement 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 ICC Code Development Process reflects principles of openness, transparency, balance, due process and consensus, the principles embodied in OMB Circular A-119, which governs the federal government's use of private-sector standards. The ICC process is open to anyone; there is no cost to participate, and people can participate without travel cost through the ICC's cloud-based app, cdp-Access®. A broad cross section of interests are represented in the ICC Code Development Process. The codes, which are updated regularly, include safeguards that allow for emergency action when required for health and safety reasons.

In order to ensure that organizations with a direct and material interest in the codes have a voice in the process, the ICC has developed partnerships with key industry segments that support the ICC's important public safety mission. Some code development committee members were nominated by the following industry partners and approved by the ICC Board:

- American Institute of Architects (AIA)
- International Association of Fire Chiefs (IAFC)
- National Association of Home Builders (NAHB)
- National Association of State Fire Marshals (NASFM)

The code development committees evaluate and make recommendations regarding proposed changes to the codes. Their recommendations are then subject to public comment and council-wide votes. The ICC's governmental members—public safety officials who have no financial or business interest in the outcome—cast the final votes on proposed changes.

The contents of this work are subject to change through the code development cycles and by any governmental entity that enacts the code into law. For more information regarding the code development process, contact the Codes and Standards Development Department of the International Code Council.

While the I-Code development procedure is thorough and comprehensive, the ICC, its members and those participating in the development of the codes disclaim any liability resulting from the publication or use of the I-Codes, or from compliance or noncompliance with their provisions. The ICC does not have the power or authority to police or enforce compliance with the contents of this code.

## Code Development Committee Responsibilities (Letter Designations in Front of Section Numbers)

In each code development cycle, proposed changes to the code are considered at the Committee Action Hearings by the International 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 designation in brackets are considered by a different code development committee. For example, proposed changes to code sections that have [BE] in front of them (e.g., [BE] 606.3) are considered by the appropriate International Building Code Development Committee (IBC—Egress) at the code development hearings.

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

- [A] = Administrative Code Development Committee;
- [BE] = IBC—Egress Code Development Committee;
- [BF] = IBC—Fire Safety Code Development Committee;
- [BG] = IBC—General Code Development Committee;

- [BS] = IBC—Structural Code Development Committee;
- [EB] = International Existing Building Code Development Committee;
- [FG] = International Fuel Gas Code Development Committee;
- [M] = International Mechanical Code Development Committee; and
- [P] = International Plumbing Code Development Committee.

For the development of the 2021 edition of the I-Codes, there will be two groups of code development committees and they will meet in separate years.

<b>Group A Codes (Heard in 2018, Code Change Proposals Deadline: January 8, 2018)</b>	<b>Group B Codes (Heard in 2019, Code Change Proposals Deadline: January 7, 2019)</b>
<b>International Building Code</b> – Egress (Chapters 10, 11, Appendix E) – Fire Safety (Chapters 7, 8, 9, 14, 26) – General (Chapters 2–6, 12, 27–33, Appendices A, B, C, D, K, N)	Administrative Provisions (Chapter 1 of all codes except IECC, IRC and IgCC, administrative updates to currently referenced standards, and designated definitions)
<b>International Fire Code</b>	<b>International Building Code</b> – Structural (Chapters 15–25, Appendices F, G, H, I, J, L, M)
<b>International Fuel Gas Code</b>	<b>International Existing Building Code</b>
<b>International Mechanical Code</b>	<b>International Energy Conservation Code—Commercial</b>
<b>International Plumbing Code</b>	<b>International Energy Conservation Code—Residential</b> – IECC—Residential – IRC—Energy (Chapter 11)
<b>International Property Maintenance Code</b>	<b>International Green Construction Code</b> (Chapter 1)
<b>International Private Sewage Disposal Code</b>	<b>International Residential Code</b> – IRC—Building (Chapters 1–10, Appendices E, F, H, J, K, L, M, O, Q, R, S, T)
<b>International Residential Code</b> – IRC—Mechanical (Chapters 12–23) – IRC—Plumbing (Chapters 25–33, Appendices G, I, N, P)	
<b>International Swimming Pool and Spa Code</b>	
<b>International Wildland-Urban Interface Code</b>	
<b>International Zoning Code</b>	
<b>Note:</b> Proposed changes to the ICC <i>Performance Code</i> ™ will be heard by the code development committee noted in brackets [ ] in the text of the ICC <i>Performance Code</i> ™.	

The majority of the sections of Chapter 1 of this code are designated as the responsibility of the Administrative Code Development Committee, and that committee is part of the Group B portion of the hearings. This committee will conduct its code development hearings in 2019 to consider most code change proposals for Chapter 1 of this code and proposals for Chapter 1 of all I-Codes except the *International Energy Conservation Code*, *International Residential Code* and *International Green Construction Code*. Therefore, any proposals received for the sections of Chapter 1 preceded by the designation [A] will be deferred for consideration in 2019 by the Administrative Code Development Committee.

It is very important that anyone submitting code change proposals understands which code development committee is responsible for the section of the code that is the subject of the code change proposal. For further information on the Code Development Committee responsibilities, please visit the ICC website at [www.iccsafe.org/scoping](http://www.iccsafe.org/scoping).

## Marginal Markings

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2015 edition. Deletion indicators in the form of an arrow (➡) are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.

A single asterisk [\*] placed in the margin indicates that text or a table has been relocated within the code. A double asterisk \*\*[\*\*] placed in the margin indicates that the text or table immediately following it has been relocated there from elsewhere in the code. The following table indicates such relocations in the 2018 edition of the *International Fire Code*.

2015 LOCATION	2018 LOCATION
606.12.1 and 606.12.1.1	605.1.1 and 605.1.2
806.2	807.4.1
904.12.5	906.4
908.3–908.7	916
605.11	1204
604	1203
608	1206.2
3104.5–3104.22	3107
5003.2.2.1, Item 6	5005.1.12

## Minnesota Amendments

- ➡ = Indicates where a paragraph or item has been deleted from the requirements of the 2015 *International Fire Code*.
- > = Indicates model code language deleted by the state of Minnesota.
- = Indicates a technical change from the requirements of the 2015 *International Fire Code*.
- M = Indicates a state of Minnesota amendment has been made to the 2018 *International Fire Code*.

