

# **Houston Amendments to the *2015 International Fire Code***



**Adopted by Ord. No. 2021-1037<sup>1</sup>**

**Passed December 1, 2021<sup>2</sup>**

**Effective April 1, 2022<sup>3</sup>**

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1. The City Secretary shall insert the number of the adopting ordinance.
  2. The City Secretary shall insert the date passage and approval of the adopting ordinance.
  3. The City Secretary shall insert the effective date of the adopting ordinance.



# CHAPTER 1

## SCOPE AND ADMINISTRATION

**[A] 101.1 Title.** These regulations shall be known as the *City of Houston Fire Code* of [NAME OF JURISDICTION], hereinafter referred to as “this code,” and also known as the *Fire Code*.

The *Construction Code* collectively includes this volume and certain other codes, pamphlets, specifications and documents that are adopted in or by reference through the adopting ordinance, City of Houston Ordinance No. 2021-1037<sup>4</sup>.

**[A] 101.2.1 Appendices.** Provisions in the appendices shall not apply unless specifically adopted. Appendices A, B, C, D, E, F, G, H, I, J and M are hereby adopted and made part of this code.

**[A] 101.3 Intent.** The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures and premises, and to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations. The provisions of this code shall not apply to any activity for which local regulation is preempted by federal or state law.

**[A] 101.3.1 Landlord/tenant.** The terms of this code shall not be construed to alter the terms of any lease or other agreement between landlord and tenant or others relating to property that is the subject of this code; provided that no provision of any lease or other agreement shall be construed to excuse compliance with this code by any person, including the construction, maintenance, occupancy, or use of any property in violation of this code. It is the intent of this code to identify the parties this jurisdiction will hold responsible for compliance with and violations of this code, rather than to determine the rights and liabilities of persons under agreements to which this jurisdiction is not a party.

**[A] 101.6 Standards.** Copies of the Houston Fire Department Life Safety Bureau Standards that are referred to in this code have been placed on file in the city secretary's Office in connection with the code's adoption and shall constitute a part of this code. The standards may be inspected in the city secretary's Office or the Office of the Fire Prevention Bureau, and copies may be purchased at the fees prescribed by law.

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

1. Conditions and operations arising after the adoption of this code.
2. Existing conditions and operations not legally in existence at the time of adoption of this code.
3. Conditions that, in the opinion of the *fire code official*, constitute a distinct hazard to life or property.

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4. The City Secretary shall insert the number of the adopting ordinance.

This section shall be construed in a manner that is consistent with the *Existing Building Code*, Sections 102 and 110 of this code, and City of Houston Ordinance No. 78-2672.

**[A] 102.2.1 Existing and annexed buildings.** Buildings or structures in existence at the time of the adoption of this code may have their existing use or occupancy continued if the buildings or structures comply with the standards established in Chapter 10, Article IX, of the *City Code*, Section 102.6 of the *Building Code*, and the *Existing Building Code*. Determination of compliance shall be under the primary jurisdiction of the building official. Whenever the *fire code official* determines, pursuant to inspection of such a building or structure, that there exists therein a fire hazard that causes the building or structure to be dangerous to life, the *fire code official* shall initiate proceedings under Chapter 10, Article VIII, of the *City Code*, including the placarding of buildings as authorized therein. The *fire code official* shall notify the neighborhood protection official, and if the building official determines that the building or structure constitutes a dangerous building as defined in Chapter 10, Article IX, of the *City Code*, then the building official shall initiate dangerous building abatement proceedings before the hearing official or the Building and Standards Commission under the applicable provisions of Chapter 10 of the *City Code*.

**[A] 102.10 Conflicting provisions.** Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall prevail ~~be applicable~~. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where, in any specific instance, provisions of this code, including appendices and standards, specify different materials, different methods of construction, or other requirements that differ from those provided in the *City Code* or other volumes of the *Construction Code*, including adopted appendices, and the *building official* and the fire marshal are unable to mutually reconcile the requirements by issuing a written interpretation, then either of them may refer the matter to the General Appeals Board created under the *Building Code*, which shall conduct a review of the matter and issue a written code interpretation based upon the apparent intent of the codes involved. Notwithstanding any other provision, interpretations that are issued by the General Appeals board shall not be subject to any further appeal.

**[A] 103.1 General.** The department of fire prevention *Life Safety and Fire Prevention Bureau* of the Houston Fire Department is established within the jurisdiction under the direction of the *fire code official*. The function of ~~the department~~ this bureau shall be the implementation, administration and enforcement of the provisions of this code.

**[A] 103.2 Appointment.** The *fire code official* shall be appointed by the chief appointing authority of the fire department of the jurisdiction; and the *fire code official* shall not be removed from office except for cause and after full opportunity to be heard on specific and relevant charges by and before the appointing authority.

**[A] 103.3 Deputies.** In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the *fire code official* shall have the authority to appoint a deputy *fire code official*, other related technical officers, inspectors and other employees.

**[A] 103.34 Liability.** The *fire code official*, member of the board of appeals, officer or employee charged with the enforcement of this code, while acting for the jurisdiction, in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of

~~an act or by reason of an act or omission in the discharge of official duties. Except as otherwise provided by law, the *fire code official* shall not personally be liable in damages for any act or omission arising out of any official action taken to implement and enforce the provisions of this code. Additionally, except as otherwise provided by law, the *fire code official* shall not personally be liable in damages for any act or omission taken in the course and scope of employment. Where and to the extent consistent with the provisions of Chapter 2, Article X of the *City Code*, this jurisdiction shall provide legal representation and indemnification for any suit or claim brought against the *fire code official* or any deputies because of acts or omissions performed in the implementation or enforcement of this code.~~

This code shall not be construed to relieve from or lessen the responsibility of any person owning, operating, or controlling any building, structure or system or any other construction for any damages to persons or property caused by defects, nor shall the Houston Fire Department Life Safety Bureau or the jurisdiction be held as assuming any such liability by reason of the inspections authorized by this code or any permits or certificates issued under this code.

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

**[A] 104.1 General.** The Consistent with the provisions of this code, the *fire code official* is hereby authorized to enforce the provisions of this code and shall have the authority to render interpretations of this code, and to adopt policies, procedures, rules and regulations standards in order to clarify the application of its provisions. Such interpretations, policies, procedures, rules and regulations standards shall be in compliance with the intent and purpose of this code and shall not have the effect of waiving requirements specifically provided for in this code. A certified copy of the standards shall be filed with the city secretary and additional copies shall be kept in the office of the Fire Prevention Bureau for inspection by the public. Copies shall be furnished at the fees provided by law.

The *fire code official* is authorized to enforce all ordinances of the jurisdiction and laws of the state pertaining to:

1. The prevention of fires;
2. The suppression or extinguishing of dangerous or hazardous fires;
3. The storage, use and handling of hazardous materials;
4. The installation and maintenance of automatic, manual and other private fire alarm systems and fire extinguishing equipment;
5. The maintenance and regulation of fire escapes;
6. The maintenance of fire protection and the elimination of fire hazards on land and in buildings, structures and other property including those under construction;
7. The means, adequacy and maintenance of egress;

8. The investigation of the cause, origin and circumstances of fire and unauthorized releases of hazardous materials;
9. The posting of accurate certificates of occupancy and life safety certificates where required by the *Building Code*; and
10. The conducting of fire safety campaigns.

**[A] 104.1.1 Standards.** Throughout this code, the *fire code official* is authorized to grant approvals or permissions, promulgate standards, impose requirements, or exercise similar discretionary authorization over materials, personnel, activities or procedures; however, no specific standards or decision-making criteria are stated. It is intended that discretionary authorization be administered in a uniform manner, that authorizations not be unreasonably withheld, and that rules and standards be based upon the preservation of the public health, safety and welfare. The *fire code official* shall be guided by accepted principles of fire safety and shall look to this code and any standards that are adopted herein by reference for guidance. If an individual authorization is denied, the person requesting the authorization shall be advised of the reasons in writing and shall be entitled to a review of the decision by appeal to the Board of Appeals.

**[A] 104.5 Notices and orders.** ~~The As may be required to enforce this code, the *fire code official* is authorized to issue and to serve such notices, or orders, and criminal citations, as well as administrative citations or summonses in the manner prescribed by Chapter 10, Article XVIII, of the *City Code* as are required to affect compliance with this code in accordance with Sections 109.1 and 109.2.~~

**[A] 104.10.1 Assistance from other agencies.** Police and other enforcement agencies shall have authority to render necessary assistance in the investigation of fires and in enforcing the provisions of this code when requested to do so by the *fire code official*.

**[A] 105.1.1 Permits required.** ~~A property owner or owner's authorized agent who intends to conduct an operation or business, or install or modify systems and equipment that are regulated by this code, or to cause any such work to be performed, shall first make application to the *fire code official* and obtain the required permit. Permits required by this code shall be obtained from the Fire Permit Office. The property owner or authorized agent shall obtain a permit prior to engaging in any activities, operations, practices, or functions regulated by this code and requiring a permit as listed in Section 105.6, and shall pay permit fees, as required, prior to receiving issuance of the permit. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the *fire code official*. It shall be unlawful for any person to engage in any activities, operations, practices or functions listed in Section 105.6 for any reason without holding a current and valid permit for the activity, operation, practice or function as issued by the Fire Permit Office.~~

**[A] 105.1.2 Types of permits.** There shall be two types of permits as follows:

1. Operational permit, issued by the Fire Department. An operational permit allows the applicant to conduct an operation or a business for which a permit is required by Section 105.6 for either:
  - 1.1. A prescribed period.

- 1.2. Until renewed or revoked.
2. Construction permit, issued by the *building official* in accordance with the *Building Code*. A construction permit allows the applicant to install or modify systems and equipment for which a permit is required by and in accordance with the *Building Code* Section 105.7.

**[A] 105.2.2 Inspection authorized.** Before a new operational permit is *approved*, the *fire code official* is authorized, but not required, to inspect the receptacles, vehicles, buildings, devices, premises, storage spaces or areas to be used to determine compliance with this code or any operational constraints required. In instances where laws or regulations are enforceable by departments of the jurisdiction other than the fire department, joint approval shall be obtained from all departments concerned.

**[A] 105.2.3 Time limitation of application.** An application for which no permit is issued within 180 days following the date of application shall become inactive, and plans and other data submitted for review thereafter shall be returned to the applicant or destroyed by the *fire code official*. The *fire code official* is authorized to grant one or more extensions of time for additional periods not to exceed 180 days each, for a maximum of two years from the date of the original application, upon written request and justifiable cause demonstrated by the applicant. If an application for permit does not result in a permit within two years after the date of original application, the permit application shall expire. In order to renew action on an application after expiration, the applicant shall submit a new permit application and plans and shall pay a new plan review fee. ~~An application for a permit for any proposed work or operation shall be deemed to have been inactive on the abandoned 180 days after the date of filing, unless such application has been diligently prosecuted or a permit shall have been issued; except that the *fire code official* is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated.~~

**[A] 105.3.1 Expiration.** An operational permit shall remain in effect until reissued, renewed, or revoked or for such a period of time as specified in the permit. ~~Construction permits shall automatically become invalid unless the work authorized by such permit is commenced within 180 days after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. Before such work recommences, a new permit shall be first obtained and the fee to recommence work, if any, shall be one-half the amount required for a new permit for such work, provided that changes have not been made and will not be made in the original construction documents for such work, and provided further that such suspension or abandonment has not exceeded one year. Permits are not transferable and any change in occupancy, operation, tenancy or ownership shall require that a new permit be issued.~~

**[A] 105.3.3 Occupancy prohibited before approval.** The building or structure shall not be occupied prior to the ~~*fire code*~~ *building official* issuing a permit ~~and conducting associated inspections indicating the applicable provisions of this code have been met~~ certificate of occupancy in accordance with the *Building Code* and the *Residential Code*.

**Exceptions:**

1. The building official is authorized to issue a temporary certificate of occupancy in accordance with the *Building Code* and the *Residential Code*.
2. The *fire code official*, with the joint approval of the building official, is authorized to permit the temporary occupancy of a building, or portion thereof, when standby personnel are provided in accordance with Section 114.

**[A] 105.3.8 Validity of permit.** The issuance or granting of a *permit* or approval of plans and specifications shall not be construed to be a *permit* for, or an approval of, any violation of any of the provisions of this code or of any other applicable laws, or any other ordinances of the *jurisdiction*. *Permits* presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid.

The issuance of a *permit* based on *construction documents*, operational documents, specifications, and other data shall not prevent the *fire code official* from thereafter requiring the correction of errors in the *construction documents*, operation documents, specifications, and or other data, or from preventing construction, occupancy or use of a structure when in violation of this code or of any other applicable law.

A permit and all its privileges are issued to the owner of the property for which the permit is issued, regardless of who submits the application or pays the permit fees. A permit shall be valid only for the person listed on the application as performing the work and for the scope of work identified on the permit.

A name change on an application or the existing permit must be obtained if the person performing the work listed on the application or existing permit is no longer responsible for the work performed. Provided that a refund has not been issued, the property owner has not changed, and written authority for the name change has been provided by the property owner to the building official and/or *fire code official*, who shall issue an amended permit. A name change fee and an administrative fee shall be charged as provided in Section 118.1 of the *Building Code* and the city fee schedule.

In the case of the death or dissolution of the original property owner or person performing the work listed on the existing permit, pursuant to a timely name change request within 45 calendar days after such death or dissolution, the permit will be transferred to the new property owner or amended to include the name of the new person performing the work at no fee except for the administrative fee established in Section 118.1.1. of the *Building Code* and the city fee schedule. Failure to apply for a name change within the requisite 45 calendar days shall subject the property owner to applicable permit fees established in Section 118 of the *Building Code* and the city fee schedule based on the scope of work for all remaining construction and uninspected work.

**[A] 105.5 Revocation.** ~~The *fire code official* is authorized to revoke a permit issued under the provisions of this code where it is found by inspection or otherwise~~ A permit issued under the provisions of this code may be revoked as provided herein after a hearing conducted by the Section 105 hearing official, if that hearing official finds from a preponderance of evidence cited at such hearing that there has been a false statement or misrepresentation as to the material facts in the application or *construction documents* on which the permit or approval was based, or a



violation of the terms and conditions as set forth in this code, including, but not limited to, any one of the following:

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

**[A] 105.5.1 Notice of hearing.** Not later than 14 days prior to the date set for the revocation hearing by the Section 105 hearing official, the permit holder shall be given a written notice by the fire code official, which shall set forth:

1. The grounds on which the fire code official will seek revocation of the permit;
2. That a hearing has been scheduled thereon before the Section 105 hearing official and the time, date and place of the hearing; and
3. That the permit holder may appear, may be represented by counsel, may present evidence and may cross examine any witness presented by the fire code official.

**[A] 105.5.2 Hearing.** Except for hearings related to orders issued under Section 105.5.3, all hearings under this Section 105 shall be conducted by a Section 105 hearing official. In rendering a decision, the Section 105 hearing official shall consider only the evidence presented at the hearing. A decision of the Section 105 hearing official shall be set forth in writing, copies of which shall be served upon each party in the same manner as the notice of a right to a hearing.

**[A] 105.5.3 Emergency revocation of permit.** If the revocation of a permit issued under this code reasonably appears to be necessary to abate or improve a serious and immediate fire hazard, the fire code official may revoke the permit without prior notice or hearing. In such circumstance, however, the fire code official must provide the permit holder with an opportunity for a post-revocation hearing in the manner prescribed by Chapter 10, Article IX, Division 8, of the City Code.

**[A] 105.6.2 Amusement buildings.** An operational permit is required to operate a special amusement building. Apparatus access, road access-control gates. An operational permit is required to install or maintain an access-control gate on a fire apparatus access road.

**[A] 105.6.5 Carnivals, festivals, trade shows, exhibitions, and fairs.** An operational permit is required to conduct a carnival, festival, trade show, other exhibition, or fair. A site or floor plan showing dimensions and locations of the aisles, cooking booths, LP-gas storage, etc., shall be submitted with the permit application.

**[A] 105.6.12 Cutting and welding.** ~~An operational permit is required to conduct cutting or welding operations within the jurisdiction.~~ See Section 105.6.24.

**[A] 105.6.14 Exhibits and trade shows.** ~~An operational permit is required to operate exhibits and trade shows.~~ See Section 105.6.5.

**[A] 105.6.15 Explosives, fireworks and pyrotechnics.** An operational permit is required for the manufacture, storage, handling, sale or use of any quantity of *explosives, explosive materials*, fireworks or pyrotechnic special effects within the scope of Chapter 56.

**Exception:** Storage in Group R-3 occupancies of smokeless propellant, black powder and small arms primers for personal use, not for resale and in accordance with Section 5606.

**[A] 105.6.16 ~~Fire hydrants and valves.~~ Fire depository, key boxes.** An operational permit is required to install a key box or fire depository box. See Houston Fire Department LSB Standard No. 05, "Key Boxes" and LSB Standard No. 06, "Fire Depository Boxes." ~~An operational permit is required to use or operate fire hydrants or valves intended for fire suppression purposes that are installed on water systems and accessible to a fire apparatus access road that is open to or generally used by the public.~~

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

{EDITORIAL NOTE: TABLE 105.6.21 SHALL REMAIN AS SET FORTH IN THE 2015 IFC, BUT IS NOT ADOPTED BY THIS JURISDICTION.}

**[A] 105.6.22 ~~Reserved.~~ HPM facilities.** ~~An operational permit is required to store, handle or use hazardous production materials.~~

**[A] 105.6.23 High-piled storage.** An operational permit is required to use a building or portion thereof as a *high-piled storage area*, as defined in Chapter 32, exceeding 500-2500 square feet (46-232 m<sup>2</sup>). A floor plan showing the dimensions and locations of the stock piles and aisles shall be submitted with the permit application in accordance with Chapter 32.

**[A] 105.6.24 Hot work operations.** An operational permit is required for hot work including, but not limited to:

1. Public exhibitions and demonstrations where hot work is conducted.
2. Use of portable hot work equipment inside, or for cutting or welding in or on a building or a structure.

**Exception:** Work that is conducted under a construction permit.

3. Fixed-site hot work equipment, such as welding booths.
4. Hot work conducted within a hazardous fire ~~wildfire risk~~ area.
5. Application of roof coverings with the use of an open-flame device.
6. ~~Where approved, the fire code official shall issue a permit to carry out a hot work program. This program allows approved personnel to regulate their facility's hot work operations. The approved personnel shall be trained in the fire safety aspects denoted in this chapter and shall be responsible for issuing permits requiring compliance with the requirements found in Chapter 35. These permits shall be issued only to their employees or hot work operations under their supervision.~~

**[A] 105.6.28 LP-gas.** An operational permit is required for:

1. ~~Storage and use of LP-gas. to install or maintain any LP-gas container of 125 gallons (473 L) aggregate water capacity or more or operate any tank vehicle that is used for the transportation of LP-gas. An operational permit is required to use any amount of LP-gas for demonstrations, public exhibitions, portable heating (excluding R occupancies), temporary commercial cooking or on mobile food units. For a single container with a 500-gallon (1,893 L) water capacity or for one or more containers with an aggregate 2,000 gallons (7,572 L) water capacity or more, the installer shall submit construction documents for the permit. For operational permit requirements for LP-gas storage, handling, or use, see Chapter 61.~~

**Exception:** A permit is not required for individual containers with a 500-gallon (1,893 L) water capacity or less or multiple container systems having an aggregate quantity not exceeding 500 gallons (1,893 L), serving occupancies in Group R-3.

2. ~~Operation of cargo tankers that transport LP-gas.~~

**[A] 105.6.30 Miscellaneous combustible storage.** ~~An operational permit is required to store in any building or upon any premises in excess of 2,500 cubic feet (71 m<sup>3</sup>) gross volume of combustible empty packing cases, boxes, barrels or similar containers, rubber tires, rubber, cork or similar combustible material. An operational permit is required to store more than 50 cubic feet (1.4 m<sup>3</sup>) of uncompacted rubbish or combustible waste.~~

**[A] 105.6.33 Reserved. Open flames and torches.** An operational permit is required to remove paint with a torch; or to use a torch or open flame device in a wildfire risk area.

**[A] 105.6.37 Reserved. Private fire hydrants.** An operational permit is required for the removal from service, use or operation of private fire hydrants.

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

**[A] 105.6.45 Temporary membrane structures, and tents and canopies.** An operational permit is required to operate an air-supported temporary membrane structure, a temporary stage canopy or a tent having an area in excess of 400 1,200 square feet (37 112 m<sup>2</sup>) or more.

**Exceptions:**

4. Tents used exclusively for recreational camping purposes.
2. ~~Tents open on all sides, which comply with all of the following:~~
  - 2.1. ~~Individual tents having a maximum size of 700 square feet (65 m<sup>2</sup>).~~
  - 2.2. ~~The aggregate area of multiple tents placed side by side without a fire break clearance of not less than 12 feet (3,658 mm) shall not exceed 700 square feet (65 m<sup>2</sup>) total.~~
  - 2.3. ~~A minimum clearance of 12 feet (3,658 mm) to structures and other tents shall be provided.~~

**[A] 105.6.49 Asphalt kettles and roof torching operations.** A permit is required in accordance with Sections 303 and Chapters 33 and 35.

**[A] 105.6.50 Battery systems.** A permit is required to install stationary storage battery systems regulated by Section 1206.2.

**[A] 105.6.51 Capacitor energy storage systems.** A construction permit is required to install capacitor energy storage systems regulated by Section 1206.3.

**[A] 105.6.52 Fuel cell power systems.** A construction permit is required to install stationary fuel cell power systems.

**[A] 105.6.53 Gas detection systems.** A construction permit is required for the installation of or modification to gas detection systems. Maintenance performed in accordance with this code is not considered a modification and shall not require a permit.