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## Information Boxes

*State Fire Marshal staff have added Information Boxes, such as this one, after some code sections to further explain the intent of a section or to direct you to further information. It is important to note that any interpretation is not code and meant only for information and clarification.*

## Coordination between the International Building and Fire Codes

Because the coordination of technical provisions is one of the benefits of adopting the ICC family of model codes, users will find the ICC codes to be a very flexible set of model documents. To accomplish this flexibility some technical provisions are duplicated in some of the model code documents. While the *International Codes* are provided as a comprehensive set of model codes for the built environment, documents are occasionally adopted as a stand-alone regulation. When one of the model documents is adopted as the basis of a stand-alone code, that code should provide a complete package of requirements with enforcement assigned to the entity for which the adoption is being made.



The model codes can also be adopted as a family of complementary codes. When adopted together, there should be no conflict of any of the technical provisions. When multiple model codes are adopted in a jurisdiction it is important for the adopting authority to evaluate the provisions in each code document and determine how and by which agency(ies) they will be enforced. It is important, therefore, to understand that where technical provisions are duplicated in multiple model documents that enforcement duties must be clearly assigned by the local adopting jurisdiction. ICC remains committed to providing state-of-the-art model code documents that, when adopted locally, will reduce the cost to government of code adoption and enforcement and protect the public health, safety and welfare.

## Italicized Terms

Words and terms defined in Chapter 2, Definitions, are italicized where they appear in code text and the Chapter 2 definition applies. Where such words and terms are not italicized, common-use definitions apply. The words and terms selected have code-specific definitions that the user should read carefully to facilitate better understanding of the code.

## Adoption

The International Code Council maintains a copyright in all of its codes and standards. Maintaining copyright allows ICC to fund its mission through sales of books, in both print and electronic formats. The ICC welcomes adoption of its codes by jurisdictions that recognize and acknowledge the ICC's copyright in the code, and further acknowledge the substantial shared value of the public/private partnership for code development between jurisdictions and the ICC.

The ICC also recognizes the need for jurisdictions to make laws available to the public. All I-Codes and I-Standards, along with the laws of many jurisdictions, are available for free in a nondownloadable form on the ICC's website. Jurisdictions should contact the ICC at [adoptions@iccsafe.org](mailto:adoptions@iccsafe.org) to learn how to adopt and distribute laws based on the International Fire Code in a manner that provides necessary access, while maintaining the ICC's copyright.

To facilitate adoption, several sections of this code contain blanks for fill-in information that needs to be supplied by the adopting jurisdiction as part of the adoption legislation. For this code, please see:

Section 101.1. Insert: [NAME OF JURISDICTION]

Section 110.4. Insert: [OFFENSE, DOLLAR AMOUNT, NUMBER OF DAYS]

Section 112.4. Insert: [DOLLAR AMOUNT IN TWO LOCATIONS]

Section 1103.5.3. Insert: [DATE BY WHICH SPRINKLER SYSTEM MUST BE INSTALLED]

Section 5704.2.9.6.1. Insert: [JURISDICTION TO SPECIFY]

Section 5706.2.4.4. Insert: [JURISDICTION TO SPECIFY]

Section 5806.2. Insert: [JURISDICTION TO SPECIFY]

Section 6104.2. Insert: [JURISDICTION TO SPECIFY]



# EFFECTIVE USE OF THE INTERNATIONAL FIRE CODE

The *International Fire Code*® (IFC®) is a model code that regulates minimum fire safety requirements for new and existing buildings, facilities, storage and processes. The IFC addresses fire prevention, fire protection, life safety and safe storage and use of hazardous materials in new and existing buildings, facilities and processes. The IFC provides a total approach of controlling hazards in all buildings and sites, regardless of the hazard being indoors or outdoors.

The IFC is a design document. For example, before one constructs a building, the site must be provided with an adequate water supply for fire-fighting operations and a means of building access for emergency responders in the event of a medical emergency, fire or natural or technological disaster. Depending on the building's occupancy and uses, the IFC regulates the various hazards that may be housed within the building, including refrigeration systems, application of flammable finishes, fueling of motor vehicles, high-piled combustible storage and the storage and use of hazardous materials. The IFC sets forth minimum requirements for these and other hazards and contains requirements for maintaining the life safety of building occupants, the protection of emergency responders, and to limit the damage to a building and its contents as the result of a fire, explosion or unauthorized hazardous material discharge.

As described, the IFC has many types of requirements for buildings and facilities. The applicability of these requirements varies. An understanding of the applicability of requirements, as addressed in Sections 102.1 and 102.2, is necessary. Section 102.1 addresses when the construction and design provisions are applicable whereas Section 102.2 addresses when the administrative, operational and maintenance provisions are applicable. Generally, the construction and design provisions only apply to new buildings or existing buildings and occupancies as addressed by Chapter 11. The administrative, maintenance and operational requirements are applicable to all buildings and facilities whether new or existing.

## Arrangement and Format of the 2018 IFC

Before applying the requirements of the IFC it is beneficial to understand its arrangement and format. The IFC, like other codes published by the International Code Council, is arranged and organized to follow sequential steps that generally occur during a plan review or inspection. In the 2012 edition, the IFC was reorganized into seven parts as illustrated in the tables below. Each part represents a broad subject matter and includes the chapters that logically fit under the subject matter of each part. It is also foreseeable that additional chapters will need to be added in the future as regulations for new processes or operations are developed. Accordingly, the reorganization was designed to accommodate such future chapters by providing reserved (unused) chapters in several of the parts. This will allow the subject matter parts to be conveniently and logically expanded without requiring a major renumbering of the IFC chapters.

ORGANIZATION OF THE IFC	
Parts and Chapters	Subject Matter
Part I—Chapters 1 and 2	Administrative and definitions
Part II—Chapters 3 and 4	General safety provisions
Part III—Chapters 5 through 12	Building and equipment design features
Part III—Chapters 13 through 19	Reserved for future use
Part IV—Chapters 20 through 39	Special occupancies and operations
Part IV—Chapters 40 through 49; 52	Reserved for future use
Part V—Chapters 50, 51 and 53 through 67	Hazardous materials
Part V—Chapters 68 through 79	Reserved for future use
Part VI—Chapter 80	Referenced standards
Part VII—Appendices A through P	Adoptable and informational appendices

M  
N

The IFC requirements for fire-resistive construction, interior finish, fire protection systems, means of egress and construction safeguards are directly correlated to the chapters containing parallel requirements in the IBC, as follows:

IFC Chapter	Subject
7	Fire and smoke protection features
8	Interior finish, decorative materials and furnishings
9	Fire protection and life safety systems
10	Means of egress
33	Fire safety during construction and demolition

The following is a chapter-by-chapter synopsis of the scope and intent of the provisions of the *International Fire Code*:

## **PART I—ADMINISTRATIVE**

**Chapter 1 Scope and Administration.** This chapter contains provisions for the application, enforcement and administration of subsequent requirements of the code. In addition to establishing the scope of the code, Chapter 1 identifies which buildings and structures come under its purview. Chapter 1 is largely concerned with maintaining “due process of law” in enforcing the regulations contained in the body of the code. Only through careful observation of the administrative provisions can the code official reasonably expect to demonstrate that “equal protection under the law” has been provided.