**TABLE 105.6**  
**SCHEDULE OF FIRE PERMITS**

<b><u>SECTION REFERENCE NUMBER</u></b>	<b><u>PERMIT DESCRIPTION</u></b>	<b><u>AMOUNT OR QUANTITY</u></b>
<u>105.6.1</u>	<u>Aerosol products</u>	<u>Tier 1:</u> <u>Level 2 Aerosols &gt; 500 and &lt; 2,500 lbs.</u> <u>Level 3 Aerosols &gt; 500 and &lt; 1,000 lbs.</u> <u>Combined Level 2 and 3 &gt; 500 and &lt; 2,500 lbs.</u>  <u>Tier 2:</u> <u>Amounts greater than for Tier 1</u>
<u>105.6.2</u>	<u>Apparatus access, road access-control gates</u>	<u>One</u> <u>Two or more</u>

<b><u>SECTION REFERENCE NUMBER</u></b>	<b><u>PERMIT DESCRIPTION</u></b>	<b><u>AMOUNT OR QUANTITY</u></b>
<u>105.6.3</u>	<u>Aviation facilities</u>	<u>Aircraft refueling vehicles:</u> <u>First one</u> <u>Each additional</u> <u>Maximum</u> <u>Aircraft service or repair occupancy</u>
<u>105.6.4</u>	<u>Carbon dioxide systems used in beverage dispensing applications</u>	
<u>105.6.5</u>	<u>Carnivals, festivals, trade show exhibitions and fairs</u>	
<u>105.6.6</u>	<u>Cellulose nitrate film</u>	
<u>105.6.7</u>	<u>Combustible dust- producing operations</u>	
<u>105.6.8</u>	<u>Combustible fibers</u>	<u>Tier 1:</u> <u>Loose fiber storage &gt; 100 and &lt; 500 cu. ft.</u> <u>Baled fiber storage &gt; 100 and &lt; 1,000 cu. ft.</u>  <u>Tier 2:</u> <u>Amounts greater than for Tier 1</u>
<u>105.6.9</u>	<u>Compressed gases</u>	<u>Tier 1:</u> <u>Corrosive: &gt; 200 cu. ft. and ≤ 1,620 cu. ft. at NTP</u> <u>Flammable (excluding cryogenic and LPG):</u> <u>&gt; 200 cu. ft. and ≤ 2,000 cu. ft. at NTP</u> <u>Highly toxic: up to 40 cu. ft. at NTP</u> <u>Inert &amp; simple asphyxiant: no limit &gt; 6,000 cu. ft.</u> <u>at NTP (no limit, always Tier 1)</u> <u>Oxidizing (including oxygen): &gt; 504 cu. ft. and ≤</u> <u>3,000 cu. ft. at NTP</u> <u>Pyrophoric &gt; 100 cu. ft. at NTP</u> <u>Toxic: up to 1,620 cu. ft. at NTP</u>  <u>Tier 2:</u> <u>Amounts greater than for Tier 1</u>
<u>105.6.10</u>	<u>Covered and open mall buildings</u>	<u>Includes partial cost of Life Safety Inspection</u>
<u>105.6.11</u>	<u>Cryogenic fluids</u>	<u>Tier 1: Flammable:</u> <u>&gt; 1 gal. and ≤ 90 gal. (inside bldg).</u> <u>&gt; 60 gal. and ≤ 90 gal. (outside bldg.)</u> <u>Inert:</u> <u>&gt; 60 gal. (inside bldg.) no limit, always Tier 1</u> <u>&gt; 500 gal. (outside bldg.) no limit, always Tier 1</u> <u>Oxidizing (includes oxygen):</u> <u>&gt; 10 gal. and ≤ 90 gal. (inside bldg.)</u>

<u>SECTION REFERENCE NUMBER</u>	<u>PERMIT DESCRIPTION</u>	<u>AMOUNT OR QUANTITY</u>
		<u>&gt; 50 gal. and ≤90 gal. (outside bldg.)</u> <u>Physical or health hazard not included above: no limit, always Tier 1</u>  <u>Tier 2:</u> <u>Amounts greater than for Tier 1</u>
<u>105.6.12</u>	<u>Cutting and welding</u>	
<u>105.6.13</u>	<u>Dry cleaning</u>	
<u>105.6.14</u>	<u>Exhibits and trade shows</u>	
<u>105.6.15</u>	<u>Explosives, fireworks, and pyrotechnics</u>	
<u>105.6.16</u>	<u>Fire depository, key boxes</u>	<u>One</u> <u>Two or more</u>
<u>105.6.17</u>	<u>Flammable and combustible liquids</u>	<u>Parts 1-5, 7, 8: Tier 1</u> <u>Class IA:</u> <u>&gt; 5 gal. and ≤ 60 gal. (inside bldg.)</u> <u>&gt; 10 gal. and ≤ 60 gal. (outside bldg.)</u> <u>Class IB:</u> <u>&gt; 5 gal. and ≤ 120 gal. (inside bldg.)</u> <u>&gt; 10 gal. and ≤ 120 gal. (outside bldg.)</u> <u>Class IC:</u> <u>&gt; 5 gal. and ≤ 180 gal. (inside bldg.)</u> <u>&gt; 10 gal. and ≤ 180 gal. (outside bldg.)</u> <u>Class IA, IB, or IC combined amounts:</u> <u>&gt; 5 gal. and ≤ 240 gal. (inside bldg.)</u> <u>&gt; 10 gal. and ≤ 240 gal. (outside bldg.)</u> <u>Class II:</u> <u>&gt; 25 gal. and ≤ 240 gal. (inside bldg.)</u> <u>&gt; 60 gal. and ≤ 240 gal. (outside bldg.)</u> <u>Class IIIA:</u> <u>&gt; 25 gal. and ≤ 660 gal. (inside bldg.)</u> <u>&gt; 60 gal. and ≤ 660 gal. (outside bldg.)</u> <u>Class IIIB:</u> <u>&gt; 60 gal. no limit; always Tier 1 (in a tank or vessel)</u>  <u>Parts 1-5, 7, 8: Tier 2</u> <u>Amounts greater than for Tier 1</u>  <u>Part 6: Tank removal, installation, disposal or abandonment</u> <u>One</u> <u>Two</u> <u>Three or more</u>
<u>105.6.18</u>	<u>Floor finishing</u>	

<u>SECTION REFERENCE NUMBER</u>	<u>PERMIT DESCRIPTION</u>	<u>AMOUNT OR QUANTITY</u>
<u>105.6.19</u>	<u>Fruit and crop ripening</u>	
<u>105.6.20</u>	<u>Fumigation and thermal insecticidal fogging</u>	
<u>105.6.21</u>	<u>Hazardous materials</u>	<p><u>Tier 1:</u></p> <p><u>Corrosive liquid &gt; 55 gal. and ≤ 1,000 gal.</u></p> <p><u>Corrosive solid &gt; 1,000 lbs. and ≤ 10,000 lbs.</u></p> <p><u>Flammable solids &gt; 100 lbs. and ≤ 250 lbs.</u></p> <p><u>Highly toxic liquids or solids up to 20 lbs.</u></p> <p><u>Oxidizing material, Class 1:</u></p> <p><u>Liquids &gt; 55 gal. and ≤ 8,000 lbs.</u></p> <p><u>Solids &gt; 500 lbs. and ≤ 8,000 lbs.</u></p> <p><u>Oxidizing material, Class 2:</u></p> <p><u>Liquids &gt; 10 gal. and ≤ 500 lbs.</u></p> <p><u>Solids &gt; 100 lbs. and ≤ 500lbs.</u></p> <p><u>Oxidizing material liquid or solid, Class 3:</u></p> <p><u>Liquids &gt; 1 gal. and ≤ 20 lbs.</u></p> <p><u>Solids &gt; 10 lbs. and ≤ 20 lbs.</u></p> <p><u>Oxidizing material, liquid or solid, Class 4: up to</u> <u>2 lbs.</u></p> <p><u>Organic peroxides, liquid or solid, Class 1: up to</u> <u>10 lbs.</u></p> <p><u>Organic peroxides, liquid or solid, Class 2: up to</u> <u>100 lbs.</u></p> <p><u>Organic peroxides, Class 3:</u></p> <p><u>Liquid &gt; 1 gal. and ≤ 250 lbs.</u></p> <p><u>Solid &gt; 10 lbs. and ≤ 250 lbs.</u></p> <p><u>Organic peroxides, Class 4:</u></p> <p><u>2 gal. or 20 lbs. or more (no limit, always Tier</u> <u>1)</u></p> <p><u>Pyrophoric gases: up to 100 cu. ft.</u></p> <p><u>Pyrophoric liquid or solid: up to 8 lbs.</u></p> <p><u>Toxic liquid: &gt; 10 gal. and ≤ 1,000 lbs.</u></p> <p><u>Toxic solid: &gt;100 lbs. and ≤ 1,000 lbs.</u></p> <p><u>Unstable reactive, gas, Class 1: no limit (no limit,</u> <u>always Tier 1)</u></p> <p><u>Unstable reactive, gas, Class 2: up to 500 cu. ft.</u></p> <p><u>Unstable reactive, gas, Class 3: up to 100 cu. ft.</u></p> <p><u>Unstable reactive, gas, Class 4: up to 20 cu. ft.</u></p> <p><u>Unstable reactive, liquid &amp; solid, Class 1:&gt; 10</u> <u>gal. or 100 lbs. (no limit, always Tier 1)</u></p> <p><u>Unstable reactive, Class 2:</u></p> <p><u>Liquid &gt; 5 gal. and ≤100 lbs.</u></p> <p><u>Solid &gt; 50 lbs. and ≤ 100 lbs.</u></p> <p><u>Unstable reactive, liquid &amp; solid, Class 3: up to</u> <u>10 lbs.</u></p>

<u>SECTION REFERENCE NUMBER</u>	<u>PERMIT DESCRIPTION</u>	<u>AMOUNT OR QUANTITY</u>
		<u>Unstable reactive, liquid &amp; solid, Class 4: up to 2 lbs.</u> <u>Water reactive, liquid &amp; solid, Class 1: &gt; 55 gal. or 500 lbs. (no limit, always Tier 1)</u> <u>Water reactive, Class 2:</u> <u>Liquid &gt; 5 gal. and ≤ 100 lbs.</u> <u>Solid &gt; 50 lbs. and ≤ 100 lbs.</u> <u>Water reactive, liquid &amp; solid, Class 3: up to 10 lbs.</u>  <u>Tier 2</u> <u>Amounts greater than for Tier 1</u> <u>Organic peroxides, liquid or solid, unclassified detonable</u>
<u>105.6.22</u>	<u>Reserved</u>	
<u>105.6.23</u>	<u>High-piled storage</u>	<u>Level 1: 2,500 - 20,000 sq. ft.</u> <u>Level 2: &gt; 20,000 sq. ft.</u>
<u>105.6.24</u>	<u>Hot work operations</u>	
<u>105.6.25</u>	<u>Industrial ovens</u>	
<u>105.6.26</u>	<u>Lumber yards and woodworking plants</u>	
<u>105.6.27</u>	<u>Liquid- or gas-fueled vehicles or equipment in assembly buildings</u>	<u>One unit</u> <u>Two units</u> <u>Three or more units</u>
<u>105.6.28</u>	<u>LP-gas</u>	<u>Uses other than for mobile food units 125 gallons (473 L) aggregate water capacity</u> <u>For use on a mobile food unit</u>
<u>105.6.29</u>	<u>Magnesium</u>	<u>Tier 1:</u> <u>Storage, &gt;10 lbs. and ≤ 250 lbs.</u> <u>Open use, &gt;10 lbs. and ≤ 25 lbs.</u> <u>Tier 2:</u> <u>Amount greater than for Tier 1</u>
<u>105.6.30</u>	<u>Miscellaneous combustible storage</u>	<u>One unit</u> <u>Two or more units</u>
<u>105.6.31</u>	<u>Motor fuel-dispensing facilities</u>	
<u>105.6.32</u>	<u>Open burning</u>	
<u>105.6.33</u>	<u>Reserved</u>	
<u>105.6.34</u>	<u>Open flames and candles</u>	
<u>105.6.35</u>	<u>Organic coatings</u>	<u>Tier 2 (no Tier 1):</u> <u>For operations producing &gt; 1 gal. in one day</u>



<b><u>SECTION REFERENCE NUMBER</u></b>	<b><u>PERMIT DESCRIPTION</u></b>	<b><u>AMOUNT OR QUANTITY</u></b>
<u>105.6.36</u>	<u>Places of assembly</u>	<u>50-100 occupants (includes partial cost of Life Safety Inspection)</u> <u>101-299 occupants (includes partial cost of Life Safety Inspection)</u> <u>300+ occupants (includes partial cost of Life Safety Inspection)</u>
<u>105.6.37</u>	<u>Reserved</u>	
<u>105.6.38</u>	<u>Pyrotechnic special effects materials</u>	
<u>105.6.39</u>	<u>Pyroxylin plastics</u>	<u>Tier 2 (no Tier 1):</u> <u>To store or handle &gt; 25 lbs. of pyroxylin</u>
<u>105.6.40</u>	<u>Refrigeration equipment</u>	
<u>105.6.41</u>	<u>Repair garages and motor fuel-dispensing facilities</u>	
<u>105.6.42</u>	<u>Rooftop heliports</u>	
<u>105.6.43</u>	<u>Spraying or dipping</u>	
<u>105.6.44</u>	<u>Storage of scrap tires and tire byproducts</u>	
<u>105.6.45</u>	<u>Temporary membrane structures, tents and canopies</u>	
<u>105.6.46</u>	<u>Tire-rebuilding plants</u>	
<u>105.6.47</u>	<u>Waste handling</u>	
<u>105.6.48</u>	<u>Wood products</u>	
<u>105.6.49</u>	<u>Asphalt kettles and roof torching operations</u> <u>Asphalt kettles</u> <u>Ignited torches -</u> <u>(annual repair permit)</u> <u>Site specific permit</u>	<u>Asphalt kettles</u> <u>First one</u> <u>Each additional</u> <u>Maximum</u> <u>Ignited torches</u> <u>First one</u> <u>Each additional</u> <u>Maximum</u>
<u>105.6.50</u>	<u>Battery systems</u>	
<u>105.6.51</u>	<u>Capacitor energy storage systems</u>	
<u>105.6.52</u>	<u>Fuel cell power systems</u>	
<u>105.6.53</u>	<u>Gas detection systems</u>	

**[A] 105.7 Reserved. Required construction permits.** ~~The fire code official is authorized to issue construction permits for work as set forth in Sections 105.7.1 through 105.7.18.~~

{EDITORIAL NOTE: PROVISIONS OF SECTION 105.7 NOT SHOWN SHALL REMAIN AS SET FORTH IN THE 2015 IFC BUT ARE NOT ADOPTED BY THIS JURISDICTION.}

**106.2.3 Requested inspections.** Whenever a person requests that the jurisdiction conduct an inspection, or perform other duties not specified in this code and not in connection with a permit required under this code the service shall be scheduled outside regular working hours, or on a weekend or a holiday observed by the jurisdiction, so that the service will not interfere with the regular duties of or cause an undue burden on jurisdiction personnel.

**106.2.4 Priority inspection.** Whenever an inspection is required by the fire code official or whenever a person requests that the jurisdiction conduct an inspection or perform other duties specified in this code at a specific time rather than at the convenience of the jurisdiction, the service shall be scheduled outside regular working hours, or on a weekend or a holiday observed by the jurisdiction, so that the service will not interfere with the regular duties of jurisdiction personnel or cause an undue burden on jurisdiction personnel.

**106.5 Inspections of Facilities Having Hazardous Materials Processes, Piping, and Storage.** All tanks and piping associated with a hazardous, combustible, flammable liquids or gases shall be maintained in a safe operation condition. Tanks and piping shall be maintained, inspected, and tested in accordance with their listing, manufacturing recommendations, or national recognized standard. Tanks, valves, and piping shall be visually inspected monthly for rust, deterioration or leakage. Documentation must be provided to the AHJ upon request.

**[A] 108.1 Board of appeals established.** ~~In order to hear and decide appeals of orders from decisions or determinations made by of the fire code official relative to the application and interpretation of this code as to the suitability of alternate materials and types of construction and to provide for reasonable interpretations of the provisions of this code, there shall be and is hereby created a board of appeals. The board of appeals shall be appointed by the mayor, subject to confirmation by the city council governing body and shall hold office at its pleasure. The fire code official shall be an ex officio member of said board but shall not have a vote on any matter before the board. The board shall adopt rules of procedure for conducting its business and shall render all decisions and findings in writing to the appellant with a duplicate copy to the fire code official. See Appendix A.~~

**[A] 108.2 Limitations on authority.** An application for appeal shall be based on a claim that the intent of this code or the rules legally adopted hereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed. The board shall not have authority to waive requirements of this code. The fire code official shall take action in accordance with the decision of the board.

**[A] 108.3 Qualifications.** The board of appeals shall consist of members who are qualified by experience and training to pass on matters pertaining to this code hazards of fire, explosions, hazardous conditions or fire protection systems and are not employees of the jurisdiction.

**[A] 109.3 Notice of violation.** Where the *fire code official* finds a building, premises, vehicle, storage facility or outdoor area that is in violation of this code, the *fire code official* is authorized to prepare a written notice of violation ("NOV") describing the conditions deemed unsafe and, where compliance is not immediate, specifying a time for reinspection. The NOV advises the recipient of the existence of a violation of this code but does not initiate a judicial or administrative proceeding. Service of a NOV is not required prior to service of a citation or summons or to other action to enforce this code.

**[A] 109.3.1 Service of NOV.** The *fire code official* may serve (by personal service or by certified mail, return receipt requested) an NOV upon such person(s) as the *fire code official* reasonably believes should be notified of the violation. A notice of violation issued pursuant to this code shall be served upon the owner, the owner's authorized agent, operator, occupant or other person responsible for the condition or violation, either by personal service, mail or by delivering the same to, and leaving it with, some person of responsibility upon the premises. For unattended or abandoned locations, a copy of the NOV may such notice of violation shall be posted on the premises in a conspicuous place at or near the entrance to such premises, in which case a copy of the NOV and the notice of violation shall be mailed by certified mail, with return receipt requested or a certificate of mailing, to the owner of the property at the owner's last known address, according to the records of the appraisal district in which the property is located of the owner, the owner's authorized agent, or occupant.

**[A] 109.3.3 Prosecution of violations.** If the notice of violation is not complied with promptly, the *fire code official* is authorized to request the legal counsel of the jurisdiction to institute the appropriate legal proceedings at law or in equity to restrain, correct or abate such violation or to require removal or termination of the unlawful occupancy of the structure in violation of the provisions of this code or of the order or direction made pursuant hereto. If a person owning, operating, or maintaining an occupancy, property, or vehicle subject to this code allows a violation of this code to exist or fails to take immediate action to abate a violation when ordered to do so by the *fire code official*, the *fire code official* is authorized to take any action authorized by this code or other applicable law.

**[A] 109.4 General penalty; continuing violations. Violation penalties.** Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the *approved construction documents* or directive of the *fire code official*, or of a permit or certificate used under provisions of this code, shall be guilty of a [SPECIFY OFFENSE], punishable by a fine of not more than [AMOUNT] dollars or by imprisonment not exceeding [NUMBER OF DAYS], or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense. When in this code an act is prohibited or is made or declared to be unlawful or an offense or misdemeanor, or wherever in this code the doing of any act is required or the failure to do any act is declared to be unlawful, and no specific penalty is provided therefor, the violation of any such provision of this code shall be punished by a fine of not less than \$500.00, nor more than \$2000.00; provided, however, that no penalty shall be greater or lesser than the penalty provided for the same offense under the laws of the state. Each day any violation of this code shall continue shall constitute a separate offense. In prosecutions under this code, the various provisions hereof that are designated as exceptions shall not be treated as exceptions within the meaning of Section 2.02 of the *Texas Penal Code*, and instead, they shall constitute defenses to prosecution within the meaning of Section 2.03 of the *Texas Penal Code*.

**[A] 109.4.1 Abatement of violation.** ~~In addition to the imposition of the penalties herein described, the *fire code official* is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or to stop an illegal act, conduct of business or occupancy of a structure on or about any premises.~~ **License suspension/revocation.** The suspension, revocation, cancellation or denial of any license, permit or certificate by the jurisdiction shall not prohibit the imposition of any civil or criminal penalty. The imposition of a civil or criminal penalty by the jurisdiction shall not prohibit the suspension, revocation, cancellation or denial of any license, permit or certificate.

**109.4.2 Enforced removal or abatement.** The application of the foregoing penalty shall not be held to prevent the enforced removal or abatement of any prohibited condition.

**109.4.3 Administrative adjudication of unlawful parking or stopping of vehicle.** The provisions of Chapter 16, Article IV, of the *City Code* shall be applicable to the adjudication of any offense arising under this code that involves the parking or stopping of a vehicle. The fines for parking or stopping of a vehicle shall be as otherwise provided in this section or other provisions of this code as applicable, but the citation shall be issued and adjudicated in all respects as provided in Chapter 16, Article IV, of the *City Code*.

**109.4.4 Referral to city attorney.** In addition to other remedies authorized by this code or other applicable law, the *fire code official* may refer a violation to the city attorney for appropriate legal action to abate or restrain an activity, condition, or occupancy constituting or resulting from a violation of this code.

**[A] 110.1 General authority.** ~~If during the inspection of a premises, a building or structure, or any building system, in whole or in part, constitutes a clear and inimical threat to human life, safety or health, the *fire code official* shall issue such notice or orders to remove or remedy the conditions as shall be deemed necessary in accordance with this section, and shall refer the building to the building department for any repairs, alterations, remodeling, removing or demolition required. If all or part of a property or structure violates this code and constitutes a threat to public health or safety, the *fire code official* shall issue such notices or orders to abate the threat as are reasonable under the circumstances. Such notices may include one or more placards posted conspicuously at the property stating that the property is a threat to public health or safety, that the fire marshal may order an evacuation of the structure or take other action against the property, and that persons who continue to use the building do so at their own risk. The wording of the placard shall be factually accurate, but no particular wording is prescribed.~~

**[A] 110.1.2 Structural hazards. Administrative hearing under *City Code*.** ~~Where an apparent structural hazard is caused by the faulty installation, operation or malfunction of any of the items or devices governed by this code, the *fire code official* shall immediately notify the building code official in accordance with Section 110.1. The *fire code official* may schedule a public hearing before a hearing officer as provided by Chapter 10, Article IX, Division 2, of the *City Code* and request any relief authorized by the said Article IX.~~

**[A] 110.3 Summary abatement.** ~~Where conditions exist that are deemed hazardous to life and property, the *fire code official* or fire department official in charge of the incident is authorized to abate summarily such hazardous conditions that are in violation of this code. If all or part of a property or structure constitutes a serious and immediate fire hazard, the *fire code official* or a fire~~

department official in charge of an incident may abate or otherwise remedy the said hazard without prior notice or hearing. In such a circumstance, however, the *fire code official* must provide each owner, lienholder, and mortgagee of the subject property with an opportunity for a post-abatement hearing in the manner prescribed by Chapter 10, Article IX, Division 8, of the *City Code*.

**[A] 111.4 Failure to comply.** It shall be unlawful to fail to comply with any stop work order. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.

**[A] 113.1 Fees.** A permit shall not be issued until the fees have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid. Fees for permits, inspections and other services under this code shall be assessed in the amounts set forth in the city fee schedule and payable to the jurisdiction. Fees are annual unless otherwise provided in this code or by regulation of the *fire code official*.

**113.1.1 Permits.** Except for permits and inspections under Section 113.1.3.2, the fee for a permit includes an initial inspection and one follow-up inspection, if a follow-up inspection is deemed necessary in the judgment of the inspector.

**113.1.2 Special inspection provisions.**

**113.1.2.1 Inspections not related to permits.** Fees for inspection or other services not specified in this code and not in connection with a permit required under this code shall be based on the time expended as set forth in the city fee schedule for this provision.

A deposit in the full amount of the anticipated fee shall be required prior to the commencement of the inspection. Examples of the types of inspections covered by this section include, but are not limited to, inspections requested by persons who are applying for state or federal permits that have provisions for a fire inspection and compliance inspections requested in connection with real estate transactions. This fee shall be in addition to all other fees required by this code.

**113.1.2.2 Priority inspections at a specific time.** Fees for priority inspections or other services specified in this code at a scheduled, specific time, rather than at the convenience of the jurisdiction, shall be based on the time expended as set forth in the city fee schedule for this provision. This fee shall be in addition to all other fees required by this code.

**113.1.3 Reinspections.**

**113.1.3.1 Reinspection fee.** Whenever it becomes necessary to make a reinspection (after the initial inspection and one follow-up inspection under Section 113.1.1 or after the initial inspection under Section 113.1.3.2) because of faulty material, faulty workmanship, or incomplete work, or for any other reason, the permit holder shall pay for each reinspection a fee in the amount stated in the city fee schedule, unless a greater fee is specifically required by this code. This fee shall be in addition to all other fees required by this code.

**113.1.3.2 Retesting and reinspection fees for fire protection systems and underground fuel storage tank permits.** Fees for permits, inspections, and

testing for fire alarm, sprinkler, and other fire protection systems under Sections 901.5 (fire alarm, sprinkler and other fire protection systems) and 5704.2.12.2 (underground fuel storage tanks) include one-time inspection and testing. If a fire protection system or underground fuel storage tank fails testing or inspection or approved plans are not on site at the time of the scheduled test, the permit holder shall pay a retest fee in the amount set forth in the city fee schedule for retesting and reinspection.

**113.1.3.3 Inspection cancellation fee.** A fee in the amount stated in the city fee schedule shall be assessed to the permit holder and payable to the jurisdiction if a scheduled test or inspection of a fire protection system pursuant to Section 901.5 or underground fuel storage tank pursuant to Section 5704.2.12.2 is cancelled by the permit holder at any time during the four hours prior to the time scheduled for the test or inspection.