**Chapter 2 Definitions.** All terms that are defined in the code are listed alphabetically in Chapter 2. While a defined term may be used in one chapter or another, the meaning provided in Chapter 2 is applicable throughout the code.

Where understanding of a term’s definition is especially key to or necessary for understanding of a particular code provision, the term is shown in *italics* wherever it appears in the code. This is true only for those terms that have a meaning that is unique to the code. In other words, the generally understood meaning of a term or phrase might not be sufficient or consistent with the meaning prescribed by the code; therefore, it is essential that the code-defined meaning be known.

Guidance regarding tense, gender and plurality of defined terms as well as guidance regarding terms not defined in this code are also provided.

## **PART II—GENERAL SAFETY PROVISIONS**

**Chapter 3 General Requirements.** The open burning, ignition source, vacant building, miscellaneous storage, roof gardens and landscaped roofs, outdoor pallet storage and hazards to fire fighters requirements and precautions, among other general regulations contained in this chapter, are intended to improve premises safety for everyone, including construction workers, tenants, operations and maintenance personnel, and emergency response personnel. As with other chapters of the *International Fire Code*, Section 302 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 4 Emergency Planning and Preparedness.** This chapter addresses the human contribution to life safety in buildings when a fire or other emergency occurs. The requirements for continuous training and scheduled fire, evacuation and lockdown drills can be as important as the required periodic inspections and maintenance of built-in fire protection features. The level of preparation by the occupants also improves the emergency responders’ abilities during an emergency. The *International Building Code* (IBC) focuses on built-in fire protection features, such as automatic sprinkler systems, fire-resistance-rated construction and properly designed egress systems, whereas this chapter fully addresses the human element. As with other chapters of the *Inter-*

*national Fire Code*, Section 402 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

## **PART III—BUILDING AND EQUIPMENT DESIGN FEATURES**

**Chapter 5 Fire Service Features.** The requirements of this chapter apply to all buildings and occupancies and pertain to access roads; access to building openings and roofs; premises identification; key boxes; fire protection water supplies; fire command centers; fire department access to equipment and emergency responder radio coverage in buildings. As with other chapters of the *International Fire Code*, Section 502 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 6 Building Services and Systems.** This chapter focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. This chapter brings together all building system- and service-related issues for convenience and provides a more systematic view of buildings. The following building services and systems are addressed: fuel-fired appliances (Section 603), electrical equipment, wiring and hazards (Section 604), mechanical refrigeration (Section 605), elevator recall and maintenance (Section 606), commercial kitchen hoods (Section 607), commercial kitchen cooking oil storage (608) and hyperbaric facilities (609). As with other chapters of the *International Fire Code*, Section 602 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents. Note that building systems focused on energy systems and components are addressed by Chapter 12.

**Chapter 7 Fire and Smoke Protection Features.** The maintenance of assemblies required to be fire-resistance rated is a key component in a passive fire protection philosophy. Chapter 7 sets forth requirements to maintain required fire-resistance ratings of building elements and limit fire spread. Section 701 addresses the basics of what construction elements such as fire barriers and smoke barriers need to be maintained as well as defining the owner's responsibility. The rest of the chapter, Sections 703 through 706, deals with various fire and smoke protection features that must also be maintained. These features include penetrations, joint protection, door and window openings and duct and air transfer opening protection. As with other chapters of the *International Fire Code*, Section 702 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 8 Interior Finish, Decorative Materials and Furnishings.** The overall purpose of Chapter 8 is to regulate interior finishes, decorative materials and furnishings in new and existing buildings so that they do not significantly add to or create fire hazards within buildings. The provisions tend to focus on occupancies with specific risk characteristics, such as vulnerability of occupants, density of occupants, lack of familiarity with the building and societal expectations of importance. This chapter is consistent with Chapter 8 of the *International Building Code* (IBC), which regulates the interior finishes of new buildings. As with other chapters of the *International Fire Code*, Section 802 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 9 Fire Protection and Life Safety Systems.** Chapter 9 prescribes the minimum requirements for active systems of fire protection equipment to perform the functions of detecting a fire, alerting the occupants or fire department of a fire emergency, controlling smoke and controlling or extinguishing the fire. There are provisions relating to gas detection and associated alarms. Mass notification systems are also addressed. Generally, the requirements are based on the occupancy, the height and the area of the building, because these are the factors that most affect fire-fighting capabilities and the relative hazard of a specific building or portion thereof. This chapter parallels and is substantially duplicated in Chapter 9 of the *International Building Code*; however, this chapter also contains periodic testing criteria that are not contained in the IBC. In addition, the special fire protection system requirements based on use and occupancy found in Chapter 4 of the IBC are duplicated in Chapter 9 of the IFC as a user convenience. As with other chapters of the *International Fire Code*, Section 902 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 10 Means of Egress.** The general criteria set forth in Chapter 10 regulating the design of the means of egress are established as the primary method for protection of people in buildings by allowing timely relocation or evacuation of building occupants. Both prescriptive and performance language is utilized in this chapter to provide for a basic approach in the determination of a safe exiting system for all occupancies. It addresses all portions of the egress system (i.e., exit access, exits and exit discharge) and includes design requirements as well as provisions regulating individual components. The requirements detail the size, arrangement, number and protection of means of egress components. Functional and operational characteristics also are specified for the components that will permit their safe use without special knowledge or effort. The means of egress protection requirements work in coordination with other sections of the code, such as protection of vertical openings (see Chapter 7), interior finish (see Chapter 8), fire suppression and detection systems (see Chapter 9) and numerous others, all having an impact on life safety. Sections 1002 through 1030 duplicate text from Chapter 10 of the IBC; however, the IFC contains an additional Section 1031 on maintenance of the means of egress system in existing buildings. Retroactive minimum means of egress requirements for existing buildings are found in Chapter 11.

**Chapter 11 Construction Requirements for Existing Buildings.** Chapter 11 applies to existing buildings constructed prior to the adoption of the code and intends to provide a minimum degree of fire and life safety to persons occupying existing buildings by providing for alterations to such buildings that do not comply with the minimum requirements of the *International Building Code*. Prior to the 2009 edition, its content existed in the IFC but in a random manner that was neither efficient nor user-friendly. In the 2007/2008 code development cycle, a code change (F294-07/08) was approved that consolidated the retroactive elements of IFC/2006 Sections 607, 701, 704, 903, 905, 907 and 3406 (then 2506) and all of then-Section 1027 (Means of Egress for Existing Buildings) into a single chapter for easier and more efficient reference and application to existing buildings. The provisions address general fire safety features such as requirements for fire alarm systems, CO detection and automatic sprinkler systems in some existing buildings, general means of egress, and finally, the chapter contains a section dedicated to existing Group I-2 occupancies. As with other chapters of the *International Fire Code*, Section 1102 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 12 Energy Systems.** Chapter 12 was added to address the current energy systems found in the IFC. It introduces a wide range of systems that generate and store energy in, on and adjacent to buildings and facilities. The expansion of such energy systems is related to meeting today's energy, environmental and economic challenges. Ensuring appropriate criteria to address the safety of such systems in building and fire codes is an important part of protecting the public at large, building occupants and emergency responders. Previously, requirements for energy systems, such as standby power systems, PV systems and stationary battery systems, were scattered about in various locations in Chapter 6, which addresses building services and systems. However, with the addition of fuel cells and capacitor energy storage systems to the IFC, a chapter dedicated to such related issues needed to be created. This chapter provides an appropriate location for the addition of future energy systems.

**Chapters 13 through 19.** Reserved for future use.

## **PART IV—SPECIAL OCCUPANCIES AND OPERATIONS**

**Chapter 20 Aviation Facilities.** Chapter 20 specifies minimum requirements for the fire-safe operation of airports, heliports and helistops. The principal nonflight operational hazards associated with aviation involve fuel, facilities and operations. Therefore, safe use of flammable and combustible liquids during fueling and maintenance operations is emphasized. Availability of portable Class B:C-rated fire extinguishers for prompt control or suppression of incipient fires is required. As with other chapters of the *International Fire Code*, Section 2002 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 21 Dry Cleaning.** The provisions of Chapter 21 are intended to reduce hazards associated with use of flammable and combustible dry cleaning solvents. These materials, like all volatile organic chemicals, generate significant quantities of static electricity and are thus readily ignitable. Many flammable and nonflammable dry cleaning solvents also possess health hazards when involved in a fire. As with other chapters of the *International Fire Code*, Section 2102 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 22 Combustible Dust-producing Operations.** The requirements of Chapter 22 seek to reduce the likelihood of dust explosions by managing the hazards of ignitable suspensions of combustible dusts associated with a variety of operations including woodworking, mining, food processing, agricultural commodity storage and handling and pharmaceutical manufacturing, among others. Ignition source control and good housekeeping practices in occupancies containing dust-producing operations are emphasized. As with other chapters of the *International Fire Code*, Section 2202 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 23 Motor Fuel-dispensing Facilities and Repair Garages.** This chapter provides provisions that regulate the storage and dispensing of both liquid and gaseous motor fuels at public and private automotive, marine and aircraft motor fuel-dispensing facilities, fleet vehicle motor fuel-dispensing facilities and repair garages. As with other chapters of the *International Fire Code*, Section 2302 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 24 Flammable Finishes.** Chapter 24 requirements govern operations where flammable or combustible finishes are applied by spraying, dipping, powder coating or flow-coating processes. As with all operations involving flammable or combustible liquids and combustible dusts or vapors, controlling ignition sources and methods of reducing or controlling flammable vapors or combustible dusts at or near these operations are emphasized. As with other chapters of the *International Fire Code*, Section 2402 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 25 Fruit and Crop Ripening.** Chapter 25 provides guidance that is intended to reduce the likelihood of explosions resulting from improper use or handling of ethylene gas used for crop-ripening and coloring processes. This is accomplished by regulating ethylene gas generation; storage and distribution systems and controlling ignition sources. Design and construction of facilities for this use are regulated by the *International Building Code* to reduce the impact of potential accidents on people and buildings.

**Chapter 26 Fumigation and Insecticidal Fogging.** This chapter regulates fumigation and insecticidal fogging operations which use toxic pesticide chemicals to kill insects, rodents and other vermin. Fumigants and insecticidal fogging agents pose little hazard if properly applied; however, the inherent toxicity of all these agents and the potential flammability of some makes special precautions necessary when they are used. Requirements of this chapter are intended to protect both the public and fire fighters from hazards associated with these products. As with other chapters of the *International Fire Code*, Section 2602 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 27 Semiconductor Fabrication Facilities.** The requirements of this chapter are intended to control hazards associated with the manufacture of electrical circuit boards or microchips, commonly called semiconductors. Though the finished product possesses no unusual hazards, materials commonly associated with semiconductor manufacturing are often quite hazardous and include flammable liquids, pyrophoric and flammable gases, toxic substances and corrosives. The requirements of this chapter are concerned with both life safety and property protection. However, the fire code official should recognize that the risk of extraordinary property damages is far more common than the risk of personal injuries from fire. As with other chapters of the *International Fire Code*, Section 2702 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 28 Lumber Yards and Agro-industrial, Solid Biomass and Woodworking Facilities.** Provisions of this chapter are intended to prevent fires and explosions, facilitate fire control and reduce exposures to and from facilities storing, selling or processing wood and forest products, including sawdust, wood chips, shavings, bark mulch, shorts, finished planks, sheets, posts, poles, timber and raw logs and the hazard they represent once ignited. Also included are solid biomass feedstock and raw products associated with agro-industrial facilities, the outdoor storage of pallets and manufacturing and recycling facilities. This chapter requires active and passive fire protection features to reduce on- and off-site exposures, limit fire size and development and facilitate fire fighting by employees and the fire service. As with other chapters of the *International Fire Code*, Section 2802 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 29 Manufacture of Organic Coatings.** This chapter regulates materials and processes associated with the manufacture of paints as well as bituminous, asphaltic and other diverse compounds formulated to protect buildings, machines and objects from the effects of weather, corrosion and hostile environmental exposures. Paint for decorative, architectural and industrial uses comprises the bulk of organic coating production. Painting and processes related to the manufacture of nonflammable and noncombustible or water-based products are exempt from the provisions of this chapter. The application of organic coatings is covered by Chapter 24. Elimination of ignition sources, maintenance of fire protection equipment and isolation or segregation of hazardous operations are emphasized. As with other chapters of the *International Fire Code*, Section 2902 contains a term that is defined in Chapter 2 and is applicable to the chapter contents.