#### **113.1.4 Other fees.**

**113.1.4.1 Administrative fee.** The administrative fee stated in the city fee schedule shall be charged upon the preparation of each permit or license issued by the fire department. This fee shall apply regardless of whether the permit or license is issued pursuant to this code or the *City Code*, and it shall be payable in addition to all other applicable fees for the permit or license. The foregoing administrative fee shall not be applicable if no other fee is provided by law for the permit or license.

**113.1.4.2 Receipt.** The administrative receipt fee stated in the city fee schedule shall be charged upon the preparation of each fee or deposit receipt issued by the Houston Permitting Center. This fee shall apply regardless of whether the fee or deposit is payable pursuant to this code or the *City Code*. This fee shall be in addition to all other applicable fees or deposits. When paid for a deposit or fee receipt, this fee shall neither constitute nor be refundable as a part of the deposit. This fee shall not apply when a permit or license is issued and the fee specified in Section 113.1.1 above is imposed.

**113.1.4.3 Correction fee.** The correction fee stated in the city fee schedule shall be charged for correction of any license or permit in those instances where the license or permit is initially issued with an error caused by incorrect information having been furnished by the applicant. A reinspection fee shall also be imposed as provided in Section 113.1.3 when the error causes a reinspection to be required.

**113.1.4.4 Replacement fee.** The replacement fee stated in the city fee schedule shall be charged for replacement of any permit that is lost or requires replacement for other reasons, such as a change of the permit holder's name.

**[A] 113.2 Schedule of permit fees.** A fee for each permit or service shall be paid as required, in accordance with the city fee schedule as established by the applicable governing authority.

**[A] 113.5 Refunds.** ~~The applicable governing authority is authorized to establish a refund policy. The fire code official or building official, as applicable, may authorize a refund of any fee paid hereunder that was erroneously paid or collected due to an error by a jurisdiction employee. This provision shall not be applicable if the error occurred because of incorrect information provided by the applicant.~~

The *fire code official* or building official, as applicable, may authorize a refund of not more than 90 percent of the amount in excess of the minimum permit fee paid when no inspection has been performed under a permit issued in accordance with this code. If an inspection has been performed under the permit, no refund shall be authorized. The originally paid administrative fee shall be nonrefundable.

The *fire code official* or building official, as applicable, shall not authorize a refund of any fee paid except on written application filed by the original permit holder not later than 180 calendar days after the date of fee payment.

**113.6 Exemption from permits and fees.** To the extent that the state and the federal government are exempt as a matter of law from compliance with this code, neither the state nor the federal government shall be required to obtain a permit for work undertaken for, by or on the premises of either of them. However, the fees set forth in this code shall be applicable to the extent that the state or the federal government elects to obtain a permit for exempt work.

Except for work undertaken for, by or on the premises of the state or the federal government, permits shall be required for work undertaken for, by or on the premises of any political subdivision or unit of government (including, but not limited to, the jurisdiction) in the same manner and to the same extent as for work performed by or for other persons. The fees prescribed in this code shall be applicable to all permits issued to or for governmental agencies except counties and the jurisdiction. The jurisdiction and counties are exempted from the payment of fees. The exemption for the jurisdiction and for counties shall extend only to work to be undertaken for, by or on the premises of the jurisdiction or a county itself as a body corporate and politic. Furthermore, the exemption for a county shall not extend to work undertaken for, by or on the premises of units of government that, although affiliated with a county, have separate governmental existence from the county, including but not limited to, hospital districts and flood control districts.

**113.7 Annual fee increase.** Notwithstanding any maximum fee established by this section, the fees established in this code, as adjusted according to this provision, shall be automatically increased on the first day of each subsequent calendar year as provided in Section 1-13 of the *City Code*.

## **SECTION 114** **STANDBY PERSONNEL**

**114.1 General.** The *fire code official* is authorized to require that standby inspectors be provided when deemed necessary to ensure public safety due to the number of persons present, or the nature of a performance, exhibition, display, contest or activity. The *fire code official* is also authorized to require standby personnel as a condition for:

1. The approval of any permit required in Section 105.
2. The issuance of a temporary certificate of occupancy by the building official.
3. The maintenance of exits and keeping watch for fires and other safety hazards.
4. The use of a building where required fire protection or life safety systems are impaired or out of service, in accordance with Section 901.7.
5. The use of a temporary membrane structure, tent or canopy, as provided for in Section 3104.20.

**114.2 Standby inspectors.** When required by the *fire code official*, standby inspectors shall be provided to ensure compliance with this code and/or other laws, including ordinances of the

jurisdiction. Standby inspectors shall be classified state-certified fire inspectors who are assigned to the Fire Prevention Bureau of the Houston Fire Department. See Section 113.1.2 for fees for the provision of standby inspectors.



## CHAPTER 2

# DEFINITIONS

**201.3 Specific construction and terms defined in other codes.** Where specific construction or terms are not addressed or defined in this code and are addressed or defined by the *City Code* or another volume of the *Construction Code* in the *International Building Code*, *International Fuel Gas Code*, *International Fire Code*, *International Mechanical Code* or *International Plumbing Code*, such terms or specific constructions shall have the meanings ascribed to them as in those codes other volumes, as applicable to the construction and proposed scope of work hereunder.

### SECTION 202 DEFINITIONS

(EDITORIAL NOTE: ALL PORTIONS OF SECTION 202 NOT SHOWN REMAIN AS SET FORTH IN THE 2015 IFC.)

**ALLEY.** A public or private right-of-way that is not used primarily for through traffic and that provides vehicular access to rear entrances to buildings or properties that front on an adjacent street.

**AUTHORITY HAVING JURISDICTION.** The City of Houston. This definition shall include the City of Houston's duly authorized representatives and shall specifically include the fire chief as the chief fire code official over the Fire Code.

**BATTERY SYSTEM, STATIONARY LEAD-ACID STORAGE.** A system which consists of three interconnected subsystems: A rechargeable energy storage system consisting of electrochemical storage batteries, battery chargers, controls and associated electrical equipment designed to provide electrical power to a building. The system is typically used to provide standby or emergency power, an uninterruptable power supply, load shedding, load sharing or similar capabilities.

1. A lead-acid battery.
2. A battery charger.
3. A collection of rectifiers, inverters, converters and associated electrical equipment as required for a particular application.

#### BATTERY TYPES.

**Flow battery.** A type of storage battery that includes chemical components dissolved in two different liquids. Ion exchange, which provides the flow of electrical current, occurs through the membrane while both liquids circulate in their respective spaces.

**Lead-acid battery.** A storage battery that is comprised of lead electrodes immersed in sulphuric acid electrolyte.

**Lithium-ion battery.** A storage battery that consists of lithium ions embedded in a carbon graphite or nickel metal oxide substrate. The electrolyte is a carbonate mixture or a gelled

polymer. The with lithium ions serving as are the charge carriers of the battery. The electrolyte is a polymer mixture of carbonates with an inorganic salt and can be in a liquid or a gelled polymer form. Lithiated metal oxide is typically a cathode and forms of carbon or graphite typically form the anode.

**Lithium metal polymer battery.** A storage battery that is comprised of nonaqueous liquid or polymerized electrolytes, which provide ionic conductivity between lithiated positive active material electrically separated from metallic lithium or lithiated negative active material.

**Nickel-cadmium (Ni-Cd) battery.** An alkaline storage battery in which the positive active material is nickel oxide, the negative contains cadmium and the electrolyte is potassium hydroxide.

**Nonrecombinant battery.** A storage battery in which, under conditions of normal use, hydrogen and oxygen gasses created by electrolysis are vented into the air outside of the battery.

**Preengineered stationary storage battery system.** An energy storage system consisting of batteries, a battery management system, components and modules that are produced in a factory, designed to comprise the system when assembled on the job site.

**Prepackaged stationary storage battery system.** An energy storage system consisting of batteries, a battery management system, components and modules that is factory assembled and shipped as a complete unit for installation at the job site.

**Recombinant battery.** A storage battery in which, under conditions of normal use, hydrogen and oxygen gases created by electrolysis are converted back into water inside the battery instead of venting into the air outside of the battery.

**Sodium-beta storage battery.** A storage battery, also referred to as a Na-beta battery or NBB, which uses a solid beta-alumina electrolyte membrane that selectively allows sodium ion transport between a positive electrode such as metal halide and a negative sodium electrode.

**Stationary storage battery.** A group of electrochemical cells interconnected to supply a nominal voltage of DC power to a suitably connected electrical load, designed for service in a permanent location. The number of cells connected in a series determines the nominal voltage rating of the battery. The size of the cells determines the discharge capacity of the entire battery. After discharge, it may be restored to a fully charged condition by an electric current flowing in a direction opposite to the flow of current when the battery is discharged.

**Valve-regulated lead-acid (VRLA) battery.** A lead-acid battery consisting of sealed cells furnished with a valve that opens to vent the battery whenever the internal pressure of the battery exceeds the ambient pressure by a set amount. In VRLA batteries, the liquid electrolyte in the cells is immobilized in an absorptive glass mat (AGM cells or batteries) or by the addition of a gelling agent (gel cells or gelled batteries).

**Vented (flooded) lead-acid battery.** A lead-acid battery consisting of cells that have electrodes immersed in liquid electrolyte. Flooded lead-acid batteries have a provision for the user to add water to the cell and are equipped with a flame-arresting vent which permits the escape of hydrogen and oxygen gas from the cell in a diffused manner such that a spark, or other ignition source, outside the cell will not ignite the gases inside the cell.

**BUILDING CODE.** The *City of Houston Building Code*, as adopted and amended by this jurisdiction.

**[A] BUILDING OFFICIAL.** The ~~officer or other designated authority charged with the administration and enforcement of the *International Building Code*~~ director of Houston Public Works or a ~~the~~ duly authorized representative ~~designated by the director to act as the chief construction code enforcement official of the jurisdiction; also known as *chief building official*~~. The term also includes the Houston Airport Systems building official who may be designated by the building official to perform *Construction Code* permitting and enforcement activities on Houston Airport Systems premises.

**CAPACITOR ARRAY.** An arrangement of individual capacitor modules in close proximity to each other, mounted on storage racks or in cabinets or other enclosures.

**CAPACITOR ENERGY STORAGE SYSTEM.** A stationary, rechargeable energy storage system consisting of capacitors, chargers, controls and associated electrical equipment designed to provide electrical power to a building or facility. The system is typically used to provide standby or emergency power, an uninterruptable power supply, load shedding, load sharing or similar capabilities.

**Preengineered capacitor energy storage system.** A capacitor energy storage system consisting of capacitors, an energy management system, components and modules that are produced in a factory, designed to comprise the system when assembled on the job site.

**Prepackaged capacitor energy storage system.** A capacitor energy storage system consisting of capacitors, an energy management system, components and modules that is factory assembled and then shipped as a complete unit for installation at the job site.

**CERTIFICATE OF COMPLIANCE.** A certificate stating that materials and products meet specified standards or that the scope of work under a specific permit was done in compliance with approved construction documents. Any reference in the *Construction Code* to a “CC”, certificate of completion, or a certificate of inspection issued by this jurisdiction, is a reference to a certificate of compliance as defined herein.

**CITY CODE.** The *Code of Ordinances, City of Houston, Texas*.

**CITY FEE SCHEDULE.** The schedule of fees charged by the city for various permits, licenses, authorizations and services, which is maintained on the city’s website.

**CODE OFFICIAL.** The Houston Fire Department and Building Code Enforcement employees, including but not limited to, plan analysts, field inspectors, and other technical staff charged with the administration and enforcement of this code as specifically delegated by the *Authority Having Jurisdiction*. The *code official* is authorized to approve designs, construction, equipment, materials, installations, processes, procedures, practices, and other duties necessary to administer, verify and document compliance with the *Houston Construction Code*, ordinances, and other laws and policies as specifically delegated by the *chief building official, fire chief, and the Authority Having Jurisdiction*.

**[BG] CONGREGATE LIVING FACILITIES.** A building or part thereof that contains sleeping units where residents share bathroom and/or kitchen facilities for living, sleeping and sanitation, as required by this code, and may include facilities for eating and cooking, for occupancy by other than a family. A congregate living facility may be a shelter, convent, monastery, dormitory, fraternity house, or sorority house, but does not include jails, hospitals, nursing homes, hotels or boarding houses.

**CONSTRUCTION CODE.** Has the meaning ascribed in Section 1-2 of the *City Code*.

**[BS] DANGEROUS.** Any building meeting the definition of a dangerous building as defined in Chapter 10, Article IX, of the *City Code*, or any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation, or lacks the necessary support of the ground.
2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under service loads.

**[BE] EGRESS COURT.** A court or yard with a minimum width of 36 inches which provides access to a public way for one or more exits or emergency escape and rescue openings.

**ELECTRICAL CODE.** The *City of Houston Electrical Code*, as adopted and amended by this jurisdiction.

**ENERGY MANAGEMENT SYSTEM.** An electronic system that protects stationary storage batteries from operating outside their safe operating parameters, and generates an alarm and trouble signal for off normal conditions.

**ENTERPRISE.** A use or activity on, or of, a tract of land or within a building or structure, in whole or in part, that includes inside and outside storage or use of hazardous materials exceeding the maximum allowable quantity limits (MAQs) per control area that constitutes a Group H-1, H-2 or H-3 occupancy as described in Section 307 of the *Building Code*. The term also includes any Group H-4 occupancy, in whole or in part, that includes storage (both interior and exterior) of hazardous materials exceeding the MAQs per control area as described in the previously identified *Building Code* Section 307 if any highly toxic material is manufactured, processed, generated, stored or used. Otherwise, Group H-4 occupancies are not included. The term also does not include:

1. Any public water or wastewater treatment facility that is being operated under regulations promulgated by state or federal agencies, including but not limited to the United States Environmental Protection Agency and the Texas Commission on Environmental Quality;
2. Areas or spaces up to 500 square feet each in research labs operated under the authority of a hospital, college, or university, and classified as H-2, H-3 or H-4, with an aggregate maximum area of ten percent on each floor; or

3. Any area or space containing fuel storage for generators, fire pumps, above or underground fuel storage associated with motor fuel-dispensing facilities.

**ENTERPRISE PERMIT.** A current and valid license or document issued by the jurisdiction's director of planning and development authorizing the holder to operate an enterprise issued under Chapter 28, Article VII, of the *City Code*. Except where specific reference is made to a restricted permit or an unrestricted permit, the term "permit" includes a registration of a nonconforming enterprise prior to February 16, 1997.

**EXISTING BUILDING CODE.** The *City of Houston Existing Building Code*, as adopted and amended by this jurisdiction.

**FAMILY.** An individual or two or more persons related by blood or marriage or a group of not more than 10 persons (excluding live in personnel hired to assist the family) who need not be related by blood or marriage living together in a dwelling unit.

**FIRE CHIEF.** Has the meaning ascribed in Section 34-53 of the *City Code*.

**FIRE CODE.** The *City of Houston Fire Code*, as adopted and amended by this jurisdiction.

**FIRE CODE OFFICIAL.** The fire chief or other designated authority. The jurisdiction's fire marshal, who is charged with the administration and enforcement of the this code, or a duly authorized representative.

**FUEL CELL POWER SYSTEM, STATIONARY.** A stationary energy generation system that converts the chemical energy of a fuel and oxidant to electric energy (DC or AC electricity) by an electrochemical process.

**Field-fabricated fuel cell power system.** A stationary fuel cell power system that is assembled at the job site and is not a preengineered or prepackaged factory-assembled fuel cell power system.

**Preengineered fuel cell power system.** A stationary fuel cell power system consisting of components and modules that are produced in a factory, and shipped to the job site for assembly.

**Prepackaged fuel cell power system.** A stationary fuel cell power system that is factory assembled as a single, complete unit and shipped as a complete unit for installation at the job site.

**GAS DETECTION SYSTEM.** A system or portion of a combination system that utilizes one or more stationary sensors to detect the presence of a specified gas at a specified concentration and initiate one or more responses required by this code, such as notifying a responsible person, activating an alarm signal, or activating or deactivating equipment. A self-contained gas detection and alarm device is not classified as a gas detection system.

**GRADE, ROUGH.** The stage at which the grade approximately conforms to the approved plan.

**GRADING.** To level to a smooth horizontal or sloping surface.

**GRADING, ENGINEERED.** Any *grading* in excess of 1,000 cubic yards.

**GRADING, REGULAR.** Any *grading* less than or equal to 1000 cubic yards.

**[BG] HIGH-RISE BUILDING.** A building with ~~an occupied~~ floors located more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access.

**Exception:** For the purpose of establishing a building as a high-rise, the uppermost floor located more than 75 feet above the lowest level of fire department access used for housing building systems mechanical equipment is exempt.

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

**HIGHWAY, STREET OR ROAD.** A general term denoting a public way for the purpose of vehicle travel, including the entire area within the right-of-way.

**INTERNATIONAL BUILDING CODE.** Any reference herein to the *International Building Code* shall be construed as referring to the *City of Houston Building Code*, as adopted and amended by this jurisdiction.

**INTERNATIONAL EXISTING BUILDING CODE.** Any reference herein to the *International Existing Building Code* shall be construed as referring to the *City of Houston Existing Building Code*, as adopted and amended by this jurisdiction.

**INTERNATIONAL FIRE CODE.** Any reference herein to the *International Fire Code* shall be construed as referring to the *City of Houston Fire Code*, as adopted and amended by this jurisdiction.

**INTERNATIONAL FUEL GAS CODE.** Any reference herein to the *International Fuel Gas Code* shall be construed as referring to the *City of Houston Plumbing Code*, as adopted and amended by this jurisdiction.

**INTERNATIONAL MECHANICAL CODE.** Any reference herein to the *International Mechanical Code* shall be construed referring to the *City of Houston Mechanical Code*, as adopted and amended by this jurisdiction.

**INTERNATIONAL PLUMBING CODE.** Any reference herein to the *International Plumbing Code* shall be construed referring to the *City of Houston Plumbing Code*, as adopted and amended by this jurisdiction.

**INTERNATIONAL RESIDENTIAL CODE.** Any reference herein to the *International Residential Code* shall be construed referring to the *City of Houston Residential Code* adopted and amended by this jurisdiction.

**[A] JURISDICTION.** The City of Houston. ~~The governmental unit that has adopted this code under due legislative authority.~~

**MECHANICAL CODE.** The *City of Houston Mechanical Code*, as adopted and amended by this jurisdiction.

**MOBILE FOOD PREPARATION VEHICLES.** Vehicles that contain cooking equipment that produce smoke or grease-laden vapors for the purpose of preparing and serving food to the public including mobile food units as defined in Chapter 20 of the *City Code*. For the purpose of this code, vehicles intended for private recreation shall not be considered a mobile food unit or mobile food preparation vehicles.

**MOBILE FOOD UNIT.** A food service establishment that is vehicle-mounted or wheeled and is capable of being readily moveable.

**MULTI-FAMILY RESIDENTIAL STRUCTURE.** A structure constructed with three or more attached single-family residences', dwelling units, townhouses, apartments or condominiums.

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

{EDITORIAL NOTE: PORTIONS OF THIS DEFINITION NOT SHOWN SHALL REMAIN AS SET FORTH IN THE 2015 IFC.}

**[BG] Educational Group E.** Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12<sup>th</sup> grade.

**[BG] Accessory to places of religious worship.** Religious educational rooms and religious auditoriums, which are accessory to places of religious worship in accordance with Section 508.3.1 of the *International Building Code* and have *occupant loads* of less than 100 per room or space shall be classified as Group A-3 occupancies.

**[BG] Group E, day care facilities.** This group includes buildings and structures or portions thereof occupied by more than five children older than 2½ years of age who receive educational, supervision or *personal care services* for less than 24 hours per day.

**[BG] Within places of worship.** Rooms and spaces within places of worship providing such care during religious functions shall be classified as part of the primary occupancy.

**[BG] Five or fewer children.** A facility having five or fewer children receiving such care shall be classified as part of the primary occupancy.

**[BG] Five or fewer children in a dwelling unit.** A facility such as the above within a dwelling unit and having five or fewer children receiving such care shall be classified as a Group R-3 occupancy or shall comply with the ~~*International Residential Code*~~.

**Specific requirements.** Daycare and educational occupancies shall not allow children of second grade or lower above the *level of exit discharge* unless the following provisions are met:

1. The building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1; and
2. When children above the second grade are located on the same level, the children of the second grade or lower shall have at least

two means of egress to the exterior for the exclusive use of those children.

**High-hazard Group H.** High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or *health hazard* in quantities in excess of those allowed in *control areas* complying with Section 5003.8.3, based on the maximum allowable quantity of limits ~~for~~ per *control areas* set forth in Tables 5003.1.1(1) and 5003.1.1(2). Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this code and the requirements of Section 415 of the ~~International Building Code~~. Hazardous materials stored or used on top of roofs or canopies shall be classified as outdoor storage or use and shall comply with this code.

**Uses other than Group H.** The storage, use or handling of hazardous materials as described in one or more of the following items shall not cause the occupancy to be classified as Group H, but it shall be classified as the occupancy that it most nearly resembles:

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Chapter 24 of this code and Section 416 of the ~~International Building Code~~.
2. Wholesale and retail sales and storage of flammable and *combustible liquids* in mercantile occupancies conforming to Chapter 57.
3. Closed piping system containing flammable or *combustible liquids* or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize *combustible liquid* solvents having a *flash point* of 140°F (60°C) or higher in *closed systems* employing equipment *listed* by an *approved* testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour *fire barriers* in accordance with Section 707 of the ~~International Building Code~~ or 1-hour *horizontal assemblies* in accordance with Section 711 of the ~~International Building Code~~, or both.
5. Cleaning establishments that utilize a liquid solvent having a *flash point* at or above 200°F (93°C).
6. Liquor stores and distributors without bulk storage.
7. Refrigeration systems.
8. The storage or utilization of materials for agricultural purposes on the premises.
9. Stationary batteries utilized for facility emergency power, uninterruptible power supply or telecommunication facilities, provided that the batteries are equipped with safety venting caps and ventilation is provided in accordance with the ~~International Mechanical Code~~.



10. *Corrosive* personal or household products in their original packaging used in retail display.
11. Commonly used *corrosive* building materials.
12. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of Chapter 51.
13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the *maximum allowable quantity per control area* in Group M or S occupancies complying with Section 5003.8.3.5.
14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements of this code.
15. Stationary fuel cell power systems installed in accordance with this code.
16. Capacity energy storage systems in accordance with this code.
17. Group B higher education laboratory occupancies complying with Section 428 of the *Building Code* and Chapter 38 of this code.
18. Any building owned by the jurisdiction, located on any city airport, that is leased and used by a certificated air carrier for the in-transit storage of hazardous materials for a period of time that does not exceed 72 hours from the time such hazardous material is placed in the building until it is permanently removed.

**NOTES:**

1. Certificated air carrier is defined as: a U.S. or foreign airline operating scheduled or non-scheduled commercial services pursuant to certificates or exemptions issued by the United States Department of Transportation pursuant to 49 USC Sections 40109, 41102, 41103, or 41302, and certificates or exemptions issued by the United States Federal Aviation Administration pursuant to 14 CFR Parts 121, 125, 129 or 135.
2. City airport is defined in Chapter 9 of the *City Code*.
3. In-transit storage is defined as: the storage of materials which will be on-loaded onto or off-loaded from an aircraft owned, leased or operated by a certificated air carrier.

**[BG] Institutional Group I-4, day care facilities.** Institutional Group I-4 shall include buildings and structures occupied by more than five persons of any age who receive custodial care for less than 24 hours by persons other than parents or guardians, relatives

by blood, marriage, or adoption, and in a place other than the home of the person cared for. This group shall include, but not be limited to, the following:

Adult day care

Child day care

**[BG] Classification as Group E.** A child day care facility that provides care for more than five but not more than 100 children 2½ years or less of age, where the rooms in which the children are cared for are located on a *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.

**[BG] Within a place of religious worship.** Rooms and spaces within places of religious worship providing such care during religious functions shall be classified as part of the primary occupancy.