**Chapter 30 Industrial Ovens.** This chapter addresses the fuel supply, ventilation, emergency shutdown equipment, fire protection and the operation and maintenance of industrial ovens, which are sometimes referred to as industrial heat enclosures or industrial furnaces. Compliance with this chapter is intended to reduce the likelihood of fires involving industrial ovens which are usually the result of the fuel in use or volatile vapors given off by the materials being heated or to manage the impact if a fire should occur. As with other chapters of the *International Fire Code*, Section 3002 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 31 Tents, Temporary Structures and Other Membrane Structures.** The requirements in this chapter are intended to protect temporary as well as permanent tents and air-supported and other membrane structures and temporary special event structures from fire and similar hazards by regulating structure location and access, anchorage, egress, heat-producing equipment, hazardous materials and operations, combustible vegetation, ignition sources, waste accumulation and requiring regular inspections and certifying continued compliance with fire safety regulations. This chapter also addresses outdoor assembly events, which are not limited to those events where tents or other membrane structures are used but are regulated due to the number of people, density of those people and hazards associated with large outdoor events related to egress, fire hazards from cooking and other related concerns. As with other chapters of the *International Fire Code*, Section 3102 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 32 High-piled Combustible Storage.** This chapter provides guidance for reasonable protection of life from hazards associated with the storage of combustible materials in closely packed piles or on pallets, in racks or on shelves where the top of storage is greater than 12 feet in height. It provides requirements for identifying various classes of commodities; general fire and life safety features including storage arrangements, smoke and heat venting, and fire department access; and housekeeping and maintenance requirements. The chapter attempts to define the potential fire severity and, in turn, determine fire and life safety protection measures needed to control, and in some cases suppress, a potential fire. This chapter does not cover miscellaneous combustible materials storage regulated in Section 315. As with other chapters of the *International Fire Code*, Section 3202 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 33 Fire Safety during Construction and Demolition.** Chapter 33 outlines general fire safety precautions for all structures and all occupancies during construction and demolition operations. In general, these requirements seek to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. Features regulated include fire protection systems, fire fighter access to the site and building, means of egress, hazardous materials storage and use and temporary heating equipment and other ignition sources. With the 2012 reorganization, this chapter now correlates with Chapter 33 of the IBC.

**Chapter 34 Tire Rebuilding and Tire Storage.** The requirements of Chapter 34 are intended to prevent or control fires and explosions associated with the remanufacture and storage of tires and tire byproducts. Additionally, the requirements are intended to minimize the impact of indoor and outdoor tire storage fires by regulating pile volume and location, segregating the various operations, providing for fire department access and a water supply and controlling ignition sources.

**Chapter 35 Welding and Other Hot Work.** This chapter covers requirements for safety in welding and other types of hot work by reducing the potential for fire ignitions that usually result in large losses. Several different types of hot work would fall under the requirements found in Chapter 35, including both gas and electric arc methods and any open-torch operations. Many of the activities of this chapter focus on the actions of the occupants. As with other chapters of the *International Fire Code*, Section 3502 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.



*tional Fire Code*, Section 3502 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 36 Marinas.** Chapter 36 addresses the fire protection and prevention requirements for marinas. It was developed in response to the complications encountered by a number of fire departments responsible for the protection of marinas as well as fire loss history in marinas that lacked fire protection. Compliance with this chapter intends to establish safe practices in marina areas, provide an identification method for mooring spaces in the marina, and provide fire fighters with safe operational areas and fire protection methods to extend hose lines in a safe manner. As with other chapters of the *International Fire Code*, Section 3602 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 37 Combustible Fibers.** Chapter 37 establishes the requirements for storage and handling of combustible fibers, including animal, vegetable and synthetic fibers, whether woven into textiles, baled, packaged or loose. Operations involving combustible fibers are typically associated with salvage, paper milling, recycling, cloth manufacturing, carpet and textile mills and agricultural operations, among others. The primary hazard associated with these operations is the abundance of materials and their ready ignitability. As with other chapters of the *International Fire Code*, Section 3702 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 38 Higher Education Laboratories.** Chapter 38 is a new chapter addressing the unique needs of laboratories in higher education academic institutions. The advancement of technologies, science, medicine and our knowledge of the world often relies on having vibrant and successful academic institutions. These academic institutions often have chemistry, biology, medical, engineering and other laboratories where hazardous materials are used. The chapter addresses both new and existing buildings and new and existing laboratories. Applying the general hazardous material provisions has been difficult because of the ways these laboratories operate. Often there are many small laboratories that use very small quantities of hazardous materials that individually do not exceed the MAQs. However, in aggregate the quantities will exceed the MAQs and could result in the need for a Group H occupancy classification. It is believed that the lower density of hazardous materials often mitigates the overall risk. Therefore, this lower density along with a package of additional requirements (including the concept of laboratory suites with fire-resistance-rated separations) renders a Group H occupancy classification not necessary. This chapter also addresses the use of certain materials typically prohibited for existing buildings where located in buildings not protected throughout with a sprinkler system. These allowances come with certain safety measures such as the use of storage cabinets and fume hoods.

**Chapter 39 Processing and Extraction Facilities.** Chapter 39 is a new chapter focused on the processing and extraction of oils and fats from various plants. This process includes the extraction by use of solvent, desolventizing of the raw material and production of the miscella, and distillation of the solvent from the miscella and solvent recovery. The processes used are not necessarily typical hazardous material processes and often the systems and equipment associated with such processes are not listed. Due to the typical lack of listings, the systems and equipment need specific approvals for each installation. This chapter provides the tools to appropriately enforce the IFC to meet the unique needs of industry while providing the appropriate level of safety. This chapter has provisions for a technical report prepared by a registered design professional. This chapter also requires site inspections to make sure equipment and systems are installed as designed and approved.

**Chapters 40 through 49.** Reserved for future use.

## **PART V—HAZARDOUS MATERIALS**

**Chapter 50 Hazardous Materials—General Provisions.** This chapter contains the general requirements for all hazardous chemicals in all occupancies. Hazardous chemicals are defined as those that pose an unreasonable risk to the health and safety of operating or emergency personnel, the public and the environment if not properly controlled during handling, storage, manufacture, processing, packaging, use, disposal or transportation. The general provisions of this chapter are intended to be companion provisions with the specific requirements of Chapters 51 through 67 regarding a given hazardous material. As with other chapters of the *International Fire Code*, Section 5002 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 51 Aerosols.** Chapter 51 addresses the prevention, control and extinguishment of fires and explosions in facilities where retail aerosol products are displayed or stored. It is concerned with both life safety and property protection from a fire; however, historically, aerosol product fires have caused property loss more frequently than loss of life. Requirements for storing aerosol products are dependent on the level of aerosol product, level of sprinkler protection, type of storage condition and quantity of aerosol products. As with other chapters of the *International Fire Code*, Section 5102 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 52.** Reserved for future use.

**Chapter 53 Compressed Gases.** This chapter regulates the storage, use and handling of all flammable and nonflammable compressed gases, such as those that are used in medical facilities, air separation plants, industrial plants, agricultural equipment facilities and similar occupancies. Standards for the design, construction and marking of compressed gas cylinders and pressure vessels are referenced. Compressed gases used in welding and cutting, cryogenic liquids and liquefied petroleum gases are also regulated under Chapters 35, 55 and 61, respectively. Compressed gases that are classified as hazardous materials are also regulated in Chapter 50, which includes general requirements. As with other chapters of the *International Fire Code*, Section 5302 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 54 Corrosive Materials.** Chapter 54 addresses the hazards of corrosive materials that have a destructive effect on living tissues. Although corrosive gases exist, most corrosive materials are solid or liquid and classified as either acids or bases (alkalis). These materials may pose a wide range of hazards other than corrosivity, such as combustibility, reactivity or oxidizing hazards, and must conform to the requirements of this code with respect to all known hazards. The focus of this chapter is on materials whose primary hazard is corrosivity; that is, the ability to destroy or irreparably damage living tissue on contact. As with other chapters of the *International Fire Code*, Section 5402 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 55 Cryogenic Fluids.** This chapter regulates the hazards associated with the storage, use and handling of cryogenic fluids through regulation of such things as pressure relief mechanisms and proper container storage. These hazards are in addition to the code requirements that address the other hazards of cryogenic fluids such as flammability and toxicity. These other characteristics are dealt with in Chapter 50 and other chapters, such as Chapter 58 dealing with flammable gases. Cryogens are hazardous because they are held at extremely low temperatures and high pressures. Many cryogenic fluids, however, are actually inert gases and would not be regulated elsewhere in this code. Cryogens are used for many applications but specifically have had widespread use in the biomedical field and in space programs. As with other chapters of the *International Fire Code*, Section 5502 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 56 Explosives and Fireworks.** This chapter prescribes minimum requirements for the safe manufacture, storage, handling and use of explosives, ammunition and blasting agents for commercial and industrial occupancies. These provisions are intended to protect the general public, emergency responders and individuals who handle explosives. Chapter 56 also regulates the manufacturing, retail sale, display and wholesale distribution of fireworks, establishing the requirements for obtaining approval to manufacture, store, sell, discharge or conduct a public display, and references national standards for regulations governing manufacture, storage and public displays. As with other chapters of the *International Fire Code*, Section 5602 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 57 Flammable and Combustible Liquids.** The requirements of this chapter are intended to reduce the likelihood of fires involving the storage, handling, use or transportation of flammable and combustible liquids. Adherence to these practices may also limit damage in the event of an accidental fire involving these materials. These liquids are used for fuel, lubricants, cleaners, solvents, medicine and even drinking. The danger associated with flammable and combustible liquids is that the vapors from these liquids, when combined with air in their flammable range, will burn or explode at temperatures near normal living and working environment. The protection provided by this code is to prevent the flammable and combustible liquids from being ignited. As

with other chapters of the *International Fire Code*, Section 5702 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 58 Flammable Gases and Flammable Cryogenic Fluids.** Chapter 58 sets requirements for the storage and use of flammable gases. For safety purposes, there is a limit on the quantities of flammable gas allowed per control area. Exceeding these limitations increases the possibility of damage to both property and individuals. The principal hazard posed by flammable gas is its ready ignitability, or even explosivity, when mixed with air in the proper proportions. Consequently, occupancies storing or handling large quantities of flammable gas are classified as Group H-2 (high hazard) by the *International Building Code*. As with other chapters of the *International Fire Code*, Section 5802 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 59 Flammable Solids.** This chapter addresses general requirements for storage and handling of flammable solids, especially magnesium; however, it is important to note that several other solid materials, primarily metals including, but not limited to, titanium, zirconium, hafnium, calcium, zinc, sodium, lithium, potassium, sodium/potassium alloys, uranium, thorium and plutonium, can be explosion hazards under the right conditions. Some of these metals are almost exclusively laboratory materials but because of where they are used, fire service personnel must be trained to handle emergency situations. Because uranium, thorium and plutonium are also radioactive materials, they present still more specialized problems for fire service personnel. As with other chapters of the *International Fire Code*, Section 5902 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 60 Highly Toxic and Toxic Materials.** The main purpose of this chapter is to protect occupants, emergency responders and those in the immediate area of the building and facility from short-term, acute hazards associated with a release or general exposure to toxic and highly toxic materials. This chapter deals with all three states of toxic and highly toxic materials: solids, liquids and gases. This code does not address long-term exposure effects of these materials, which are addressed by agencies such as the Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA). As with other chapters of the *International Fire Code*, Section 6002 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 61 Liquefied Petroleum Gases.** Chapter 61 establishes requirements for the safe handling, storing and use of LP-gas to reduce the possibility of damage to containers, accidental releases of LP-gas and exposure of flammable concentrations of LP-gas to ignition sources. LP-gas (notably propane) is well known as a camping fuel for cooking, lighting, heating and refrigerating and also remains a popular standby fuel supply for auxiliary generators as well as being widely used as an alternative motor vehicle fuel. Its characteristic as a clean-burning fuel has resulted in the addition of propane dispensers to service stations throughout the country. As with other chapters of the *International Fire Code*, Section 6102 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 62 Organic Peroxides.** This chapter addresses the hazards associated with the storage, handling and use of organic peroxides and intends to manage the fire and oxidation hazards of organic peroxides by preventing their uncontrolled release. These chemicals possess the characteristics of flammable or combustible liquids and are also strong oxidizers. This unusual combination of properties requires special storage and handling precautions to prevent uncontrolled release, contamination, hazardous chemical reactions, fires or explosions. The requirements of this chapter pertain to industrial applications in which significant quantities of organic peroxides are stored or used; however, smaller quantities of organic peroxides still pose a significant hazard and, therefore, must be stored and used in accordance with the applicable provisions of this chapter and Chapter 50. As with other chapters of the *International Fire Code*, Section 6202 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 63 Oxidizers, Oxidizing Gases and Oxidizing Cryogenic Fluids.** Chapter 63 addresses the hazards associated with solid, liquid, gaseous and cryogenic fluid oxidizing materials, including oxygen in home use, and establishes criteria for their safe storage and protection in indoor and outdoor storage facilities, minimizing the potential for uncontrolled releases and contact with fuel sources. Although oxidizers themselves do not burn, they pose unique fire hazards because of their ability to support combustion by breaking down and giving off oxygen. As with other chapters