**[BG] Five or fewer occupants receiving care.** A facility having five or fewer persons receiving custodial care shall be classified as part of the primary occupancy.

**[BG] Five or fewer occupants receiving care in a dwelling unit.** A facility such as the above within a *dwelling unit* and having five or fewer persons receiving custodial care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

**Specific requirements.** Daycare and educational occupancies shall not allow children of second grade or lower above the *level of exit discharge* unless the following provisions are met:

1. The building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1; and
2. When children above the second grade are located on the same level, the children of the second grade or lower shall have at least two means of egress to the exterior for the exclusive use of those children.

**[BG] Residential Group R-3.** Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Boarding houses (nontransient) with 16 or fewer occupants

Boarding houses (transient) with 10- or fewer occupants

Buildings that do not contain more than two *dwelling units*

Care facilities that provide accommodations for five or fewer persons receiving care

Congregate living facilities (nontransient) with 16 or fewer occupants

Congregate living facilities (transient) with 10 or fewer occupants

Lodging houses with five or fewer guest rooms

**[BG] Care facilities within a dwelling.** Care facilities for five or fewer persons receiving care, including licensed and registered in home day cares, that are within a single-family dwelling are permitted to comply with the *International Residential*

~~Code provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.~~

**[BG] Lodging houses.** Owner-occupied *lodging houses* with five or fewer guest rooms shall be permitted to be constructed in accordance with the *International Residential Code*.

**ONE- AND TWO-FAMILY DWELLING.** An individual free-standing structure containing not more than two *dwelling units*, also referred to as a *dwelling*, duplex or *single-family dwelling* depending on the number of *dwelling units* within.

**OPEN BUILDING (For Chapter 9).** A building having each perimeter wall at least 80 percent open.

**PLUMBING CODE.** The *City of Houston Plumbing Code*, as adopted and amended by this jurisdiction.

**PUBLIC WAY.** A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which has a clear width and height of not less than ~~40~~ 20 feet (~~3048~~ 6,096 mm).

**RESIDENTIAL CODE.** The *City of Houston Residential Code*, as adopted and amended by this jurisdiction.

**RIGHT-OF-WAY.** The entire area between the property boundary lines of every way (including but not limited to roads, streets, alleys, highways, boulevards, bridges, tunnels, or similar thoroughfares), whether acquired by purchase, grant, or dedication by the state or federal government, or acceptance by the authority having jurisdiction, for public use.

**SECTION 105 HEARING OFFICIAL.** The person or persons designated in writing by the mayor of the jurisdiction to consider (a) applications by the *fire code official* to revoke permits issued under authority of Section 105; (b) appeals of denials of permits authorized by Section 105; and (c) appeals of orders issued under authority of Section 105, ***except that*** appeals of orders issued under authority of Section 105.5.3 shall be considered as provided elsewhere in this code. A Section 105 hearing official may be an employee of the Houston Fire Department, except that no person who has taken part, directly or indirectly, in any decision, order, or investigation related to the subject of the hearing shall serve as a Section 105 hearing official. A Section 105 hearing official shall act without bias for or against any hearing participant, including the jurisdiction's fire department.

**SERIOUS AND IMMEDIATE FIRE HAZARD.** A condition that violates this code and that in the absence of immediate action by the *fire code official* or a fire department official in charge of an incident presents a reasonable likelihood of causing serious bodily injury to a human being.

**SINGLE-FAMILY DWELLING.** An individual free-standing residential structure intended to serve a single-family, or household, as a *dwelling* and/or other uses authorized by the *Building Code* and *Residential Code*.

## **SMOKE DETECTOR-;**

A *listed* device that senses visible or invisible particles of combustion.

A smoke alarm with sealed 10-year lithium batteries.

A sealed long-life (10 years or more) battery smoke alarm.

**STANDBY INSPECTOR.** A state-certified fire inspector assigned by the *fire code official* as deemed necessary to ensure public safety and compliance with this code in accordance with Section 114.

**STATIONARY BATTERY ARRAY.** An arrangement of individual stationary storage batteries in close proximity to each other, mounted on storage racks or in modules, battery cabinets or other enclosures.

**TEXAS ACCESSIBILITY STANDARDS (TAS).** The accessibility standard applicable to buildings and facilities constructed within the state of Texas as promulgated by the Texas Department of Licensing and Regulation pursuant to *Texas Government Code* Chapter 469.

**[A] TOWNHOUSE.** A multi-family residential structure constructed with three or more attached single-family dwelling units ~~constructed in a group of three or more attached units in which each unit extends from the foundation to roof and with open space on not less than two sides, which may or may not include lot lines or property lines separating the dwelling units.~~

**TRADE SHOW.** A temporary commercial exhibition or show for the purpose of display of manufactured products to prospective customers. See Section 105.6.5.

## **SECTION 203**

### **DISTRICTS OF LIMITATIONS**

**203.1 General.** The districts referred to in this code in which the storage of explosives and blasting agents, flammable and combustible liquids, compressed and liquefied natural gases, cryogenic fluids and LP-gases may be prohibited or restricted, are hereby established.

**203.1.1 District of Limitations No. 1.** Beginning at the intersection of US Highway 59 with Pierce Street; thence, northerly along US Highway 59 to the centerline of Buffalo Bayou; thence, westerly following the meanders of the centerline of Buffalo Bayou to Franklin Street; thence, westerly along Franklin Street to Interstate Highway 45; thence, southerly along Interstate Highway 45 to Pierce Street; thence, easterly along Pierce Street to U. S. Highway 59, the place of beginning.

**203.1.2 District of Limitations No. 2.** Beginning at the intersection of Main Street with Cambridge Street; thence, southerly along Main Street to Holcombe Boulevard; thence easterly along Holcombe Boulevard to Braeswood Boulevard; thence northerly along Braeswood Boulevard to North MacGregor Drive; thence northerly along North MacGregor Drive to Cambridge Street; thence westerly along Cambridge Street to Main Street, the place of beginning.



## CHAPTER 3

# GENERAL REQUIREMENTS

**301.2 Permits.** Permits shall be required as set forth in Section 105.6, along with the permit fees required in Section 113, in the city fee schedule for the activities or uses regulated by Sections 303, 304, 306, 307, 308 and 315.

**303.1 Transporting.** Asphalt (tar) kettles shall not be transported over any highway, road or street when the heat source for the kettle is operating. Kettle lids shall be closed and latched while in transit. Kettle contents shall be cooled to a viscosity such that they cannot spill should the kettle overturn while in transit.

**Exception:** Asphalt (tar) kettles in the process of patching road surfaces.

**303.2 Location.** Asphalt (tar) kettles shall not be located within 20 feet (6,096 mm) of any combustible material, combustible building surface or any building opening and within a controlled area identified by the use of traffic cones, barriers or other *approved* means. Asphalt (tar) kettles and pots shall not be utilized inside ~~or on the roof of~~ a building or structure. Asphalt (tar) kettles shall not be used on the roof of a building or structure, except in accordance with Houston Fire Department LSB Standard No. 11, "Roofing Operations." Roofing kettles and operating asphalt (tar) kettles shall not block *means of egress*, gates, roadways or entrances.

**303.3 Location of fuel containers.** Fuel containers shall be located not less than 10 feet (3,048 mm) from the burner. All portable fuel containers shall be adequately secured to prevent containers from falling or being knocked over.

**Exceptions:**

1. Containers properly insulated from heat or flame are allowed to be within 2 feet (610 mm) of the burner.
2. LP-gas containers connected for use shall be kept a minimum of 15 feet (4,572 mm) from burners. LP-gas containers not connected for use shall be kept a minimum of 25 feet (7,620 mm) from burners.

**304.3.3 Capacity exceeding 1.5 cubic yards.** Dumpsters and containers with an individual capacity ~~of between~~ 1.5 cubic yards [40.5 cubic feet (1.15 m<sup>3</sup>)] and 15 cubic yards [405 cubic feet (12 m<sup>3</sup>)] ~~or more~~ shall not be stored in buildings or placed within 5 feet (1,524 mm) of combustible walls, metals walls, building openings or combustible roof eave lines. Dumpsters and containers 15 cubic yards [405 cubic feet (12 m<sup>3</sup>)] capacity, or more, shall be a minimum of 10 feet (3,048 mm) from combustible walls, metal walls, building openings, or roof eave lines. Dumpsters and containers shall not be placed on public sidewalks, streets, or other public property. No rubbish or combustible waste shall be placed, stored, or allowed to accumulate outside of dumpsters or containers. Lids of dumpsters shall be kept closed at all times.

**Exceptions:**

1. Dumpsters or containers in areas protected by an *approved automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Storage in a structure shall not be prohibited where the structure is of Type I or IIA construction, located not less than 10 feet (3,048 mm) from other buildings and used exclusively for dumpster or container storage.
3. Dumpsters placed in the street right-of-way by government authorities on a temporary basis for neighborhood clean-up campaigns, provided neither the roadway, nor fire apparatus access, nor fire hydrants are obstructed and no other location is practicably available.
4. Dumpsters placed on a temporary basis for demolition or construction work under a valid building permit, provided neither the roadway, nor fire apparatus access, nor fire hydrants are obstructed and no other location is practicably available.
5. Approved containers placed for collection on street right-of-way as authorized by Chapter 39 of the City Code.

**304.4 Dumpster information required.** The name of the dumpster company or responsible party and a contact telephone number shall be placed on dumpsters and other bulk containers as provided by Section 39-97 of the City Code.

**305.1 Clearance from ignition sources.** Clearance between ignition sources, such as luminaires, heaters, flame-producing devices and combustible materials, shall be maintained in an *approved* manner. The clearance between combustible materials and unit heaters, radiant heaters, duct furnaces, flues and other heat producing devices shall be in accordance with the clearance shown on the product listing, but in no case shall be less than 3 feet (914.4 mm) in all directions, except as provided for in the Building Code.

**307.1 General.** A person shall not kindle or maintain or authorize to be kindled or maintained any open burning or recreational fire ~~unless conducted and approved in accordance with Sections 307.1.1 through 307.5.~~

**Exception:** When approved by the fire code official, and where consistent with state, federal and local environmental laws and regulations, open burning shall be conducted in accordance with Houston Fire Department LSB Standard No. 16, "Open Burning and Recreational Fires." A permit is required for any fire authorized under this exception.

**307.1.1 Prohibited open burning.** Open burning that is offensive or objectionable because of smoke or odor emissions or shall be prohibited when atmospheric conditions or local circumstances make such fires hazardous shall be prohibited.

**Exception:** Prescribed burning for the purpose of reducing the impact of wildland fire when authorized by the *fire code official*.



**311.1.1 Abandoned premises.** Buildings, structures and premises for which an owner cannot be identified or located by dispatch of a certificate of mailing to the last known or registered address, which persistently or repeatedly become unprotected or unsecured, which have been occupied by unauthorized persons or for illegal purposes, or which present a danger of structural collapse or fire spread to adjacent properties shall be considered abandoned, declared unsafe and abated by demolition or rehabilitation in accordance with the *International Property Maintenance Code* and the *International Building Code* procedures set forth in Chapter 10, Articles VIII and IX, of the *City Code*.

**315.7 Outdoor pallet storage.** Pallets stored outdoors shall comply with Sections 315.7 through 315.7.7. Pallets stored within a building shall be protected in accordance with Chapter 32.

**315.7.1 Storage beneath overhead projections from buildings.** Where buildings are equipped throughout with an *automatic sprinkler system*, the outdoor storage of pallets under eaves, canopies or other projections or overhangs is prohibited except where automatic sprinklers are installed under such eaves, canopies or other projections or overhangs.

**315.7.2 Distance to lot line.** Pallet storage shall not be located within 10 feet (3,048 mm) of a *lot line*.

**315.7.3 Storage height.** Pallet storage shall not exceed 20 feet (6,096 mm) in height.

**315.7.4 Pallet pile stability and size.** Pallet stacks shall be arranged to form stable piles. Individual pallet piles shall cover an area not greater than 400 square feet (37 m<sup>2</sup>).

**315.7.5 Pallet types.** Pallets shall be all wood, with slatted or solid top or bottom, with metal fasteners, or shall be plastic or composite pallets, listed and labeled in accordance with UL 2335 or FM 4996. Plastic pallets shall be both solid and gridded deck, independent of the pallet manufacturing process, type of resin used in fabrication or geometry of the pallet.

**315.7.6 Pile separation distance.** In addition to the other requirements of this section, pallet stacks and piles shall be separated in accordance with Sections 315.7.6.1 and 315.7.6.2.

**315.7.6.1 Building separation.** Pallets stacks and piles shall be separated from buildings in accordance with Table 315.7.6(1) for wood pallets and Table 315.7.6(2) for plastic pallets.

**315.7.6.2 Separation from other pallets and on-site storage.** Pallets shall be separated from other pallet piles and other storage in accordance with Table 315.7.6(3) for wood pallets and Table 315.7.6(4) for plastic pallets.

**315.7.7 Prohibited locations.** Pallets shall not be stored underneath high-voltage transmission lines, elevated roadways or elevated railways.

**TABLE 315.7.6(1)**  
**SEPARATION DISTANCE BETWEEN WOOD PALLET STACKS AND BUILDINGS**

<u>WALL CONSTRUCTION</u>	<u>OPENING TYPE</u>	<u>WOOD PALLET SEPARATION DISTANCE (feet)</u>		
		<u>≤ 51 Pallets</u>	<u>51 to 200 Pallets</u>	<u>&gt; 200 Pallets</u>
<u>Masonry</u>	<u>None</u>	<u>2</u>	<u>2</u>	<u>2</u>

<u>Masonry</u>	<u>Fire-rated glazing with open sprinklers</u>	<u>2</u>	<u>5</u>	<u>20</u>
<u>Masonry</u>	<u>Fire-rated glazing</u>	<u>10</u>	<u>5</u>	<u>20</u>
<u>Masonry</u>	<u>Plain glass with open sprinklers</u>	<u>10</u>	<u>5</u>	<u>20</u>
<u>Noncombustible</u>	<u>None</u>	<u>10</u>	<u>5</u>	<u>20</u>
<u>Wood with open sprinklers</u>	<u>=</u>	<u>10</u>	<u>5</u>	<u>20</u>
<u>Wood</u>	<u>None</u>	<u>15</u>	<u>30</u>	<u>90</u>
<u>Any</u>	<u>Plain glass</u>	<u>15</u>	<u>30</u>	<u>90</u>

For SI: 1 foot = 304.8 mm.

**TABLE 315.7.6(2)**  
**SEPARATION DISTANCE BETWEEN PLASTIC PALLET STACKS AND BUILDINGS**

<u>WALL CONSTRUCTION</u>	<u>OPENING TYPE</u>	<u>PLASTIC PALLET SEPARATION DISTANCE (feet)</u>		
		<u>&lt; 51 Pallets</u>	<u>51 to 200 Pallets</u>	<u>&gt; 200 Pallets</u>
<u>Masonry</u>	<u>None</u>	<u>2</u>	<u>2</u>	<u>2</u>
<u>Masonry</u>	<u>Fire-rated glazing with open sprinklers</u>	<u>10</u>	<u>20</u>	<u>50</u>
<u>Masonry</u>	<u>Fire-rated glazing</u>	<u>15</u>	<u>40</u>	<u>100</u>
<u>Masonry</u>	<u>Plain glass with open sprinklers</u>	<u>15</u>	<u>40</u>	<u>100</u>
<u>Noncombustible</u>	<u>None</u>	<u>15</u>	<u>40</u>	<u>100</u>
<u>Wood with open sprinklers</u>	<u>=</u>	<u>15</u>	<u>40</u>	<u>100</u>
<u>Wood</u>	<u>None</u>	<u>30</u>	<u>80</u>	<u>150</u>
<u>Any</u>	<u>Plain glass</u>	<u>30</u>	<u>80</u>	<u>150</u>

For SI: 1 foot = 304.8 mm.

**TABLE 315.7.6(3)**  
**SEPARATION FROM OTHER PALLET PILES AND ON-SITE STORAGE (WOOD PALLETS)**

	<u>WOOD PALLET SEPARATION DISTANCE (feet)</u>		
	<u>&lt; 51 Pallets</u>	<u>51 to 200 Pallets</u>	<u>&gt; 200 Pallets</u>
<u>Between pallet piles</u>	<u>7.5</u>	<u>15</u>	<u>45</u>
<u>Other on-site storage</u>	<u>7.5</u>	<u>15</u>	<u>45</u>

For SI: 1 foot = 304.8 mm.

**TABLE 315.7.6(4)**  
**SEPARATION FROM OTHER PALLET PILES AND ON-SITE STORAGE (PLASTIC**  
**PALLETS)**

	<b>WOOD PALLET SEPARATION DISTANCE (feet)</b>		
	<b><u>&lt; 51 Pallets</u></b>	<b><u>51 to 200 Pallets</u></b>	<b><u>&gt; 200 Pallets</u></b>
<u>Between pallet piles</u>	<u>15</u>	<u>40</u>	<u>75</u>
<u>Other on-site storage</u>	<u>15</u>	<u>40</u>	<u>75</u>

For SI: 1 foot = 304.8 mm.

## **SECTION 319**

### **MOBILE FOOD UNITS AND OTHER MOBILE FOOD PREPARATION VEHICLES**

**319.1 General.** Mobile food units, and other mobile food preparation vehicles that are equipped with appliances that produce smoke or grease-laden vapors shall comply with this section, the provisions of the Houston Health Code and Chapter 20 of the *City Code*, whichever is more restrictive.

**319.2 Permit required.** Permits shall be required as set forth in Section 105.6 and Chapter 20 of the *City Code*.

**319.3 Exhaust hood.** Cooking equipment that produces grease-laden vapors shall be provided with a kitchen exhaust hood in accordance with Section 609.

**319.4 Fire protection.** Fire protection shall be provided in accordance with Sections 319.4.1 and 319.4.2.

**319.4.1 Fire protection for cooking equipment.** Cooking equipment shall be protected by automatic fire extinguishing systems in accordance with Section 904.12. All systems shall be in place one year after adoption of this code.

**319.4.2 Fire extinguisher.** Portable fire extinguishers shall be provided in accordance with Section 904.12.5.

**319.5 Appliance connection to fuel supply piping.** Gas cooking appliances shall be secured in place and connected to fuel-supply piping with an appliance connector complying with ANSI Z21.69/CSA 6.16. The connector installation shall be configured in accordance with the manufacturer's installation instructions. Movement of appliances shall be limited by restraining devices installed in accordance with the connector and appliance manufacturers' instructions.

**319.6 Cooking oil storage containers.** Cooking oil storage containers within mobile food preparation vehicles shall have a maximum aggregate volume not more than 120 gallons (454 L), and shall be stored in such a way as to not be toppled or damaged during transport.

**319.7 Cooking oil storage tanks.** Cooking oil storage tanks within mobile food preparation vehicles shall comply with Sections 319.7.1 through 319.7.5.2.

**319.7.1 Metallic storage tanks.** Metallic cooking oil storage tanks shall be *listed* in accordance with UL 80 or UL 142 and shall be installed in accordance with the tank manufacturer's instructions.

**319.7.2 Nonmetallic storage tanks.** Nonmetallic cooking oil storage tanks shall be installed in accordance with the tank manufacturer's instructions and shall comply with both of the following:

1. Tanks shall be *listed* for use with cooking oil, including maximum temperature to which the tank will be exposed during use.
2. Tank capacity shall not exceed 200 gallons (757 L) per tank.

**319.7.3 Cooking oil storage system components.** Metallic and nonmetallic cooking oil storage system components shall include, but are not limited to, piping, connections, fittings, valves, tubing, hose, pumps, vents and other related components used for the transfer of cooking oil.

**319.7.4 Design criteria.** The design, fabrication and assembly of system components shall be suitable for the working pressures, temperatures and structural stresses to be encountered by the components.

**319.7.5 Tank venting.** Normal and emergency venting shall be provided for cooking oil storage tanks.

**319.7.5.1 Normal vents.** Normal vents shall be located above the maximum normal liquid line and shall have a minimum effective area not smaller than the largest filling or withdrawal connection. Normal vents are not required to vent to the exterior.

**319.7.5.2 Emergency vents.** Emergency relief vents shall be located above the maximum normal liquid line and shall be in the form of a device or devices that will relieve excessive internal pressure caused by an exposure fire. For nonmetallic tanks, the emergency relief vent shall be allowed to be in the form of construction. Emergency vents are not required to discharge to the exterior.

**319.8 LP-gas systems.** Where LP-gas systems are used to provide fuel for cooking appliances, such systems shall comply with Chapter 61 and Sections 319.8.1 through 319.8.5.

**319.8.1 Maximum aggregate volume.** The maximum aggregate capacity of LP-gas containers transported on the vehicle and used to fuel cooking appliances only shall not exceed 200 pounds (91 kg) propane capacity.

**319.8.2 Protection of container.** LP-gas containers installed on the vehicle shall be securely mounted and restrained to prevent movement.

**319.8.3 LP-gas container construction.** LP-gas containers shall be manufactured in compliance with the requirements of NFPA 58.

**319.8.4 Protection of system piping.** LP-gas system piping, including valves and fittings, shall be adequately protected to prevent tampering, impact damage, and damage from vibration.

**319.8.5 LP-gas alarms.** A *listed* LP-gas alarm shall be installed within the vehicle in the vicinity of LP-gas systems components, in accordance with the manufacturer's instructions.

**319.9 CNG systems.** Where CNG systems are used to provide fuel for cooking appliances, such systems shall comply with Sections 319.9.1 through 319.9.4.

**319.9.1 CNG containers supplying only cooking fuel.** CNG containers installed solely to provide fuel for cooking purposes shall be in accordance with Sections 319.9.1.1 through 319.9.1.3.

**319.9.1.1 Maximum aggregate volume.** The maximum aggregate capacity of CNG containers transported on the vehicle shall not exceed 1,300 pounds (590 kg) water capacity.

**319.9.1.2 Protection of container.** CNG containers shall be securely mounted and restrained to prevent movement. Containers shall not be installed in locations subject to a direct vehicle impact.

**319.9.1.3 CNG container construction.** CNG containers shall be an NGV-2 cylinder.

**319.9.2 CNG containers supplying transportation and cooking fuel.** Where CNG containers and systems are used to supply fuel for cooking purposes in addition to being used for transportation fuel, the installation shall be in accordance with NFPA 52.

**319.9.3 Protection of system piping.** CNG system piping, including valves and fittings, shall be adequately protected to prevent tampering, impact damage and damage from vibration.

**319.9.4 Methane alarms.** A listed methane gas alarm shall be installed within the vehicle in accordance with manufacturer's instructions.

**319.10 Maintenance.** Maintenance of systems on mobile food preparation vehicles shall be in accordance with Sections 319.10.1 through 319.10.3.

**319.10.1 Exhaust system.** The exhaust system, including hood, grease-removal devices, fans, ducts and other appurtenances, shall be inspected and cleaned in accordance with Section 609.3.

**319.10.2 Fire protection systems and devices.** Fire protection systems and devices shall be maintained in accordance with Section 901.6.

**319.10.3 Fuel gas systems.** LP-gas containers installed on the vehicle and fuel-gas piping systems shall be inspected annually by an *approved* inspection agency or a company that is registered with the U.S. Department of Transportation to requalify LP-gas cylinders to ensure that system components are free from damage, suitable for the intended service and not subject to leaking. CNG containers shall be inspected every 3 years in a qualified service facility. CNG containers shall not be used past their expiration date as listed on the manufacturer's container label. Upon satisfactory inspection, the *approved* inspection agency shall affix a tag on the fuel gas system or within the vehicle indicating the name of the inspection agency and the date of satisfactory inspection.

## **SECTION 320** **ENERGY SYSTEMS**

**320.1 General.** Energy systems shall be installed in accordance with NFPA 70, 111, 855, and the most restrictive provisions specified in the most current edition of the International Codes.



## CHAPTER 4

# EMERGENCY PLANNING AND PREPAREDNESS

**403.2.1 Seating plan and permits.** In addition to the requirements of Section 404.2, the fire safety and evacuation plans for assembly occupancies, including carnivals, festivals, fair grounds, and trade show exhibitions, shall be submitted when required by the fire code official. Plans shall include a detailed seating plan, occupant load and occupant load limit. Deviations from the approved plans shall be allowed when approved by the fire code official, provided the occupant load limit for the occupancy is not exceeded and the aisles and exit accessways remain unobstructed. Permits and plans are required to operate a place of assembly, or a carnival, festival or fair, to use liquid- or gas-fueled vehicles or equipment for competition or display inside an assembly occupancy, to use an assembly area for trade show exhibition purposes, or to use candles or other open-flame devices in assembly areas.

**403.5 Group E occupancies.** An *approved* fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for Group E occupancies and for buildings containing both a Group E occupancy and an atrium. Group E occupancies shall comply with Sections 403.5.1 through 403.5.3, and Houston Fire Department LSB Standard No. 08, "Fire Drills."

**403.5.4 Emergency evacuation drill deferral.** Drills are not required during periods of inclement weather or when state mandated educational assessment testing is being conducted.

**403.8.1 Group I-1 occupancies.** Group I-1 occupancies shall comply with Section 403.8.1.1 through 403.8.1.7, and Houston Fire Department LSB Standard No. 08, "Fire Drills."

**403.8.1.4 Drill frequency.** Emergency evacuation drills shall be conducted in accordance with Houston Fire Department LSB Standard No. 08, "Fire Drills." ~~In addition to the evacuation drills required in Section 405.2, employees shall participate in drills an additional two times a year on each shift. Twelve drills with all occupants shall be conducted in the first year of operation. Drills are not required to comply with the time requirements of Section 405.4.~~

**403.8.2 Group I-2 occupancies.** Group I-2 occupancies shall comply with Sections 403.8.2.1 through 403.8.2.3, as well as 401, and 404 through 406, and Houston Fire Department LSB Standard No. 08, "Fire Drills."

**403.8.4 Group I-4 occupancies.** Group I-4 occupancies shall conform to Sections 401 through 406 and Houston Fire Department LSB Standard No. 08, "Fire Drills."

**403.10 Group R occupancies.** Group R occupancies shall comply with Sections 403.10.1 through 403.10.3.6 and Houston Fire Department LSB Standard No. 08, "Fire Drills."

**403.10.1 Group R-1 occupancies.** An approved fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for Group R-1 occupancies. Group R-1 occupancies shall comply with Sections 403.10.1.1 through 403.10.1.3. High-rise R-1 occupancies shall also be in accordance with Houston Fire Department LSB Standard No. 07, "High-Rise Fire Safety Plans."

**403.10.2 Group R-2 occupancies.** Group R-2 occupancies shall comply with Sections 403.10.2.1 through 403.10.2.3, and Houston Fire Department LSB Standard No. 08, "Fire Drills."

**403.10.3 Group R-4 occupancies.** An *approved* fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for Group R-4 occupancies. Group R-4 occupancies shall comply with Sections 403.10.3.1 through 403.10.3.6, and Houston Fire Department LSB Standard No. 08, "Fire Drills."

**403.10.3.4 Drill frequency.** Emergency evacuation drills shall be conducted in accordance with Houston Fire Department LSB Standard No. 08, "Fire Drills." ~~In addition to the evacuation drills required in Section 405.2, employees shall participate in drills an additional two times a year on each shift. Twelve drills with all occupants shall be conducted in the first year of operation.~~

**403.10.3.5 Drill times.** Drill times are not required to comply with the time requirements of Section 405.4.

**403.11.1.3 Lease plan approval.** The lease plan shall be ~~submitted to the fire code official for approval, and shall be maintained on site by the owner for immediate reference by responding fire service personnel and be available upon request by the fire code official.~~

**403.11.1.4 Lease plan revisions.** The lease plans shall be revised annually or as often as necessary to keep them current. Modifications or changes in tenants or occupancies shall not be made without prior approval of the *fire code official* and building official.

**403.11.1.5 Tenant identification.** Tenant identification shall be provided for secondary *exits* from occupied tenant spaces that lead to an *exit corridor* or directly to the exterior of the building. Tenant identification, using letters and numbers of durable materials, at least 2 inches (50 mm) in height, shall be posted on the exterior side of the *exit* or exit access door and shall identify the business name and address using plainly legible letters and numbers that contrast with their background.

**Exception:** Tenant identification is not required for anchor stores.



**404.1 General.** ~~Where required by Section 403, fire safety, evacuation and lockdown plans shall comply with Sections 404.2 through 404.4.1. The fire code official is authorized to require that emergency plans, employee duty assignments, employee training and fire drills be provided in buildings of any occupancy type. When required, emergency plans, employee duty assignments, employee training and fire drills shall be conducted in accordance with this chapter and Houston Fire Department LSB Standard No. 08, "Fire Drills."~~

**404.2.1 Fire evacuation plans.** Fire evacuation plans shall include the following:

1. Emergency egress or escape routes, and alternate routes where available and whether evacuation of the building is to be complete by selected floors or areas only or with a defend-in-place response.
2. Procedures for building employees and security personnel who, when it is safe to do so, must remain to operate critical equipment before evacuating.
3. Procedures for the use of elevators to evacuate the building where occupant evacuation elevators complying with Section 3008 of the *International Building Code* are provided.
4. Procedures for assisted rescue for persons unable to use the general *means of egress* unassisted.
5. Procedures for accounting for employees and occupants after evacuation has been completed.
6. Identification and assignment of personnel responsible for rescue or emergency medical aid.
7. The preferred and any alternative means of notifying occupants of a fire or emergency.
8. The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.
9. Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.
10. A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.
11. All high-rise building evacuation plans shall conform to the Houston Fire Department LSB Standard No. 7, "High-Rise Fire Safety Plans."

**Exception:** Group I high-rise occupancies.

**404.3 Maintenance.** ~~Fire safety and Emergency~~ evacuation plans shall be reviewed or updated annually or as necessitated by changes in staff assignments, occupancy or the physical arrangement of the building.

**Exception:** In high-rise occupancies, the emergency plans within fire depository boxes shall be reviewed and updated every six months to verify mobility impaired persons lists.

emergency keys and any other data, in accordance with Houston Fire Department LSB Standard No. 06, "Fire Depository Boxes."

**405.1 General.** Emergency evacuation drills complying with Sections 405.2 through 405.9 shall be conducted in an occupancy when required by the *fire code official* in accordance with Houston Fire Department LSB Standard No. 08, "Fire Drills." Evacuation drills in high-rise buildings shall be conducted in accordance with Houston Fire Department LSB Standard No. 07, "High-Rise Fire Safety Plans." ~~not less than annually where fire safety and evacuation plans are required by Section 403 or where required by the *fire code official*. Drills shall be designed in cooperation with the local authorities.~~

**405.2 Frequency.** Fire drill frequency shall be in accordance with the Houston Fire Department LSB Standard No. 08, "Fire Drills" unless superseded by other regulatory agencies. ~~Required emergency evacuation drills shall be held at the intervals specified in Table 405.2 or more frequently where necessary to familiarize all occupants with the drill procedure.~~

**405.6 Notification.** Where required by the *fire code official*, prior notification of emergency evacuation drills shall be given to the ~~*fire code official*~~ jurisdiction immediately prior to the drill by calling the Houston Fire Department Office of Emergency Communications, Telephone: (713) 884-3143, and to the building's fire alarm monitoring service. The Fire Department and the monitoring service shall be immediately notified at the conclusion of emergency evacuation drills, in accordance with Houston Fire Department LSB Standard No. 08, "Fire Drills."

## CHAPTER 5

# FIRE SERVICE FEATURES

**501.1 Scope.** Fire service features for buildings, structures and premises shall comply with this chapter.

**Exception:** Group R-2 occupancies when in accordance with Chapter 42 of the *City Code* for those items addressed therein. Items not specifically addressed in Chapter 42 of the *City Code* for multi-family residential developments shall be as required by this chapter or elsewhere in this code.

**503.2 Specifications.** Fire apparatus access roads shall be installed and arranged in accordance with Sections 503.2.1 through 503.2.8 and Houston Fire Department LSB Standard No. 03, "Fire Department Access."

**503.2.1 Dimensions.** Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6,096 mm), exclusive of shoulders, except for *approved* security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4,115 mm).

**Exceptions:**

1. When approved by the *fire code official*, vertical clearance may be reduced, provided the reduction does not impair access by fire apparatus and *approved* signs are installed and maintained indicating the established vertical clearance.
2. When approved by the *fire code official*, existing access roads may have an unobstructed width of not less than 15 feet (4,572 mm), when the reduction in width will not impair access by fire department equipment, or when, for access roads in existence on June 15, 1976, the designation of a greater width would necessitate structural changes to the building.

**503.3 Marking.** Where required by the *fire code official*, *approved* signs or other *approved* notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. Marking of fire apparatus access roads shall be in accordance with Section 503.3 and Houston Fire Department LSB Standard No. 03, "Fire Department Access." ~~The means by which *fire lanes* are designated~~ Signs or notices shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

**503.3.1 Alteration, defacing or signs unlawful.** A person commits an offense if the person intentionally alters, defaces, injures, knocks down, or removes, or attempts to alter, deface, injure, knock down, or remove, any sign required under the terms of this code.

**503.4 Obstruction of fire apparatus access roads.** ~~Fire~~ The required width of a fire apparatus access roads, private drive, private street, or private access easement utilized for fire apparatus access shall not be obstructed in any manner, including the parking of vehicles. The minimum

required widths and clearances established in Section 503.2.1 and 503.2.2 shall be maintained at all times.

**Exceptions:**

1. Access control gates installed in accordance with Houston Fire Department LSB Standard No. 04, "Access Control Gates." See Section 105.6 for permits.
2. Parking shall not include a vehicle that has a licensed vehicle operator in constant attendance in the vehicle, provided that the licensed operator has the ability to immediately remove the vehicle in case of an emergency.

**503.4.1 Traffic calming devices.** ~~Traffic calming devices shall be prohibited unless approved by the fire code official.~~ **Removal of vehicles and obstructions.** Vehicles parked and obstructions placed in violation of this code may be removed at the vehicle owner's expense by or at the direction of the fire chief, any peace officer or the property owner in accordance with applicable provisions of the *City Code* and state law.

**503.4.2 Presumption of ownership.** In any prosecution arising under this code that relates to the unlawful parking, standing, or stopping of a motor vehicle, it shall be presumed that the person who is the registered owner of the motor vehicle is the person who parked or stopped the vehicle at the date and time of the offense charged.

**503.5 Required gates or barricades.** The *fire code official* is authorized to require the installation and maintenance of gates or other *approved* barricades across fire apparatus access roads, trails or other accessways, not including public streets, alleys or highways. Access control gates and barriers shall be installed and maintained in accordance with Houston Fire Department LSB Standard No. 04, "Access Control Gates." For required permits see Section 105.6.2. Electric gate operators, where provided, shall be *listed* in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

**503.6 Security gates.** The installation of security gates across a fire apparatus access road shall be *approved* by the ~~fire chief~~ *fire code official* in accordance with Houston Fire Department LSB Standard No. 04, "Access Control Gates." Where security gates are installed, they shall have an *approved* means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times, or secured in the open position. Repairs shall be in accordance with original specifications and approvals. Electric gate operators, where provided, shall be *listed* in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

**504.1.1 Key box required.** When required by the *fire code official*, security gates and barriers on access walkways shall be provided with *approved* "9-1-1" key boxes to facilitate emergency access into the property or building where emergency access is not readily available because of property or building design or because of distances from *approved* access roadways or drives to the building entrance. Key boxes shall be installed in accordance with Houston Fire Department LSB Standard No. 05, "Key Boxes." See Section 105.6 for required permit.

**504.3 Stairway access to roof.** New buildings four or more stories ~~above-grade plane in height,~~ except those with a roof slope greater than four units vertical in 12 units horizontal (33.3-percent slope), shall be provided with a *stairway* to the roof. *Stairway* access to the roof shall be in accordance with Section 1011.12. Such *stairway* shall be marked at street and floor levels with a sign indicating that the *stairway* continues to the roof. Where roofs are used for roof gardens or for other purposes, *stairways* shall be provided as required for such occupancy classification. See Appendix H for stairway identification sign requirements.

**505.1 Address identification.** New and existing buildings, and occupancies therein under construction, shall be provided with *approved* address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 4 inches (102 mm) high with a minimum stroke width of ½ inch (12.7 mm). Where required by the *fire code official*, address identification shall be provided in additional *approved* locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the *public way*, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained. All new and existing buildings are required to be numbered as provided in Chapter 10, Article V, of the City Code.

**506.1 Where required.** Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the *fire code official* is authorized to require a key box or a fire depository box to be installed in an *approved* location. The key box shall be of an *approved* type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the *fire code official*. Key boxes shall be provided in accordance with Houston Fire Department LSB Standard No. 05, “Key Boxes” and LSB Standard No. 6, “Fire Depository Boxes.”

**506.1.1 Locks.** An *approved* lock shall be installed on gates or similar barriers where required by the *fire code official*. Key boxes shall be provided in accordance with Houston Fire Department LSB Standard No. 05, “Key Boxes.”

**506.1.2 Key boxes for nonstandardized fire service elevator keys.** Fire depository boxes for all high-rise, mid-rise and other facilities shall be installed and maintained in accordance with Houston Fire Department LSB Standard No. 06, “Fire Depository Boxes” as required by the fire marshal. Key boxes provided for nonstandardized fire service elevator keys shall comply with Section 506.1 and all of the following:

1. The key box shall be compatible with an existing rapid entry key box system in use in the jurisdiction and *approved* by the *fire code official*.
2. The front cover shall be permanently labeled with the words “Fire Department Use Only—Elevator Keys.”
3. The key box shall be mounted at each elevator bank at the lobby nearest to the lowest level of fire department access.
4. The key box shall be mounted 5 feet 6 inches (1,676 mm) above the finished floor to the right side of the elevator bank.
5. Contents of the key box are limited to fire service elevator keys. Additional elevator access tools, keys and information pertinent to emergency

planning or elevator access shall be permitted where authorized by the *fire code official*.

6. In building with two or more elevator banks, a single key box shall be permitted to be used where such elevator banks are separated by not more than 30 feet (9,144 mm). Additional key boxes shall be provided for each individual elevator or elevator bank separated by more than 30 feet (9,144 mm).

**Exception:** A single key box shall be permitted to be located adjacent to a *fire command center* or the nonstandard fire service elevator key shall be permitted to be secured in a key box used for other purposes and located in accordance with Section 506.1.

**506.3 Fire depository box.** A fire depository box shall be provided within all high-rise occupancies, as defined in the *Building Code*, or other facilities as may be required by the *fire code official*. Fire depository boxes shall be installed and maintained in accordance with Houston Fire Department LSB Standard No. 06, "Fire Depository Boxes."

**506.4 Permit required.** A permit is required to install and maintain a key box and/or fire depository box. See Section 105.6.

**507.4.1 Hose lay advancement access.** The *fire code official* may require an unobstructed 5 feet by 10 feet (1,524 mm x 3,048 mm) minimum clearance along the perimeter of any building, structure or appurtenance. The clearance shall allow adequate access and coverage during emergency operations for firefighters to deploy and advance fire hose lines.

**507.5 Fire hydrant systems.** Fire hydrant systems shall comply with Section 507.5.1 through 507.5.6, and the Houston Fire Department LSB Standard No. 09, "Marking of Fire Hydrants."

**507.5.7 Removal of vehicles parked near fire hydrants.** Vehicles parked within 15 feet (4,572 mm) of a fire hydrant in violation of a state law or ordinance may be removed at the vehicle owner's expense by or at the direction of the fire chief, *fire code official* or any peace officer in accordance with applicable provisions of the *City Code* and state law.

**508.1.1 Location and access.** The location and accessibility of the *fire command center* shall be approved by the ~~fire chief~~ *fire code official*. The *fire command center* room shall be on the building floor having street access. Access to the room shall be either directly from the exterior, through an entrance lobby, or through a 2-hour rated corridor leading directly to the exterior.

**508.1.6 Required features.** The *fire command center* shall comply with NFPA 72 and shall contain the following features:

{EDITORIAL NOTE: ITEMS 1-18 SHALL REMAIN AS SET FORTH IN THE 2015 IFC.}

19. A means to automatically switch an alarm signal to an *approved* central station.
20. Two handsets per each 10 stories in building height.

## **SECTION 510 EMERGENCY RESPONDER RADIO COVERAGE**

**510.1 Emergency responder radio coverage (ERRC) in new buildings.** All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems ~~of~~ utilized by the jurisdiction, measured at the exterior of the building. Coverage shall include the City of Houston Radio System. Any building or structure that fails to support adequate radio coverage shall comply with this code for minimum ERRC coverage. The owner shall immediately contact the City of Houston Permitting Office to report the system failure. This section shall not require improvement of the existing public safety communication systems.

### **Exceptions:**

1. Where *approved* by the building official and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained instead of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.
3. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the *fire code official* shall have the authority to accept an automatically activated emergency responder radio coverage system.

**510.1.1 Compliance verification.** New buildings require compliance verification testing by a City of Houston registered ERRC third-party special inspector. A copy of the compliance verification special inspection report shall be submitted to the *building official* for review and archiving to the project records prior to the project final approval or issuance of a *Certificate of Occupancy*.

**Exception:** Buildings without basements and three stories or less in height with an aggregate total building area of 50,000 square feet or less.

**NOTE:** ERRC special inspection reports shall be submitted by email directly to the Customer Assistance & Code Development Office of the Houston Permitting Center at: [HPC-RA@houstontx.gov](mailto:HPC-RA@houstontx.gov).

**510.2 Emergency responder radio coverage in existing buildings.** Existing buildings shall be provided with *approved* radio coverage for emergency responders as required in Chapter 11 of this code.

**510.3 Permit required.** A construction permit, when required, shall be issued by the building official for the installation of or modification to an ERRC system in accordance with the *Construction Code* for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.5. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

**510.4 Technical requirements.** Systems, components and equipment required to provide the emergency responder radio coverage system shall comply with Sections 510.4.1 through 510.4.2.95.

**510.4.1 Radio-~~Emergency responder communication enhancement system~~ signal strength.** The building shall be considered to have acceptable emergency responder ~~radio communications enhancement system~~ coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 and ~~through~~ 510.4.1.32.

**510.4.1.1 Minimum signal strength into the building.** ~~A minimum signal strength of 95 dBm shall be receivable within the building. The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The inbound signal level shall be sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 or an equivalent Signal-to-Interference-Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.~~

**510.4.1.2 Minimum signal strength out of the building.** ~~A minimum signal strength of 95 dBm shall be received by the agency's radio system when transmitted from within the building. The minimum outbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The outbound signal level shall be sufficient to provide not less than a DAQ of 3.0 or an equivalent SINR applicable to the technology for either analog or digital signals.~~

**510.4.1.3 System performance.** Signal strength shall be sufficient to meet the requirements of the applications being utilized by public safety for emergency operations through the coverage area as specified by the *fire code official* in Section 510.4.2.2

**510.4.2 System design.** The emergency responder radio coverage system shall be designed in accordance with Section 510.4.2.1 through 510.4.2.95 and NFPA 1221-2016.

**510.4.2.1 Amplification systems allowed.** Buildings and structures that cannot support the required level of radio coverage shall be equipped with an internal multiple system with FCC Type Accepted Bi-Directional Amplifiers as required to encompass the frequency ranges as specified in Section 510.1, or as subsequently established by the City of Houston and be equipped with systems and components to enhance the public safety radio signals and achieve the required level of radio coverage specified in Sections 510.4.1 through 510.4.1.3. Donor antennas, when utilized, shall be optimized for directional reception from a single transmitter site. Public safety communications enhancement systems utilizing radio-frequency-emitting devices and cabling shall be approved by the *fire code official*. Prior to installation, all RF-emitting devices shall have the certification of the radio licensing authority and be suitable for public safety use. ~~a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC)-certified signal boosters, or other system approved by the fire code official in order to achieve the required adequate radio coverage.~~

**510.4.2.2 Technical criteria.** The *fire code official* shall maintain a document providing the specific technical information and requirements for the emergency responder ~~radio communications~~ coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, the effective radiated power of radio sites, the maximum propagation delay in microseconds, the applications being used and other supporting technical information necessary for system design.



**510.4.2.3 Standby power.** Emergency responder radio coverage systems shall be provided with dedicated standby batteries or provided with 2-hour standby power batteries and connected to the facility generator power system in accordance with Section ~~1203604~~ of this code. The standby power supply shall be capable of operating the emergency responder radio coverage system at 100-percent system capacity for a duration of not less than 1224 hours.

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

1. All signal booster components shall be contained in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet.
2. Battery systems used for the emergency power source shall be contained in a ~~NEMA 4-type waterproof~~ 3R or higher-rated cabinet.
3. ~~The signal booster system and battery system shall be electrically supervised and monitored by a supervisory service, or when approved by the fire code official, shall sound an audible signal at a constantly attended location.~~ Equipment shall have FCC or other radio licensing authority certification and be suitable for public safety use prior to installation.
4. ~~Equipment shall have FCC certification prior to installation. Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20dB greater than the system gain under all operating conditions. Donor antennas shall be omnidirectional to take advantage of the City of Houston simulcast radio architecture.~~
5. Bi-Directional Amplifiers (BDAs) used in emergency responder radio coverage systems shall have oscillation prevention circuitry. BDAs will need to be a bandpass or able to hand 42 downlink and 42 uplink channels with room for expansion. For required frequencies, the installer will need to contact the City of Houston Radio Communication Services.

**NOTE:** Contact City of Houston HITS – Radio Communications Services for specific frequencies of specific project locations.

City of Houston HITS – Radio Communications Services  
2318 Greens Road, Houston, Texas 77032

Attn: NOC

Office: 832-393-0399

Email: [RCSNETWORKOPS@houstontx.gov](mailto:RCSNETWORKOPS@houstontx.gov)

6. The installation of amplification systems or system that operate on or provide the means to cause interference on any emergency responder radio coverage networks shall be coordinated and approved by the fire code official.

**510.4.2.5 Additional frequencies and change of frequencies.** The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or other radio licensing

authority, or additional frequencies are made available by the FCC or other radio licensing authority.

**510.4.2.6 System monitoring.** The emergency responder radio enhancement system shall be monitored by a listed *fire alarm control unit*, or where approved by the *fire code official*, shall sound an audible signal at a constantly attended on-site location. Automatic supervisory signals shall include the following:

1. Loss of normal AC power supply.
2. System battery charger(s) failure.
3. Malfunction of the donor antenna(s).
4. Failure of active RF-emitting device(s).
5. Low-battery capacity at 70-percent reduction of operating capacity.
6. Failure of critical system components.
7. The communications link between the *fire alarm system* and the emergency responder radio enhancement system.

**510.4.2.7 Design documents.** The *fire code official* shall have the authority to require “as-built” design documents and specifications for emergency responder communications coverage systems. The documents shall be in a format acceptable to the *fire code official*.

**510.4.2.8 Radio communication antenna density.** Systems shall be engineered to minimize the near-far effect. Radio enhancement system designs shall include sufficient antenna density to address reduced gain conditions.

**Exceptions:**

1. Class A narrow band signal booster devices with independent AGC/ALC circuits per channel.
2. Systems where all portable devices within the same band use active power control features.

**510.4.2.9 Minimum qualifications of designer.** An amplification system shall be designed, sealed, signed and dated by a registered professional engineer licensed by the State of Texas.

**510.5 Installation requirements.** The installation of the public safety radio coverage system shall be in accordance with Section 510.5.1 through 510.5.4 and NFPA 1221-2016.

**510.5.1 Approval prior to installation.** Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC shall not be installed without prior coordination and approval of the *fire code official*.