of the *International Fire Code*, Section 6302 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 64 Pyrophoric Materials.** This chapter regulates the hazards associated with pyrophoric materials, which are capable of spontaneously igniting in the air at or below a temperature of 130°F (54°C). Many pyrophoric materials also pose severe flammability or reactivity hazards. This chapter addresses only the hazards associated with pyrophoric materials. Materials that pose multiple hazards must conform to the requirements of the code with respect to all hazards. As with other chapters of the *International Fire Code*, Section 6402 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 65 Pyroxylin (Cellulose Nitrate) Plastics.** This chapter addresses the significant hazards associated with pyroxylin (cellulose nitrate) plastics, which are the most dangerous and unstable of all plastic compounds. The chemically bound oxygen in their structure permits them to burn vigorously in the absence of atmospheric oxygen at a rate 15 times greater than comparable common combustibles. Strict compliance with the provisions of this chapter, along with proper housekeeping and storage arrangements, helps to reduce the hazards associated with pyroxylin (cellulose nitrate) plastics in a fire or other emergencies.

**Chapter 66 Unstable (Reactive) Materials.** This chapter addresses the hazards of unstable (reactive) liquid and solid materials as well as unstable (reactive) compressed gases. In addition to their unstable reactivity, these materials may pose other hazards, such as toxicity, corrosivity, explosivity, flammability or oxidizing potential. This chapter, however, intends to address those materials whose primary hazard is unstable reactivity. Materials that pose multiple hazards must conform to the requirements of the code with respect to all hazards. Strict compliance with the provisions of this chapter, along with proper housekeeping and storage arrangements, help reduce the exposure hazards associated with unstable (reactive) materials in a fire or other emergency. As with other chapters of the *International Fire Code*, Section 6602 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 67 Water-reactive Solids and Liquids.** This chapter addresses the hazards associated with water-reactive materials that are solid or liquid at normal temperatures and pressures. In addition to their water reactivity, these materials may pose a wide range of other hazards, such as toxicity, flammability, corrosiveness or oxidizing potential. This chapter addresses only those materials whose primary hazard is water reactivity. Materials that pose multiple hazards must conform to the requirements of the code with respect to all hazards. Strict compliance with the requirements of this chapter, along with proper housekeeping and storage arrangements, helps to reduce the exposure hazards associated with water-reactive materials in a fire or other emergency. As with other chapters of the *International Fire Code*, Section 6702 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapters 68 through 79.** Reserved for future use.

## **PART VI—REFERENCED STANDARDS**

**Chapter 80 Referenced Standards.** This code contains several references to standards that are used to regulate materials and methods of construction. Chapter 80 contains a comprehensive list of all standards that are referenced in this code. The standards are part of the code to the extent of the reference to the standard (see Section 102.7). Compliance with the referenced standard is necessary for compliance with this code. By providing specifically adopted standards, the construction and installation requirements necessary for compliance with this code can be readily determined. The basis for code compliance is, therefore, established and available on an equal basis to the code official, contractor, designer and owner.

Chapter 80 is organized in a manner that makes it easy to locate specific standards. It lists all of the referenced standards alphabetically by acronym of the promulgating agency of the standard. Each agency's standards are then listed in either alphabetical or numeric order based upon the standard identification. The list also contains the title of the standard; the edition (date) of the standard referenced; any addenda included as part of the ICC adoption; and the section or sections of this code that reference the standard.

## **PART VII—APPENDICES**

**Appendix A Board of Appeals.** This appendix contains optional criteria that, when adopted, provide jurisdictions with detailed appeals, board member qualifications and administrative procedures to supplement the basic requirements found in Section 108 of this code. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix B Fire-flow Requirements for Buildings.** This appendix provides a tool for the use of jurisdictions in establishing a policy for determining fire-flow requirements in accordance with Section 507.3. The determination of required fire flow is not an exact science, but having some level of information provides a consistent way of choosing the appropriate fire flow for buildings throughout a jurisdiction. The primary tool used in this appendix is a table that presents fire flow based on construction type and building area based on the correlation of the Insurance Services Office (ISO) method and the construction types used in the *International Building Code*. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix C Fire Hydrant Locations and Distribution.** This appendix focuses on the location and spacing of fire hydrants, which is important to the success of fire-fighting operations. The difficulty with determining the spacing of fire hydrants is that every situation is unique and has unique challenges. Finding one methodology for determining hydrant spacing is difficult. This particular appendix gives one methodology based on the required fire flow that fire departments can work with to set a policy for hydrant distribution around new buildings and facilities in conjunction with Section 507.5. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix D Fire Apparatus Access Roads.** This appendix contains more detailed elements for use with the basic access requirements found in Section 503, which gives some minimum criteria, such as a maximum length of 150 feet and a minimum width of 20 feet, but in many cases does not state specific criteria. This appendix, like Appendices B and C, is a tool for jurisdictions looking for guidance in establishing access requirements and includes criteria for multiple-family residential developments, large one- and two-family subdivisions, specific examples for various types of turn-arounds for fire department apparatus and parking regulatory signage. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix E Hazard Categories.** This appendix contains guidance for designers, engineers, architects, code officials, plans reviewers and inspectors in the classifying of hazardous materials so that proposed designs can be evaluated intelligently and accurately. The descriptive materials and explanations of hazardous materials and how to report and evaluate them on a Material Safety Data Sheet (MSDS) are intended to be instructional as well as informative. Note that this appendix is for information purposes and is not intended for adoption.

**Appendix F Hazard Ranking.** The information in this appendix is intended to be a companion to the specific requirements of Chapters 51 through 67, which regulate the storage, handling and use of all hazardous materials classified as either physical or health hazards. These materials pose diverse hazards, including instability, reactivity, flammability, oxidizing potential or toxicity; therefore, identifying them by hazard ranking is essential. This appendix lists the various hazardous materials categories that are defined in this code, along with the NFPA 704 hazard ranking for each. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix G Cryogenic Fluids—Weight and Volume Equivalents.** This appendix gives the fire code official and design professional a ready reference tool for the conversion of the liquid weight and volume of cryogenic fluid to their corresponding volume of gas and vice versa and is a companion to the provisions of Chapter 55 of this code. Note that this appendix is for information purposes and is not intended for adoption.

**Appendix H Hazardous Materials Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) Instructions.** This appendix is intended to assist businesses in establishing a Hazardous Materials Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) based on the classification and quantities of materials that would be found on-site, in storage or in use. The sample forms and available Safety Data Sheets (SDS) provide the basis for the evaluations. It is also a companion to IFC Sections 407.5 and 407.6, which provide the requirement that the HMIS and HMMP be submitted when required by the fire code official. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix I Fire Protection Systems—Noncompliant Conditions.** The purpose of this appendix, which was developed by the ICC Hazard Abatement in Existing Buildings Committee, is to provide the fire code official with a list of conditions that are readily identifiable by the inspector during the course of an inspection utilizing the *International Fire Code*. The specific conditions identified in this appendix are primarily derived from applicable NFPA standards and pose a hazard to the proper operation of the respective systems. While these do not represent all of the conditions that pose a hazard or otherwise may impair the proper operation of fire protection systems, their identification in this adoptable appendix will provide a more direct path for enforcement by the fire code official. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix J Building Information Sign.** This appendix provides design, installation and maintenance requirements for a Building Information Sign (BIS), a fire service tool to be utilized in the crucial, initial response of fire fighters to a structure fire. The BIS placard is designed to be utilized within the initial response time frame of an incident to assist fire fighters in their tactical size-up of a situation as soon as possible after arrival on the scene of a fire emergency. The BIS design is in the shape of a fire service Maltese Cross and includes five spaces (the four wings plus the centerpiece of the cross symbol) in which information is placed about the tactical considerations of construction type and hourly rating, fire protection systems, occupancy type, content hazards and special features that could affect tactical decisions and operations. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix K Construction Requirements for Existing Ambulatory Care Facilities.** This appendix was created by the ICC Ad Hoc Committee on Healthcare (AHC) and its intent is to provide jurisdictions with an option for assessing minimum fire and life safety requirements for buildings containing ambulatory care facilities. While this appendix is written with the intent to apply retroactive minimum standards, the AHC recognized that the ambulatory care requirements are relatively recent additions to the *International Building Code*. For that reason, these requirements are presented as an appendix so that the adopting authority can exercise judgment in the adoption and application of this section. This appendix would also be useful for those local and state jurisdictions that are specifically focused on ensuring the safety for existing ambulatory care facilities by providing minimum criteria that could be used to bring older facilities into compliance with the current standards at the discretion of the adopting jurisdiction. The technical requirements are based on the current IBC language, which is consistent with the overall concept of the current federal requirements. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix L Requirements for Fire Fighter Air Replenishment Systems.** This appendix provides for the design, installation and maintenance of permanently installed fire fighter breathing air systems in buildings designated by the jurisdiction. Breathing air is critical for fire-fighting operations. Historically, fire departments have supplied air bottles by means of a “bottle brigade,” whereby fire fighters manually transport air bottles up stairways, which is an extraordinarily fire fighter-intensive process and takes fire fighters away from their primary mission of rescue and fire fighting. Technology now exists to address the issue using in-building air supply systems. Fire fighter breathing air systems were introduced in the late 1980s and are now required in a number of communities throughout the United States. The system has been called a “standpipe for air” and consists of stainless steel, high-pressure piping that is supplied by on-site air storage or fire department air supply units. Air filling stations are then strategically located throughout the building allowing fire fighters to refill breathing air cylinders inside the fire building, negating the required “bottle brigade,” and making more fire fighters available for search, rescue and fire suppression operations. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix M High-rise Buildings—Retroactive Automatic Sprinkler Requirement.** This appendix was created with the intent to provide an option for adoption by jurisdictions that choose to require existing high-rise buildings to be retrofitted with automatic sprinklers. Modern fire and building codes require complete automatic fire sprinkler protection and a variety of other safety features in new high-rise construction. Many older high-rise buildings lack automatic sprinkler protection and other basic fire protection features necessary to protect the occupants, emergency responders and the structure itself. Without complete automatic sprinkler protection, fire departments cannot provide the level of protection that high-rise buildings demand. Existing high-rise buildings that are not protected with automatic sprinklers represent a significant hazard to occupants and fire fighters, and can significantly impact a community's infrastructure and economic viability in the event of a fire loss. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix N Indoor Trade Shows and Exhibitions.** This appendix was created to address the hazards that are associated with larger, more complex trade shows and exhibitions. Although many of these requirements are already included in various locations in this code, some of the more important items, such as requirements for covered booths and multiple-story booths, are not. The intent is to have the requirements covering these events in a single location. The provisions are essentially a series of pointers to other locations within this code. This assists those organizing exhibitions and individual exhibitors unfamiliar with the fire code. The appendix can be adopted by jurisdictions looking for specific regulations on this subject or used as a guide where it is not. Note that the provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

**Appendix O Fires or Barbecues on Balconies or Patios.** This optional appendix has requirements for grills or any other open flame on balconies or patios of apartment buildings containing three or more dwelling units.

**Appendix P Emergency Responder Radio Coverage.** This optional appendix has requirements for emergency responder radio coverage in new and existing buildings. This was part of the model code, but moved to an optional appendix for communities to adopt as is or as the basis for their own rules.

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