**510.5.2 Minimum qualifications of personnel.** The minimum qualifications of the system designer and lead installation personnel shall include both of the following:

1. A valid, current FCC-issued general radio operators license.
2. Certification of in-building system training issued by ~~an approved nationally recognized organization, or approved school,~~ or a certificate issued by the manufacturer of the equipment being installed.

These qualifications shall not be required where demonstration of adequate skills and experience satisfactory to the *fire code official* is provided.

**510.5.3 Acceptance test procedure.** Where an emergency responder radio coverage system is required, and upon completion of installation, the building owner shall have the radio system tested to verify that two-way coverage on each floor of the building is not less than ~~95~~90 percent. Testing shall be conducted by personnel with minimum qualifications as specified in Section 510.5.2. The building owner shall retain copies of all test records at the inspected premises. A photocopy of the test inspection report shall be submitted to the *building official*. If the building coverage fails to comply with the minimum requirements of this code, repairs shall be made and additional testing conducted until the minimum requirements have been met. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.
2. The test shall be conducted using a calibrated, and approved, portable radio of the latest brand and model used by the agency talking through the agency's radio communications system or equipment approved by the *fire code official*.
3. ~~Failure of more than one test area shall result in failure not more than two nonadjacent test areas shall not result in failure of the test.~~
4. In the event that ~~three~~ two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than ~~four~~ two nonadjacent test areas shall not result in failure of the test. If the system fails the 40-area test, the system shall be altered to meet the ~~90~~95-percent coverage requirement.
5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered failure of that test area. Additional test locations shall not be permitted.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurements results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment, calibrated within the previous 12 months, shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and subsequent annual inspections.
8. Systems incorporating Class B signal-booster devices of Class B broadband fiber remote devices shall be tested using two portable radios simultaneously conducting subjective voice quality checks. One portable radio shall be positioned not greater than 10 feet (3,048 mm) from the indoor antenna. The second portable radio shall be positioned at a distance

that represents the farthest distance from any indoor antenna. With both portable radios simultaneously keyed up on different frequencies within the same band, subjective audio testing shall be conducted and comply with DAQ levels as specified in Sections 510.4.1.1 and 510.4.1.2.

**Exception:** The minimum coverage of each floor may be reduced from 95 to 90 percent where the stairwells and elevator lobbies are included in the 90-percent coverage area.

**510.5.4 FCC compliance.** The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations included, but not limited to, FCC 47 CFR Part 90.219.

**510.6 Maintenance.** The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections 510.6.1 through 510.6.43, and shall be replaced or repaired where defective. The property owners shall be responsible for necessary repairs, replacement, and/or upgrades to the system as directed by the fire code official.

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

1. In-building coverage test as described in Section 510.5.3.
2. Signal boosters shall be tested to verify that the gain is the same as it was upon initial installation and acceptance or set to optimize the performance of the system.
3. Backup batteries and power supplies shall be tested under load of a period of 1-hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.
4. Other active components shall be checked to verify operation within the manufacturer's specifications.
5. At the conclusion of the special inspection testing, a photocopy of the report, which shall verify compliance with Section 510.5.3, shall be electronically submitted to the Customer Assistance & Code Development Office of the Houston Permitting Center at: [HPC-RA@houston.tx.gov](mailto:HPC-RA@houston.tx.gov). The original shall be kept on site and available for review upon request by the fire code official.

**510.6.2 Additional frequencies.** The building owner shall modify or expand the emergency responder radio coverage system at his or her expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

**510.6.3 Field testing.** Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.

**510.6.4 Nonpublic safety system.** Where other nonpublic safety amplification systems installed in buildings reduce the performance or cause interference with the emergency

responder communications coverage system, the nonpublic safety amplification system shall be corrected or removed.



## CHAPTER 6

# BUILDING SERVICES AND SYSTEMS

**601.2 Permits.** Permits shall be obtained for ~~refrigeration systems,~~ stationary lead acid battery systems and solar photovoltaic power systems as set forth in Sections 105.6 and 105.7.

**603.3.2.4 Installation.** Tanks and piping systems shall be installed and separated from other uses in accordance with NFPA 37 and UL 2200 standards ~~Section 915 and Chapter 13, both of the *International Mechanical Code*,~~ as applicable.

### **603.9 Gas meters and piping.**

**603.9.1 Protection of meters and piping.** Above-ground gas meters, regulators and piping subject to damage shall be protected by a barrier complying with Section 312 or otherwise protected in an *approved* manner.

### **603.9.2 Testing of piping and systems.**

**603.9.2.1 Routine testing.** All gas piping systems in Groups A, E, I, R-1 and R-2 occupancies shall be tested at least every five years by a licensed plumber. Systems shall be tested in accordance with the *Plumbing Code*. The owner shall maintain a written record onsite at a location designated by the *fire code official* and it shall be made available upon request.

**603.9.2.2 Testing for leaks.** The *fire code official* is authorized to require a test of the gas piping system in any building or structure, of any occupancy type, when there is reason to believe a leak may exist in the system.

**604.4.1 Schedule.** Inspection, testing and maintenance of emergency and standby power systems shall be in accordance with an approved schedule established upon completion and approval of the system installation and Houston Fire Department LSB Standard No. 02, "Inspection and Testing of Fire Protection and Life-Safety Equipment."

**605.13 Protection of lighting fixtures and devices.** All permanent or temporary lighting fixtures and devices used in mechanical spaces, service areas, exit accessways, stairways, and parking garages shall be provided with an *approved* protective device designed to prevent accidental breakage, contact with readily ignitable materials, or creation of electrical shock hazard.

### **Exceptions:**

1. Listed devices *approved* for use in hazardous locations in accordance with the *Electrical Code*.
2. Listed incandescent bulbs or fluorescent tubes provided with *approved* shatter- or break-resistive protective coatings.
3. Listed devices for exterior use, with *approved* weather resistant bulbs.

4. Fixtures so located as to be suitably protected from accidental damage or breakage.

**606.9 Remote controls.** Where flammable refrigerants are used and compliance with Chapter 11~~Section 1106~~ of the *International Mechanical Code* is required, remote control of the mechanical equipment and appliances located in the machinery room as required by Sections 606.9.1 and 606.9.2 shall be provided at an approved location immediately outside the machinery room and adjacent to its principal entrance.

**606.16 Electrical equipment.** Where refrigerants of Groups A2, A3, B2 and B3, as defined in the *International Mechanical Code*, are used, refrigeration machinery rooms shall conform to the Class I, Division 2 hazardous location classification requirements of NFPA 70.

**Exception:** Ammonia machinery rooms that are provided with ventilation in accordance with ~~Section 4406.3~~ 1102.1 of the *International Mechanical Code*.

**[BE] 607.3 Emergency signs.** An *approved* pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the exit stairways and not to use the elevators in case of fire. The sign shall read: IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS. The lettering shall be at least ½ inch (13 mm) block letters on a background of contrasting color so that the lettering is clearly visible.

**Exceptions:**

1. The emergency sign shall not be required for elevators that are part of an accessible *means of egress* complying with Section 1009.4.
2. The emergency sign shall not be required for elevators that are used for occupant self-evacuation in accordance with Section 3008 of the *International Building Code*.

**607.7 Elevator key location.** Keys for the elevator car doors and fire-fighter service keys shall be kept in an *approved* location in accordance with Houston Fire Department LSB Standard No. 06, "Fire Depository Boxes" for immediate use by the fire department.

**607.8 Standardized fire service elevator keys.** Buildings with elevators equipped with Phase I emergency recall, Phase II emergency in-car operation, or a fire service access elevator shall be equipped to operate with a standardized fire service elevator key approved by the *fire code official*, in accordance with Houston Fire Department LSB Standard No. 06, "Fire Depository Boxes." See Section 506.1. The *approved* fire service elevator key shall be available for immediate use by the fire department.

**Exception:** The owner shall be permitted to place the building's nonstandardized fire service elevator keys in a key box installed in accordance with Section 506.1.2.



## CHAPTER 7

# FIRE AND SMOKE PROTECTION FEATURES

**703.1.1 Fireblocking and draftstopping.** Required *fireblocking* and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction. Including attics in existing Group R-2 apartments, the *fire code official* is authorized to require installation of draftstops in Group R-2 occupancies that do not exceed four stories in height in any building undergoing roof work that involves replacement of more than 25 percent of the roof sheathing. The attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet (279 m<sup>2</sup>) or above every two dwelling units whichever is smaller.

**703.4 Testing.** Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm proper operation and full closure. Fire doors, fire dampers, and other similar equipment shall be inspected and tested in accordance with Houston Fire Department LSB Standard No. 02, "Inspection and Testing of Fire Protection and Life-Safety Equipment." The owner shall maintain rRecords of inspections and testing onsite at a location designated by the *fire code official* shall be maintained.



## CHAPTER 9

# FIRE PROTECTION SYSTEMS

**901.1 Scope.** The provisions of this chapter and the Building Code shall specify where *fire protection systems* are required and shall apply to the design, installation, inspection, operation, testing and maintenance of all *fire protection systems*.

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

**901.3 Permits.** Permits shall be required as set forth in Sections 105.6 and 105.7 of the *Building Code*.

**901.4.5 Appearance of equipment.** Any device that has the physical appearance of life safety or fire protection equipment but that does not perform that life safety or fire protection function shall be prohibited. Systems or devices that are permanently out of service or any non-required life safety system or fire protection system that no longer functions as originally installed shall be removed or the appearance changed so as not to be mistaken for functioning life safety or fire protection equipment.

**901.5 Installation acceptance testing.** Fire detection and alarm systems, fire-extinguishing systems, fire hydrant systems, fire standpipe systems, fire pump systems, private fire service mains and all other *fire protection systems* and appurtenances thereto shall be subject to acceptance tests as contained in the installation standards and as *approved* by the *fire code official*. ~~The fire code official shall be notified before any required acceptance testing.~~ The location of all fire department connections shall be approved by the fire code official. Inspection of fire-extinguishing systems shall be conducted by the fire code official, upon payment of all applicable fees stated in the city fee schedule. The inspection and reports shall be forwarded to the building official for posting to occupancy records. No building or structure requiring a fire-extinguishing system shall be permanently occupied without first obtaining the fire code official's approval.

**Exception:** The building official shall have the authority to issue a temporary certificate of occupancy for the use of a portion or portions of a building prior to the completion of the entire structure.

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

**Exception:** The building official is authorized to issue a temporary certificate of occupancy in accordance with the *Building Code*.

**901.6.1 Standards.** *Fire protection systems* shall be inspected, tested and maintained in accordance with the referenced standards *listed* in Table 901.6.1 and in accordance with Houston Fire Department LSB Standard No. 02, "Inspection and Testing of Fire Protection and Life-Safety Equipment" and LSB Standard No. 01, "Installation and Maintenance of Portable Fire Extinguishers."

**901.7 Systems out of service.** Where a required life safety or fire protection system is out of service, the fire department and the *fire code official* shall be notified immediately in accordance with Section 901.12 and, where required by the *fire code official*, either the building shall be ~~either~~ evacuated or an *approved* fire watch, or one or more standby inspectors, in accordance with Section 114, shall be provided for all occupants left unprotected by the shutdown until the life safety or fire protection system has been returned to service.

Where utilized, fire watches shall be provided with not less than one *approved* means for notification of the fire department and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires.

**901.11 Outside sprinkler control valve.** Outside control in the form of a wall post indicator valve or post indicator valve shall be provided for each sprinkler system. An indicating-type gate valve shall be required when sprinkler systems are supplied by the standpipe system.

**901.12 Notification of fire department.** The Houston Fire Department Office of Emergency Communications shall be immediately notified by telephone, at (713) 884-3143, whenever the required fire protection or life safety system is placed out of service for emergency or non-schedule repairs, replacements, or service. The Fire Department shall be provided with the following information:

1. Correct street address and name of the building or structure.
2. The caller's name and contact phone number.
3. The identity of system that is impaired or shut down, and if known, the nature of the impairment or failure.
4. Estimated length of time system is to be out of service for repairs.

The Fire Department Office of Emergency Communications shall again be notified when the system is restored to normal operational status.

**901.13 Fire pumps.** Fire pumps shall be listed by Factory Mutual, Underwriters Laboratories or another approved agency and shall not deliver less than the required fire flow and pressure in accordance with the listing. Such pumps shall be automatic operation. (See the *Electrical Code* for additional requirements.) The source of supply for such pumps shall be a break tank served from the city main sized as required by NFPA 20, or a minimum 2500 gallons, whichever is more restrictive.

**903.2 Where required.** *Approved automatic sprinkler systems* in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

**Exceptions:**

1. Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution

equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour *fire barriers* constructed in accordance with Section 707 of the *International Building Code* or not less than 2-hour *horizontal assemblies* constructed in accordance with Section 711 of the *International Building Code*, or both.

2. In other than Group H occupancies, a sprinkler system shall not be required in open buildings.

**903.2.1.3 Group A-3.** An *automatic sprinkler system* shall be provided for *fire areas* containing Group A-3 occupancies and intervening floors of the building where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>).
2. The *fire area* has an *occupant load* of 300 or more.
3. The *fire area* is located on a floor other than a the level of exit discharge serving such occupancies.

**Exception:** In lieu of a sprinkler system for a temporary use occupancy, the applicant may agree to provide a fire watch program under which one or more fire inspectors of this jurisdiction will be present on the premises at all times when the amusement occupancy is open for use. The *fire code official* shall promulgate regulations regarding the qualifications, deployment and numbers of fire inspectors, which regulations shall be predicated upon public safety for the purpose of preventing fires and allowing safe egress in the event of a fire. The jurisdiction shall not be obligated to provide fire inspectors for this purpose. See Section 113.1.2 for fees for the provision of standby inspectors

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

**Exception:** Open parking garages of Type I or Type II construction. In lieu of a sprinkler system for a temporary use occupancy, the applicant may agree to provide a fire watch program under which one of more fire inspectors of this jurisdiction will be present on the premises at all times when the amusement occupancy is open for use. The *fire code official* shall promulgate regulations regarding the qualifications, deployment and numbers of fire inspectors, which regulations shall be predicated upon public safety for the purpose of preventing fires and allowing safe egress in the event of a fire. The jurisdiction shall not be obliged to provide fire inspectors for this purpose. See the *Fire Code* for applicable fees and service conditions.

**903.2.5 Group H.** *Automatic sprinkler systems* shall be provided in high-hazard occupancies as required in Sections 903.2.5.1 through 903.2.5.3.

**Exception:** Hazardous materials storage canopies complying with the provisions of Section 414.6.1 of the *Building Code* for weather protection.

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

**Exceptions:**

1. An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.
2. An *automatic sprinkler system* is not required where Group I-4 day care facilities are at the *level of exit discharge* and where every room where care is provided has not fewer than one exterior *exit* door.
3. ~~In buildings where Group I-4 day care is provided on levels other than the *level of exit discharge*, an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the *level of exit discharge* and all floors below the level of exit discharge other than areas classified as an open parking garage.~~

**903.3.6 Hose threads.** Fire hose threads and fittings used in connection with *automatic sprinkler systems* shall be ~~as prescribed by the *fire code official*~~ National Hose Standard hose threads.

**903.3.7 Fire department connections.** Fire department connections for *automatic sprinkler systems* shall be installed in accordance with Section 912. Fire department connections shall have 2½-inch (64 mm) hose connections. Fire department connections shall be located on the street side of the building, unobstructed, fully visible, and recognizable from the street or nearest point of fire department vehicle access or as otherwise *approved by the fire code official*.

**904.12 Commercial cooking systems.**

{EDITORIAL NOTE: THE PORTION OF THE TEXT BETWEEN THE SECTION NUMBER AND TITLE AND THE EXCEPTION SHALL REMAIN AS SET FORTH IN THE 2015 IFC.}

**Exception:** Factory-built commercial cooking recirculating systems that are tested in accordance with UL 710B and *listed, labeled* and installed in accordance with Section ~~304.4~~ 303.1 and 516.0 of the ~~*International Mechanical Code*~~.

**905.2.1 Two-way standpipe connections.** Class I and Class III standpipe systems shall be equipped with a two-way fire department inlet connection. Systems with three or more standpipes shall be provided with not less than two two-way fire department inlet connections.

**905.3.1 Height.** Class III standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet (9,144 mm) above the lowest level of the fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet (9,144 mm) below the highest level of fire department vehicle access.

**Exceptions:**

1. Class I standpipes are allowed in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
- ~~2. Class I manual standpipes are allowed in open parking garages where the highest floor is located not more than 150 feet (45,720 mm) above the lowest level of fire department vehicle access.~~
- ~~3. Class I manual dry standpipes are allowed in open parking garages that are subject to freezing temperatures, provided that the hose connections are located as required for Class II standpipes in accordance with Section 905.5.~~
2. Class I standpipes are allowed in *basements* equipped throughout with an *automatic sprinkler system*.
3. In determining the lowest level of fire department vehicle access, it shall not be required to consider either of the following:
  - 3.1 Recessed loading docks for four vehicles or less.
  - 3.2 Conditions where topography makes access from the fire department vehicle to the building impractical or impossible.

**905.3.2 Group A.** Class I automatic wet standpipes shall be provided in nonsprinklered Group A buildings having an *occupant load* exceeding 1,000 persons.

**Exceptions:**

1. Open-air-seating spaces without enclosed spaces.
- ~~2. Class I automatic dry and semiautomatic dry standpipes or manual wet standpipes are allowed in buildings that are not high-rise buildings.~~

**905.3.5 Underground buildings.** Underground buildings shall be equipped throughout with a Class I automatic wet ~~or manual wet~~ standpipe system.

**905.4 Location of Class I standpipe hose connections.** Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required *interior exit stairway*, a hose connection shall be provided for each story above and below grade plane. Hose connections shall be located at an ~~intermediate~~ the main floor landing ~~between stories~~, unless otherwise specified ~~approved~~ by the *fire code official*.

{EDITORIAL NOTE: REMAINDER OF SECTION REMAINS AS IS IN THE 2015 IFC.}

**905.8 Dry standpipes.** Dry standpipes shall not be installed.

**Exception:** ~~Where subject to freezing and in accordance with NFPA 14.~~

**905.12 Design pressure.** Design pressure at the uppermost valve for a Class II standpipe system shall be 35 psi (241.316505 kPa).

**906.2 General requirements.** Portable fire extinguishers shall be selected, installed and maintained in accordance with this section, ~~and NFPA 10 and Houston Fire Department LSB Standard No. 01, "Installation and Maintenance of Portable Fire Extinguishers."~~

{EDITORIAL NOTE: THE REMAINDER OF THIS SECTION SHALL REMAIN AS SET FORTH IN THE 2015 IFC.}

**907.2 Where required—new buildings and structures.** An *approved* fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Section 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

Not fewer than one manual fire alarm box shall be provided in an *approved* location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

**Exceptions:**

1. The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory service.
2. The manual fire alarm box is not required for Group R-2 occupancies unless required by the *fire code official* to provide a means for fire watch personnel to initiate an alarm during a sprinkler system impairment event. Where provided, the manual fire alarm box shall not be located in an area that is accessible to the public.
3. In other than Group H occupancies, a fire alarm system shall not be required in open buildings.

**907.2.2 Group B.** A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B *occupant load* of all floors is 500 or more.
2. The Group B *occupant load* is more than 100 persons above or below the lowest *level of exit discharge*.
3. The *fire area* contains an ambulatory care facility.

**Exception:** ~~Manual~~ In other than high-rise buildings, manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the occupant



notification appliances will activate throughout the notification zones upon sprinkler water flow.

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

{EDITORIAL NOTE: THE REMAINDER OF THIS SECTION SHALL REMAIN AS SET FORTH IN THE 2015 IFC.}

**907.2.3.1 Group E educational.** Smoke detectors shall be installed in any interior corridor serving as an exit and in storerooms, mechanical rooms, janitorial rooms and similar areas. Smoke detectors shall not be required in toilet rooms, classrooms or offices.

**Exception:** Approved heat detectors may be installed in lieu of smoke detectors with fire marshal approval.

**907.2.3.2 Group E child day care facilities.** Unless a fire alarm system meeting the requirements of Section 907.2.3 is provided, a smoke alarm shall be provided in each occupiable area of child day care facilities with an *occupant load* of less than 30. Where more than one smoke alarm is required, the smoke alarms shall be interconnected in such a manner that activation of one alarm shall activate all the alarms.

**907.2.3.3 Smoke detectors.** The distance between smoke detectors shall not exceed a nominal spacing of 30 feet (9,144 mm) and there shall be detectors within a distance of one-half the nominal spacing, measured at right angles, from all walls or partitions extending upward to within the top 15 percent of the ceiling height.

**907.2.6.4 Group I-4.** Group I-4 occupancies shall have a manual fire alarm and an automatic fire detection system installed in accordance with 907.2.3.

~~**907.4.2.4 Signs.** Where fire alarm systems are not monitored by a supervising station, an *approved* permanent sign shall be installed adjacent to each manual fire alarm box that reads: WHEN ALARM SOUNDS—CALL FIRE DEPARTMENT.~~

~~**Exception:** Where the manufacturer has permanently provided this information on the manual fire alarm box.~~

**907.5.2.2 Emergency voice/alarm communication.** Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving *approved* information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on at least the alarming floor, the floor above and the floor below. Speakers

shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. *Interior exit stairways.*
3. Each floor.
4. *Areas of refuge* as defined in Chapter 2.

Alarms shall not sound in elevator groups or exit stairs.

**Exception:** In Group I-1 and I-2 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.

**907.5.2.3.1 Public use areas and common use areas.** Visible alarm notification appliances shall be provided in *public use areas* and *common use areas*.

~~**Exception:** Where employee work areas have audible alarm coverage, the notification appliance circuits serving the employee work areas shall be initially designed with not less than 20 percent spare capacity to account for the potential of adding visible notification appliances in the future to accommodate hearing-impaired employee(s).~~

**907.6.6.1 Automatic telephone-dialing devices.** Automatic telephone-dialing devices used to transmit an emergency alarm shall not be connected to any fire department telephone number ~~unless approved by the fire chief.~~

**909.12.2 Wiring.** In addition to meeting requirements of ~~NFPA 70~~ the *Electrical Code*, all mechanical smoke control wiring, regardless of voltage, shall be fully enclosed within continuous raceways. The requirement of this section shall apply only to wiring extending from the fire alarm system control unit that activates any required smoke control system component such as relays, fans, dampers, or stair pressurization systems.

**909.13.1 Materials.** Control air tubing shall be hard drawn copper, Type L, ACR in accordance with ASTM B 42, ASTM B 43, ASTM B 68, ASTM B 88, ASTM B 251 and ASTM B 280. Fittings shall be wrought copper or brass, solder type, in accordance with ASME B 16.18 or ASME B 16.22. Changes in direction shall be made with appropriate tool bends. Brass compression-type fittings shall be used at final connection to devices; other joints shall be brazed using a BCuP5 brazing alloy with solidus above 1,100°F (593°C) and liquidus below 1,500°F (816°C). Brazing flux shall be used on copper-to-brass joints only.

**Exception:** Nonmetallic tubing used within control panels and at the final connection to devices, provided all of the following conditions are met:

1. Tubing shall comply with the requirements of Section 602.2.3~~4-3~~ of the *International Mechanical Code*.

{EDITORIAL NOTE: THE REMAINDER OF SECTION 909.13.1 SHALL REMAIN AS SET FORTH IN THE 2015 IFC.}

**912.2.1 Visible location.** Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise *approved* by the ~~fire chief~~ fire code official.

**912.3 Fire hose threads.** Fire hose threads used in connection with standpipe systems shall be *approved* and shall be compatible with ~~fire department~~ National Hose Standard hose threads.

**912.7 Inspection, testing and maintenance.** Fire department connections shall be periodically inspected, tested and maintained in accordance with NFPA 25 and Houston Fire Department LSB Standard No. 02, "Inspection and Testing of Fire Protection and Life-Safety Equipment." The owner shall maintain a written ~~Records~~ of inspections, testing and maintenance onsite at a location designated by the fire code official, and it shall be made available upon request ~~maintained.~~

**913.4 Valve supervision.** Where provided, the fire pump suction, discharge and bypass valves, and isolation valves on the backflow prevention device or assembly shall be supervised open by one of the following methods:

1. Central-station, proprietary or remote-station signaling service.
2. Local signaling service that will cause the sounding of an audible signal at a constantly attended location.
3. ~~Locking valves open.~~
4. ~~Sealing of valves and approved weekly recorded inspection where valves are located within fenced enclosures under the control of the owner.~~

## **SECTION 916** **GAS DETECTION SYSTEMS**

**916.1 Gas detection systems.** Gas detection systems required by this code shall comply with Sections 916.2 through 916.11.

**916.2 Permits.** Permits shall be required as set forth in Section 105.6.53.

**916.2.1 Construction documents.** Documentation of the gas detection system design and equipment to be used that demonstrates compliance with the requirements of this code shall be provided with the application for permit.

**916.3 Equipment.** Gas detection system equipment shall be designed for use with the gases being detected and shall be installed in accordance with manufacturer's instructions.

**916.4 Power connections.** Gas detection systems shall be permanently connected to the building electrical power supply or shall be permitted to be cord connected to an unswitched receptacle using an approved restraining means that secures the plug to the receptacle.

**916.5 Emergency and standby power.** Standby or emergency power shall be provided or the gas detection system shall initiate a trouble signal at an approved location if the power supply is interrupted.

**916.6 Sensor locations.** Sensors shall be installed in approved locations where leaking gases are expected to accumulate.

**916.7 Gas sampling.** Gas sampling shall be performed continuously. Sample analysis shall be processed immediately after sampling, except as follows:

1. For HPM gases, sample analysis shall be performed at intervals not exceeding 30 minutes.
2. For toxic gases that are not HPM, sample analysis shall be performed at intervals not exceeding 5 minutes, in accordance with Section 6004.2.2.7.
3. Where a less frequent or delayed sampling interval is approved.

**916.8 System activation.** A gas detection alarm shall be initiated where any sensor detects a concentration of gas exceeding the following thresholds:

1. For flammable gases, a gas concentration exceeding 25 percent of the lower flammability limit (LFL).
2. For nonflammable gases, a gas concentration exceeding one-half of the IDLH, unless a different threshold is specified by the section of this code requiring a gas detection system.

Upon activation of a gas detection alarm, alarm signals or other required responses shall be as specified by the section of this code requiring a gas detection system. Audible and visible alarm signals associated with a gas detection alarm shall be distinct from fire alarm and carbon monoxide alarm signals.

**916.9 Signage.** Signs shall be provided adjacent to gas detection system alarm signaling devices that advise occupants of the nature of the signals and actions to take in response to the signal.

**916.10 Fire alarm system connections.** Gas sensors and gas detection systems shall not be connected to fire alarm systems unless approved and connected in accordance with the fire alarm equipment manufacturer's instructions.

**916.11 Inspection, testing and sensor calibration.** Inspection and testing of gas detection systems shall be conducted not less than annually. Sensor calibration shall be confirmed at the time of sensor installation and calibration shall be performed at the frequency specified by the sensor manufacturer.

## CHAPTER 10

# MEANS OF EGRESS

**1008.4 Testing and maintenance.** The equipment providing emergency power for *means of egress* illumination and *exit signs* shall be maintained in an operable condition and in accordance with Houston Fire Department LSB Standard No. 02, "Inspection and Testing of Fire Protection and Life-Safety Equipment."

**1010.2.2 Security gates.** In locations other than on doors where panic hardware is required, security gates may be installed provided they remain open when the premises is occupied by anyone other than security personnel.

**[BE] 1011.16 Ladders.** Permanent ladders shall not serve as a part of the *means of egress* from occupied spaces within a building. Permanent ladders shall be permitted to provide access to the following areas:

1. Spaces frequented only by personnel for maintenance, repair or monitoring of equipment.
2. Nonoccupiable spaces accessed only by catwalks, crawl spaces, freight elevators or very narrow passageways.
3. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands.
4. Elevated levels in Group U not open to the general public.
5. Nonoccupied roofs that are not required to have *stairway* access in accordance with Section 1011.12.1.
6. Ladders shall be constructed in accordance with Section ~~306.5~~ 304.3.1.2 of the *International Mechanical Code*.

**[BE] 1023.9 Stairway identification signs.** A sign shall be provided at each floor landing in an *interior exit stairway* and *ramp* connecting more than three stories designating the floor level, the terminus of the top and bottom of the *interior exit stairway* and *ramp* and the identification of the *stairway* or *ramp*. The signage shall also state the story of, and the direction to, the *exit discharge* and the availability of roof access from the *interior exit stairway* and *ramp* for the fire department. The sign shall be located 5 feet (1,524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. In addition to the *stairway* identification sign, a floor-level sign in visual characters, raised characters and braille complying with ICC A117.1 shall be located at each floor-level landing adjacent to the door leading from the *interior exit stairway* and *ramp* into the *corridor* to identify the floor level. See Appendix H of this code for sign installation requirements.

**Exception:** Buildings with previously *approved* signs may retain those signs until the signs are replaced. The replacement signs shall be installed in accordance with Appendix H of this code.

**1023.9.2 Signs on occupancy side of stairway doors.** *Approved* stairway identification signs shall be located at each floor level on the occupancy side of all interior vertical exit enclosures, regardless of height of the building. See Appendix H for installation requirements.

**Exception:** Buildings with previously *approved* signs may retain those signs until the signs are replaced. The replacement signs shall be installed in accordance with Appendix H.

**1023.9.3 Reentry.** Where stairway doors are permitted to be locked from the stairway side in accordance with the *Building Code*, provisions for reentry shall be provided. In buildings not provided with an emergency control situation, or where the control station is not attended at all times while the building is occupied, alternate methods for rereleasing stairway doors shall be provided as required by the *fire code official*.

**[BE] 1029.9.6.1 Assembly aisle obstructions.** There shall not be obstructions in the minimum width or required capacity of *aisles*. Where required by the *fire code official*, *approved* methods of identification and maintenance of aisles shall be provided to prohibit their obstruction.

**Exception:** *Handrails* are permitted to project into the required width of stepped *aisles* and ramped aisles in accordance with Section 1014.8.

## CHAPTER 11

# CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

**1103.2 Emergency responder radio coverage in existing buildings.** Existing buildings that do not have approved radio coverage for emergency responders within the building, based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building, shall be equipped with such coverage according to one of the following:

1. Where an existing wired communication system cannot be repaired or is being replaced, or where not approved in accordance with Section 510.1, Exception 1, an ERRC system shall be installed to comply with this code.
2. Where an existing building is found to be in violation of the provisions of Section 510, the owner shall be responsible for correcting those deficiencies in a timely manner. The owner shall submit appropriate plans to obtain building permit(s) for the installation of necessary equipment within the time frame established by the fire code official adopting authority.
3. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the fire code official shall have the authority to accept an automatically activated emergency responder radio coverage system.

**Exception:** Where the fire code official it is determined by the fire code official that the an ERRC radio coverage system is not needed.

**1103.2.1 Compliance verification.** Alterations to existing buildings require compliance verification testing by a City of Houston registered ERRC third-party special inspector. A copy of the special inspection report shall be submitted to the building official for review and archiving to the project records prior to the project final or issuing of a Certificate of Compliance or Certificate of Occupancy.

**Exception:** Buildings without basements and three stories or less in height with an aggregate total building area of 50,000 square feet or less.

**NOTE:** ERRC special inspection reports shall be submitted by email directly to the Customer Assistance & Code Development Office of the Houston Permitting Center at: [HPC-RA@houstontx.gov](mailto:HPC-RA@houstontx.gov).

**1103.7.6 Group R-2.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in existing Group R-2 occupancies more than three stories in height or with more than 16 *dwelling or sleeping units*.

**Exceptions:**

1. Where each living unit is separated from other contiguous living units by *fire barriers* having a *fire-resistance rating* of not less than  $\frac{3}{4}$  hour, and where each living unit has either its own independent *exit* or its own independent stairway or ramp discharging at grade.

2. A separate fire alarm system is not required in buildings that are equipped throughout with an *approved* supervised *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and ~~having~~ a local alarm to notify all occupants.
3. A fire alarm system is not required in buildings that do not have interior *corridors* serving *dwelling units* and are protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that *dwelling units* either have a *means of egress* door opening directly to an exterior *exit* access that leads directly to the *exits* or are served by open-ended *corridors* designed in accordance with Section 1027.6, Exception 3.
4. A fire alarm system is not required in buildings that do not have interior *corridors* serving *dwelling units*, do not exceed three stories in height and comply with both of the following:
  - 4.1. Each *dwelling unit* is separated from other contiguous *dwelling units* by *fire barriers* having a *fire-resistance rating* of not less than  $\frac{3}{4}$  hour.
  - 4.2. Each *dwelling unit* is provided with hardwired, interconnected smoke alarms as required for new construction in Section 907.2.11.
5. Condominiums, as defined by Chapter 82 of the *Texas Property Code*.
6. A fire alarm system is not required in buildings that do not have interior *corridors* serving *dwelling units* (or in any dwellings that do not exit into an interior *corridor*) unless rehabilitation work is performed in the building with a cost that is equal to or exceeds twenty five percent (25%) of the market value of the building.

**1103.7.6.1 Monitoring.** The fire alarm system required by this section shall not be required to be monitored by a third party. This fire alarm system only requires pull stations that will produce a local audible alarm and activate in an on-site management office, if the property in which the building is located has an on-site management office.

**1103.8.1 Where required.** Existing Group I-1 and R occupancies shall be provided with single-station smoke alarms in accordance with Section 907.2.11. Interconnection and power sources shall be in accordance with Section 1103.8.2 and 1103.8.3, respectively. After January 1, 2017, as a battery-operated single-station alarm is replaced, that smoke alarm shall be replaced with a tamper-resistant battery-operated single-station smoke alarm. Provided, however, nothing in this section shall require an owner to replace an operational battery-operated single-station smoke alarm. For the purposes of this provision, a *tamper-resistant battery-operated single-station smoke alarm* shall mean a sealed, single-station smoke alarm with a long-life lithium or similar battery.

**Exceptions:**

1. Where the code that was in effect at the time of construction required smoke alarms and smoke alarms complying with those requirements are already provided.



2. Where smoke alarms have been installed in occupancies and dwellings that were not required to have them at the time of construction, additional smoke alarms shall not be required provided that the existing smoke alarms comply with requirements that were in effect at the time of installation.
3. Where smoke detectors connected to a fire alarm system have been installed as a substitute for smoke alarms.

**1103.8.1.1 Group R owner and tenant duties.** The owner or manager of a residential building shall ensure that each smoke detector required by Section 1103.8.1 is installed and operational when the tenant first occupies the unit. After the tenant takes possession of the unit, it shall be the duty of the tenant to regularly test each smoke detector in the unit, and the tenant shall notify the owner immediately in writing of any problem, defect, malfunction or failure of any detector in the unit. Upon notification by the tenant, or upon notification by an inspector of the jurisdiction, that a smoke detector in the residential unit is not in proper working order, the owner shall have the detector repaired or replaced.

**Exception:** The provisions of this section do not apply to dwelling units governed by Subchapter F of Chapter 92 of the Texas Property Code.

**1104.16.7 Maintenance.** Fire escape *stairways* shall be kept clear and unobstructed at all times and shall be maintained in good working order. Inspections, testing, and maintenance shall be in accordance with Houston Fire Department LSB Standard No. 02, "Inspection and Testing of Fire Protection and Life-Safety Equipment."



# CHAPTER 12

## ~~RESERVED~~

# ENERGY SYSTEMS

### SECTION 1201

#### GENERAL

**1201.1 Scope.** The provisions of this chapter shall apply to the installation, operation and maintenance of energy systems used for generating or storing energy. It shall not apply to equipment associated with the generation, control, transformation, transmission, or distribution of energy installations that is under the exclusive control of an electric utility or lawfully designated agency.

**1201.2 Electrical wiring equipment.** Electrical wiring and equipment used in connection with energy systems shall be installed and maintained in accordance with Chapter 12 and NFPA 70.

**1201.3 Mixed system installation.** Where approved, the aggregate kWh energy in a fire area shall not exceed the maximum quantity specified for any of the energy systems in this chapter. Where required by the *fire code official*, a hazard mitigation analysis shall be provided and approved in accordance with Section 104.7.2 to evaluate any potential adverse interaction between the various energy systems and technologies.

### SECTION 1202

#### DEFINITIONS

**1202.1 Definitions.** The following terms are defined in Chapter 2:

BATTERY SYSTEM, STATIONARY STORAGE.

BATTERY TYPES.

Lead-acid battery.

CAPACITOR ARRAY.

CAPACITOR ENERGY STORAGE SYSTEM.

CRITICAL CIRCUIT.

EMERGENCY POWER SYSTEM.

ENERGY MANAGEMENT SYSTEMS.

FUEL CELL POWER SYSTEM, STATIONARY.

STANDBY POWER SYSTEM.

STATIONARY BATTERY ARRAY.

**SECTION 1203**  
**EMERGENCY AND STANDBY POWER SYSTEMS**

**1203.1 General.** Emergency power systems and standby power systems required by this code or the *Building Code* shall comply with Sections 1203.1.1 through 1203.1.9.

**1203.1.1 Stationary generators.** Stationary emergency and standby power generators required by this code shall be listed in accordance with UL 2200-2012.

**1203.1.2 Fuel line piping protection.** Fuel lines supplying a generator set inside a high-rise building shall be separated from areas of the building other than the room the generator is located in by an approved method, or an assembly that has a fire-resistance rating of not less than 2 hours. Where the building is protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, the required fire-resistance rating shall be reduced to 1 hour.

**1203.1.3 Installation.** Emergency power systems and standby power systems shall be installed in accordance with the *Building Code*, NFPA 70, NFPA 110-2016 and NFPA 111-2013.

**1203.1.4. Load transfer.** Emergency power systems shall automatically provide secondary power within 10 seconds after primary power is lost, unless specified otherwise in this code. Standby power systems shall automatically provide secondary power within 60 seconds after primary power is lost, unless specified otherwise in this code.

**1203.1.5 Load duration.** Emergency power systems and standby power systems shall be designed to provide the required power for a minimum duration of 2 hours without being refueled or recharged, unless specified otherwise in this code.

**1203.1.6 Uninterruptable power source.** An uninterrupted source of power shall be provided for equipment where required by the manufacturer's instructions, the listing, this code or applicable referenced standards.

**1203.1.7 Interchangeability.** Emergency power systems shall be an acceptable alternative for installations that require standby power systems.

**1203.1.8 Group I-2 occupancies.** In Group I-2 occupancies, where an essential electrical system is located in flood hazard areas established in Section 1612.3 of the *Building Code* and where new or replacement essential electrical system generators are installed, the system shall be located and installed in accordance with ASCE 24-14.

**1203.1.9 Maintenance.** Existing installations shall be maintained in accordance with the original approval and Section 1203.4.

**1203.2 Where required.** Emergency and standby power systems shall be provided where required by Sections 1203.2.1 through 1203.2.18.

**1203.2.1 Ambulatory care facilities.** Essential electrical systems for ambulatory care facilities shall be in accordance with Section 422.6 of the *Building Code*.

**1203.2.2 Elevators and platform lifts.** Standby power shall be provided for elevators and platform lifts as required in Sections 607.2, 1009.4, and 1009.5.

**1203.2.3 Emergency responder radio coverage systems.** Standby power shall be provided for emergency responder radio coverage systems as required in Section 510.4.2.3. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.

**1203.2.4 Emergency voice/alarm communication systems.** Emergency power shall be provided for emergency voice/alarm communication systems as required in Section 907.5.2.2.5. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in NFPA 72-2016.

**1203.2.5 Exit signs.** Emergency power shall be provided for exit signs as required in Section 1013.6.3. The system shall be capable of powering the required load for a duration of not less than 90 minutes.

**1203.2.6 Gas detection systems.** Emergency power shall be provided for gas detection systems where required by Sections 1203.2.9 and 1203.2.16. Standby power shall be provided for gas detection systems where required by Section 916.5.

**1203.2.7 Group I-2 occupancies.** Essential electrical systems for Group I-2 occupancies shall be in accordance with Section 407.10 of the *Building Code*.

**1203.2.8 Group I-3 occupancies.** Power-operated sliding doors or power-operated locks for swinging doors in Group I-3 occupancies shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks.

**Exceptions:**

- 1.** Emergency power is not required in facilities where provisions for remote locking and unlocking of occupied rooms in Occupancy Condition 4 are not required as set forth in the *Building Code*.
- 2.** Emergency power is not required where remote mechanical operating releases are provided.

**1203.2.9 Hazardous materials.** Emergency and standby power shall be provided in occupancies with hazardous materials as required in the following sections:

- 1.** Sections 5004.7 and 5005.1.5 for hazardous materials.
- 2.** Sections 6004.2.2.8 and 6004.3.4.2 for highly toxic and toxic gases.
- 3.** Section 6204.1.11 for organic peroxides.

**1203.2.10 High-rise buildings.** Standby power and emergency power shall be provided for high-rise buildings as required in Section 403 of the *Building Code*, and shall be in accordance with Section 1203.

**1203.2.11 Special purpose horizontal sliding doors.** Standby power shall be provided for horizontal sliding doors as required in Section 1010.1.4.3. The standby power supply shall have a capacity to operate not fewer than 50 closing cycles of the door.

**1203.2.12 Hydrogen fuel gas rooms.** Standby power shall be provided for hydrogen fuel gas rooms as required by Section 5808.7.

**1203.2.13 Laboratory suites.** Standby or emergency power shall be provided in accordance with Section 5004.7 where *laboratory suites* are located above the sixth story above grade plane or located in a story below grade plane.

**1203.2.14 Means of egress illumination.** Emergency power shall be provided for *means of egress* illumination in accordance with Sections 1008.3 and 1104.5.1.

**1203.2.15 Membrane structures.** Standby power shall be provided for auxiliary inflation systems in permanent membrane structures in accordance with Section 2702 of the *Building Code*. Auxiliary inflation systems shall be provided in temporary air-supported and air-inflated membrane structures in accordance with Section 3103.10.4.

**1203.2.16 Semiconductor fabrication facilities.** Emergency power shall be provided for semiconductor fabrication facilities as required in Section 2703.15.

**1203.2.17 Smoke control systems.** Standby power shall be provided for smoke control systems as required in Section 909.11.

**1203.2.18 Underground buildings.** Emergency and standby power shall be provided in underground buildings as required in Section 405 of the *Building Code* and shall be in accordance with Section 1203.

**1203.3 Critical circuits.** Required critical circuits shall be protected using one of the following methods:

- 1.** Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196-2001 and shall have a *fire-resistance rating* of not less than 1 hour.
- 2.** Electrical circuit protective systems shall have a *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
- 3.** Construction having a *fire-resistance rating* of not less than 1 hour.

**1203.4 Maintenance.** Emergency and standby power systems shall be maintained in accordance with NFPA 110-2016 and NFPA 111-2013 such that the system is capable of supplying service within the time specified for the type and duration required.

**1203.4.1 Group I-2.** In Group I-2 occupancies, emergency and standby power systems shall be maintained in accordance with NFPA 99-2018.

**1203.4.2 Schedule.** Inspection, testing and maintenance of emergency and standby power systems shall be in accordance with an approved schedule established upon completion and approval of the system installation.

**1203.4.3 Records.** Records of the inspections, testing and maintenance of emergency and standby power systems shall include the date of service, name of the servicing technician, a summary of conditions noted and a detailed description of any conditions requiring correction and what corrective action was taken. Such records shall be maintained.

**1203.4.4 Switch maintenance.** Emergency and standby power system transfer switches shall be included in the inspection, testing and maintenance schedule required by Section 1203.4.2. Transfer switches shall be maintained free from accumulated dust and dirt. Inspection shall include examination of the transfer switch contacts for evidence of deterioration. When evidence of contact deterioration is detected, the contacts shall be replaced in accordance with the transfer switch manufacturer's instructions.

**1203.5 Operational inspection and testing.** Emergency power systems, including all appurtenant components, shall be inspected and tested under load in accordance with NFPA 110-2016 and NFPA 111-2013.

**Exception:** Where the emergency power system is used for standby power or peak load shaving, such use shall be recorded and shall be allowed to be substituted for scheduled testing of the generator set, provided that appropriate records are maintained.

**1203.5.1 Group I-2.** In Group I-2 occupancies, emergency and standby power systems shall be inspected and tested under load in accordance with NFPA 99-2018.

**1203.5.2 Transfer switch test.** The test of the transfer switch shall consist of electrically operating the transfer switch from the normal position to the alternate position and then return to the normal position.

**1203.6 Supervision of maintenance and testing.** Routine maintenance, inspection and operational testing shall be overseen by a properly instructed individual.

## **SECTION 1204** **SOLAR PHOTOVOLTAIC POWER SYSTEMS**

**1204.1 General.** Solar photovoltaic systems shall be installed in accordance with Sections 1204.2 through 1204.5, and the *Building Code* or *Residential Code*. The electrical portion of solar PV systems shall be installed in accordance with NFPA 70.

**1204.2 Access and pathways.** Roof access, pathways, and spacing requirements shall be provided in accordance with Sections 1204.2.1 through 1204.3.3. Pathways shall be over areas capable of supporting fire fighters accessing the roof. Pathways shall be located in areas with minimal obstructions, such as vent pipes, conduit or mechanical equipment.

### **Exceptions:**

1. Detached, nonhabitable Group U structures including, but not limited to, detached garages serving Group R-3 buildings, parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways and spacing requirements need not be provided where the *fire code official* has determined that rooftop operations will not be employed.

**1204.2.1 Solar photovoltaic systems for Group R-3 buildings.** Solar photovoltaic systems for Group R-3 buildings shall comply with Sections 1204.2.1.1 through 1204.2.1.3.

### **Exceptions:**

1. These requirements shall not apply to structures designed and constructed in accordance with the *Residential Code*.
2. These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal or less.

**1204.2.1.1 Pathways to ridge.** Not fewer than two 36-inch-wide (914 mm) pathways on separate roof planes, from lowest roof edge to ridge, shall be provided on all buildings. Not fewer than one pathway shall be provided on the street or driveway side of the roof. For each roof plane with a photovoltaic array, not fewer than one 36-inch-wide (914 mm) pathway from lowest roof edge to ridge shall be provided on the same roof plane as the photovoltaic array, on an adjacent roof plane or straddling the same and adjacent roof planes.

**1204.2.1.2 Setbacks at ridge.** For photovoltaic arrays occupying 33 percent or less of the plan view total roof area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, a setback of not less than 36 inches (914 mm) wide is required on both sides of a horizontal ridge.

**1204.2.1.3 Alternative setbacks at ridge.** Where an automatic sprinkler system is installed within the dwelling in accordance with Section 903.3.1.3, setbacks at the ridge shall conform to one of the following:

1. For photovoltaic arrays occupying 66 percent or less of the plan view total roof area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge.
2. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, a setback of not less than 36 inches (914 mm) wide is required on both sides of a horizontal ridge.

**1204.2.2 Emergency escape and rescue openings.** Panels and modules installed on Group R-3 buildings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening. A pathway of not less than 36 inches (914 mm) wide shall be provided to the emergency escape and rescue openings.

**1204.3 Other than Group R-3 buildings.** Access to systems for buildings, other than those containing Group R-3 occupancies, shall be provided in accordance with Sections 1204.3.1 through 1204.3.3.

**Exception:** Where it is determined by the *fire code official* that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 1204.2.1.1 through 1204.2.1.3 are a suitable alternative.

**1204.3.1 Perimeter pathways.** There shall be a minimum 6-foot-wide (1,829 mm) clear perimeter around the edges of the roof.

**Exception:** Where either axis of the building is 250 feet (76,200 mm) or less, the clear perimeter around the edges of the roof shall be permitted to be reduced to a minimum width of 4 feet (1,219 mm).

**1204.3.2 Interior pathways.** Interior pathways shall be provided between array sections to meet the following requirements:

1. Pathways shall be provided at intervals not greater than 150 feet (45,720 mm) throughout the length and width of the roof.
2. A pathway not less than 4 feet (1,219 mm) wide in a straight line to roof standpipes or ventilation hatches.
3. A pathway not less than 4 feet (1,219 mm) wide around roof access hatches, with not fewer than one such pathway to a parapet or roof edge.

**1204.3.3 Smoke ventilation.** The solar installation shall be designed to meet the following requirements:

1. Where nongravity-operated smoke and heat vents occur, a pathway not less than 4 feet (1,219 mm) wide shall be provided bordering all sides.
2. Smoke ventilation options between array sections shall be one of the following:
  - 2.1. A pathway not less than 8 feet (2,438 mm) wide.
  - 2.2. Where gravity-operated dropout smoke and heat vents occur, a pathway not less than 4 feet (1,219 mm) wide on not fewer than one side.



- 2.3. A pathway not less than 4 feet (1,219 mm) wide bordering 4-foot by 8-foot (1,219 mm by 2,438 mm) venting cutouts every 20 feet (6,096 mm) on alternating sides of the pathway.

**1204.4 Ground-mounted photovoltaic panel systems.** Ground-mounted photovoltaic panels systems shall comply with Section 1204.1 and this section. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays. A clear, brush-free area of 10 feet (3,048 mm) shall be required for ground-mounted photovoltaic arrays.

**1204.5 Buildings with rapid shutdown.** Buildings with rapid shutdown solar photovoltaic systems shall have permanent labels in accordance with Sections 1204.5.1 through 1204.5.3.

**1204.5.1 Rapid shutdown type.** The type of solar photovoltaic system rapid shutdown shall be labeled with one of the following:

1. For solar photovoltaic systems that shut down the array and the conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of  $\frac{3}{8}$  inch (10 mm) in black on a yellow background. The remaining characters shall be uppercase with a minimum height of  $\frac{3}{16}$  inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1204.5.1(1) and state the following:

SOLAR PV SYSTEM EQUIPPED WITH  
RAPID SHUTDOWN. TURN RAPID  
SHUTDOWN SWITCH TO THE "OFF"  
POSITION TO SHUT DOWN PV SYSTEM  
AND REDUCE SHOCK HAZARD IN  
ARRAY.

2. For photovoltaic systems that only shut down conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of  $\frac{3}{8}$  inch (10 mm) in white on a red background and the remaining characters shall be capitalized with a minimum height of  $\frac{3}{16}$  inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1204.5.1(2) and state the following:

THIS SOLAR PV SYSTEM EQUIPPED  
WITH RAPID SHUTDOWN. TURN RAPID  
SHUTDOWN SWITCH TO THE "OFF"  
POSITION TO SHUT DOWN CONDDUC-  
TORS OUTSIDE THE ARRAY. CONDOC-  
TORS WITHIN ARRAY REMAIN  
ENERGIZED IN SUNLIGHT

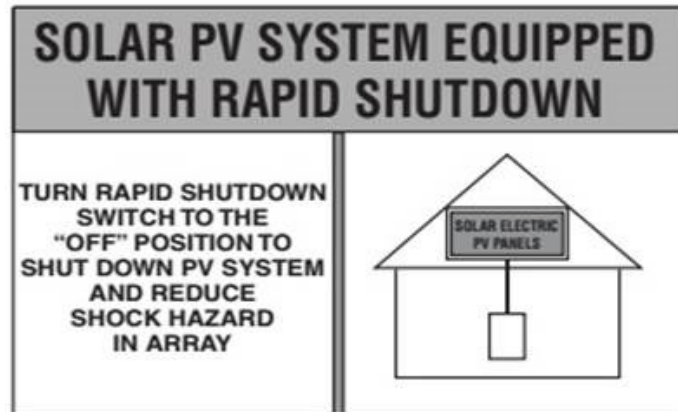
**1204.5.1.1 Diagram.** The labels in Section 1204.5.1 shall include a simple diagram of a building with a roof. Diagram sections in red signify sections of the solar photovoltaic system that are not shut down when the rapid shutdown switch is turned off.

**1204.5.1.2 Location.** The rapid shutdown label in Section 1204.5.1 shall be located not greater than 3 feet (914 mm) from the service disconnecting means to which the photovoltaic systems are connected, and shall indicate the location of all identified rapid shutdown switches if not at the same location.

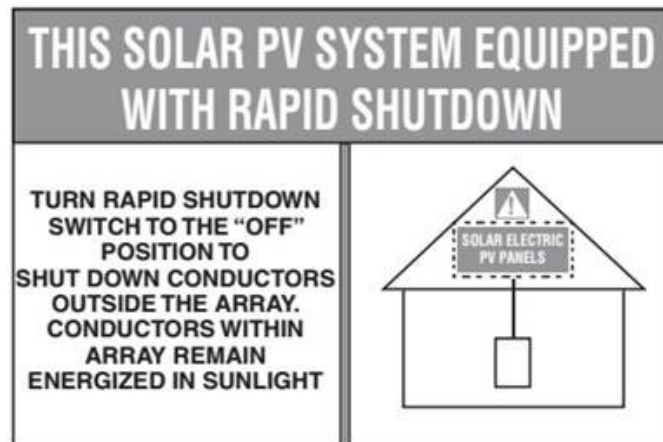
**1204.5.2 Buildings with more than one rapid shutdown type.** Solar photovoltaic systems that contain rapid shutdown in accordance with both Items 1 and 2 of Section 1204.5.1 or solar photovoltaic systems where only portions of the systems on the building contain rapid shutdown, shall provide a detailed plan view diagram of the roof showing each different photovoltaic system and a dotted line around areas that remain energized after the rapid shutdown switch is operated.

**1204.5.3 Rapid shutdown switch.** A rapid shutdown switch shall have a label located not greater than 3 feet (914 mm) from the switch that states the following:

RAPID SHUTDOWN SWITCH  
FOR SOLAR PV SYSTEM



**FIGURE 1204.5.1(1)**  
**LABEL FOR SOLAR PV SYSTEM THAT REDUCE SHOCK HAZARD WITHIN ARRAY AND SHUT DOWN CONDUCTORS LEAVING ARRAY**



**FIGURE 1204.5.1(2)**  
**LABEL FOR SOLAR PV SYSTEMS THAT ONLY SHUT DOWN CONDUCTORS LEAVING THE ARRAY**

**SECTION 1205**  
**STATIONARY FUEL CELL POWER SYSTEMS**

**1205.1 General.** *Stationary fuel cell power systems* in new and existing occupancies shall comply with this section.

**1205.2 Permits.** Permits shall be obtained for *stationary fuel cell power systems* as set forth in Section 105.6.52.

**1205.3 Equipment.** *Stationary fuel cell power systems* shall comply with the following:

1. *Prepackaged fuel cell power systems* shall be listed and labeled in accordance with CSA FC 1-2012.
2. The modules and components in a *preengineered fuel cell power system* shall be listed and labeled in accordance with CSA FC 1-2012 and interconnected to complete the assembly of the system at the job site in accordance with the manufacturer's instructions and the module and component listings.
3. *Field-fabricated fuel cell power systems* shall be approved based on a review of the technical report provided in accordance with Section 104.7.2. The report shall be prepared by and bear the stamp of a registered design professional and shall include:
  - 3.1. A fire risk evaluation.
  - 3.2. An evaluation demonstrating the modules and components in the fuel cell power system comply with applicable requirements in CSA FC 1-2012.
  - 3.3. Documentation of the fuel cell power system's compliance with applicable NFPA 2-2016 and NFPA 853-2015 construction requirements.

**1205.4 Installation.** *Stationary fuel cell power systems* shall be installed and maintained in accordance with NFPA 70 and NFPA 853-2015, the manufacturer's installation instructions, and the listing. *Stationary fuel cell power systems* fueled by hydrogen shall be installed and maintained in accordance with NFPA 2-2016 and NFPA 70, the manufacturer's installation instructions and the listing.

**1205.5 Residential use.** *Stationary fuel cell power systems* shall not be installed in Group R-3 and R-4 buildings, or dwelling units associated with Group R-2 buildings unless they are specifically listed for residential use.

**1205.6 Indoor installations.** *Stationary fuel cell power systems* installed in indoor locations shall comply with Sections 1205.6 through 1205.6.2. For purposes of this section, an indoor location includes a roof and 50 percent or greater enclosing walls.

**1205.6.1 Listed.** *Stationary fuel cell power systems* installed indoors shall be specifically listed and labeled for indoor use.

**1205.6.2 Separation.** Rooms containing *stationary fuel cell power systems* shall be separated from the following occupancies by fire barriers or horizontal assemblies, or both, constructed in accordance with the *Building Code*.

1. Group B, F, M, S and U occupancies by 1-hour fire-resistance-rated construction.
2. Group A, E, I and R occupancies by 2-hour fire-resistance-rated construction.

**Exception:** *Stationary fuel cell power systems* with an aggregate rating less than 50 kW shall not be required to be separated from other occupancies provided that the systems comply with Section 903 of NFPA 853-2015.

**1205.7 Vehicle impact protection.** Where *stationary fuel cell power systems* are subject to impact by a motor vehicle, vehicle impact protection shall be provided in accordance with Section 312.

**1205.8 Outdoor installation.** *Stationary fuel cell power systems* located outdoors shall be separated by not less than 5 feet (1,524 mm) from the following:

1. Lot lines.
2. Public ways.
3. Buildings.
4. Stored combustible materials.
5. Hazardous materials.
6. High-piled stock.
7. Any portion of a designated means of egress system.
8. Other exposure hazards.

**1205.9 Fuel supply.** The design, location and installation of the fuel supply for *stationary fuel cell power systems* shall comply with Chapter 53, Chapter 58 and the *International Fuel Gas Code*, based on the particular fuel being supplied to the system.

**1205.10 Manual shutoff.** Access to a manual shutoff valve shall be provided for the fuel piping within 6 feet (1,829 mm) of any fuel storage tank serving the fuel cell and within 6 feet (1,829 mm) of the power system. If the fuel tank and the *stationary fuel cell power system* are less than 12 feet (3,658 mm) apart, a single shutoff valve shall be permitted. If the *stationary fuel cell power system* is located indoors, the shutoff valve shall be located outside of the room in which the system is installed, unless otherwise approved by the *fire code official*.

**1205.11 Ventilation and exhaust.** Ventilation and exhaust for stationary fuel cell power systems shall be provided in accordance NFPA 853-2015.

**1205.12 Fire suppression.** Fire suppression for stationary fuel cell power system installations shall be provided in accordance with NFPA 853-2015.

**1205.13 Gas detection systems.** Stationary fuel cell power systems shall be provided with a gas detection system. Detection shall be provided in approved locations in the fuel cell power system enclosure, the exhaust system or the room that encloses the fuel cell power system. The system shall be designed to activate at a flammable gas concentration of not more than 25 percent of the lower flammable limit (LFL).

**1205.13.1 System activation.** The activation of the gas detection system shall automatically:

1. Close valves between the gas supply and the fuel cell power system.
2. Shut down the fuel cell power system.
3. Initiate local audible and visible alarms in approved locations.

## **SECTION 1206** **ELECTRICAL ENERGY STORAGE SYSTEMS**

**1206.1 Scope.** The provisions in this section are applicable to energy storage systems designed to provide electrical power to a building or facility. These systems are used to provide standby or

emergency power, an uninterruptable power supply, load shedding, load sharing or similar capabilities.

**1206.2 Stationary storage battery systems.** Stationary storage battery systems having capacities exceeding the values shown in Table 1206.2 shall comply with Section 1206.2.1 through 1206.2.12.6, as applicable.

**TABLE 1206.2**  
**BATTERY STORAGE SYSTEM THRESHOLD QUANTITIES**

<b>BATTERY TECHNOLOGY</b>	<b>CAPACITY<sup>a</sup></b>
Flow batteries <sup>b</sup>	20 kWh
Lead acid, all types	70 kWh
Lithium, all types	20 kWh
Nickel cadmium (Ni-Cd)	70 kWh
Sodium, all types	20 kWh <sup>c</sup>
Other battery technologies	10 kWh

For SI: 1 kilowatt hour = 3.6 megajoules

a. For batteries rated in amp-hours, kWh shall equal rated voltage times amp-hour rating divided by 1000.

b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte-type technologies.

c. 70 kWh for sodium-ion technologies.

**1206.2.1 Permits.** Permits shall be obtained for the installation and operation of stationary storage battery systems in accordance with Section 105.6.50.

**1206.2.2 Construction documents.** The following information shall be provided with the permit application:

1. Location and layout diagram of the room in which the stationary storage battery system is to be installed.
2. Details on hourly fire-resistance-rated assemblies provided.
3. Quantities and types of storage batteries and battery systems.
4. Manufacturer's specifications, ratings and listings of storage batteries and battery systems.
5. Details on energy management systems.
6. Location and content of signage.
7. Details on fire-extinguishing, smoke detection and ventilation systems.
8. Rack storage arrangement, including seismic support criteria.

**1206.2.3 Hazard mitigation analysis.** A failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.7.2 under any of the following conditions:

1. Battery technologies not specifically identified in Table 1206.2 are provided.
2. More than one stationary storage battery technology is provided in a room or indoor area where there is a potential for adverse interaction between technologies.

3. Where allowed as a basis for increasing maximum allowable quantities in accordance with Section 1206.2.9.

**1206.2.3.1 Fault condition.** The hazard mitigation analysis shall evaluate the consequences of the following failure modes, and others deemed necessary by the fire code official. Only single-failure modes shall be considered.

1. Thermal runaway condition in a single-battery storage rack, module or array.
2. Failure of any energy management system.
3. Failure of any required ventilation system.
4. Voltage surges on the primary electric supply.
5. Short circuits on the load side of the stationary battery storage system.
6. Failure of the smoke detection, fire-extinguishing or gas detection system.
7. Spill neutralization not being provided or failure of the secondary containment system.

**1206.2.3.2 Analysis approval.** The fire code official is authorized to approve the hazardous mitigation analysis provided that the hazard mitigation analysis demonstrates all of the following:

1. Fire or explosions will be contained within unoccupied battery storage rooms for the minimum duration of the fire-resistance-rated walls identified in Table 509 of the *Building Code*.
2. Fire and explosions in battery cabinets in occupied work centers will be detected in time to allow occupants within the room to evacuate safely.
3. Toxic and highly toxic gases released during fires and other fault conditions shall not reach concentrations in excess of Immediately Dangerous to Life or Health (IDLH) levels in the building or adjacent means of egress routes during the time deemed necessary to evacuate from that area.
4. Flammable gases released from batteries during charging, discharging and normal operation shall not exceed 25 percent of their lower flammability limit (LFL).
5. Flammable gases released from batteries during fire, overcharging and other abnormal conditions shall not create an explosion hazard that will injure occupants or emergency responders.

**1206.2.3.3 Additional protection measures.** Construction, equipment and systems that are required for the stationary storage battery system to comply with the hazardous mitigation analysis, including but not limited to those specifically described in Section 1206.2, shall be installed, maintained and tested in accordance with nationally recognized standards and specified design parameters.

**1206.2.4 Seismic and structural design.** Stationary storage battery systems shall comply with the seismic design requirements in Chapter 16 of the *Building Code*, and shall not exceed the floor-loading limitation of the building.

**1206.2.5 Vehicle impact protection.** Where stationary storage battery systems are subject to impact by a motor vehicle, including forklifts, vehicle impact protection shall be provided in accordance with Section 312.

**1206.2.6 Combustible storage.** Combustible materials not related to the stationary storage battery system shall not be stored in battery rooms, cabinets or enclosures. Combustible materials in occupied work centers covered by Section 1206.2.8.5 shall not be stored less than 3 feet (915 mm) from battery cabinets.

**1206.2.7 Testing, maintenance and repair.** Storage batteries and associated equipment and systems shall be tested and maintained in accordance with the manufacturer's instructions. Any storage batteries or system components used to replace existing units shall be compatible with the battery charger, energy management systems, other storage batteries and other safety systems. Introducing other types of storage batteries into the stationary storage battery system or other types of electrolytes into flow battery systems shall be treated as a new installation and require approval by the *fire code official* before the replacements are introduced into service.

**1206.2.8 Location and construction.** Rooms and areas containing stationary storage battery systems shall be designed, located and constructed in accordance with Sections 1206.2.8.1 through 1206.2.8.7.4.

**1206.2.8.1 Location.** Stationary storage battery systems shall not be located in areas where the floor is located more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access, or where the floor level is more than 30 feet (9,144 mm) below the finished floor of the lowest level of exit discharge.

**Exceptions:**

1. Lead acid and nickel cadmium stationary storage battery systems.
2. Installations on noncombustible rooftops of buildings exceeding 75 feet (22,860 mm) in height that do not obstruct fire department rooftop operations, where approved by the fire code official.

**1206.2.8.2 Separation.** Rooms containing stationary storage battery systems shall be separated from other areas of the building in accordance with Section 509.1 of the *Building Code*. Battery systems shall be allowed to be in the same room with the equipment they support.

**1206.2.8.3 Stationary battery arrays.** Storage batteries, prepackaged stationary storage battery systems and preengineered stationary storage battery systems shall be segregated into stationary battery arrays not exceeding 50 kWh (180 megajoules) each. Each stationary battery array shall be spaced not less than 3 feet (914 mm) from other stationary battery arrays and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10.

**Exceptions:**

1. Lead acid and nickel cadmium storage battery arrays.

2. Listed preengineered stationary storage battery systems and prepackaged stationary storage battery systems shall not exceed 250 kWh (900 megajoules) each.
3. The *fire code official* is authorized to approve listed, preengineered and prepackaged battery arrays with larger capacities or smaller battery array spacing if large-scale fire and fault condition testing conducted or witnessed and reported by an approved testing laboratory is provided showing that a fire involving one array will not propagate to an adjacent array, and be contained within the room for the duration equal to the fire-resistance rating of the room separation specified in Table 509 of the *Building Code*.

**1206.2.8.4 Separate rooms.** Where stationary batteries are installed in a separate equipment room that can be accessed only by authorized personnel, they shall be permitted to be installed on an open rack for ease of maintenance.

**1206.2.8.5 Occupied work centers.** Where stationary storage batteries are located in an occupied work center, they shall be housed in a noncombustible cabinet or other enclosure to prevent access by unauthorized personnel.

**1206.2.8.5.1 Cabinets.** Where stationary batteries are contained in cabinets in occupied work centers, the cabinet enclosures shall be located within 10 feet (3,048 mm) of the equipment that they support.

**1206.2.8.6 Signage.** Approved signs shall be provided on doors or in locations near entrances to stationary storage battery system rooms and shall include the following or equivalent:

1. The room contains energized battery systems.
2. The room contains energized electrical circuits.
3. The additional markings required in Section 1206.2.12 for the types of storage batteries contained within the room.

**Exception:** Existing stationary storage battery systems shall install signage required at the time it was installed where the installation was completed and inspected with approved permits obtained from the *Authority Having Jurisdiction*. In any case where existing installation was completed without a permit, then a permit shall be obtained and compliance with current code provisions is required.

**1206.2.8.6.1 Electrical disconnects.** Where the stationary storage battery system disconnecting means is not within sight of the main service disconnecting means, placards or directories shall be installed at the location of the main service disconnecting means indicating the location of stationary storage battery system disconnecting means in accordance with NFPA 70.

**1206.2.8.6.2 Cabinet signage.** Battery storage cabinets provided in occupied work centers in accordance with Section 1206.2.8.5 shall have exterior labels that identify the manufacturer and model number of the system and electrical rating (voltage and current) of the contained battery system. There shall be signs within the cabinet that indicate the relevant electrical and chemical hazards, as required by Section 1206.2.12.



**1206.2.8.7 Outdoor installations.** Stationary storage battery systems located outdoors shall comply with Sections 1206.2.8.7 through 1206.2.8.7.4, in addition to all applicable requirements of Section 1206.2. Installations in outdoor enclosures or containers that can be occupied for servicing, testing, maintenance and other functions shall be treated as battery storage rooms.

**Exception:** Stationary battery arrays in noncombustible containers shall not be required to be spaced 3 feet (914 mm) from the container walls.

**1206.2.8.7.1 Separation.** Stationary storage battery systems located outdoors shall be separated by a minimum 5 feet (1,524 mm) from the following:

1. Lot lines.
2. Public ways.
3. Buildings.
4. Stored combustible materials.
5. Hazardous materials.
6. High-piled stock.
7. Other exposure hazards.

**Exception:** The *fire code official* is authorized to approve smaller separation distances if large-scale fire and fault condition testing conducted or witnessed and reported by an approved testing laboratory is provided showing that a fire involving the system will not adversely impact occupant egress from adjacent buildings, or adversely impact adjacent stored materials or structures.

**1206.2.8.7.2 Means of egress.** Stationary storage battery systems located outdoors shall be separated from any *means of egress* as required by the *fire code official* to ensure safe egress under fire conditions, but not less than 10 feet (3,048 mm).

**Exception:** The *fire code official* is authorized to approve lesser separation distances if large-scale fire and fault condition testing conducted or witnessed and reported by an *approved* testing laboratory is provided showing that a fire involving the system will not adversely impact occupant egress.

**1206.2.8.7.3 Security of outdoor areas.** Outdoor areas in which stationary storage battery systems are located shall be secured against unauthorized entry and safeguarded in an approved manner.

**1206.2.8.7.4 Walk-in units.** Where a stationary storage battery system includes an outer enclosure, the unit shall only be entered for inspection, maintenance and repair of batteries and electronics, and shall not be occupied for other purposes.

**1206.2.9 Maximum allowable quantities.** *Fire areas* within buildings containing stationary storage battery systems exceeding the maximum allowable quantities in Table 1206.2.9 shall comply with all applicable Group H occupancy requirements in this code and the *Building Code*.

**Exception:** Where approved by the *fire code official*, areas containing stationary storage battery that exceed the amounts in Table 1206.2.9 shall be treated as incidental use areas and not Group H occupancies based on a hazardous mitigation analysis in accordance with Section 1206.2.3 and large-scale fire and fault condition testing conducted or witnessed and reported by an approved testing laboratory.

**TABLE 1206.2.9  
MAXIMUM ALLOWABLE BATTERY QUANTITIES**

<b>BATTERY TECHNOLOGY</b>	<b>MAXIMUM ALLOWABLE QUANTITIES<sup>a</sup></b>	<b>GROUP H OCCUPANCY</b>
Flow batteries <sup>b</sup>	600 kWh	Group H-2
Lead acid, all types	Unlimited	Not Applicable
Lithium, all types	600 kWh	Group H-2
Nickel cadmium (Ni-Cd)	Unlimited	Not Applicable
Sodium, all types	600 kWh	Group H-2
Other battery technologies	200 kWh	Group H-2 <sup>c</sup>

For SI: 1 kilowatt hour = 3.6 megajoules

a. For batteries rated in amp-hours, Kilowatt-hours (kWh) shall equal rated voltage times the amp-hour rating divided by 1,000.

b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte-type technologies.

c. Shall be a Group H-4 occupancy if the *fire code official* determines that a fire or thermal runaway involving the battery technology does not represent a significant fire hazard.

**1206.2.9.1 Mixed battery systems.** Where areas within buildings contain different types of storage battery technologies, the total aggregate quantities of batteries shall be determined based on the sum of percentages of each battery type quantity divided by the maximum allowable quantity of each battery type. If the sum of the percentages exceeds 100 percent, the area shall be treated as a Group H occupancy in accordance with Table 1206.2.9.

**1206.2.10 Storage batteries and equipment.** The design and installation of storage batteries and related equipment shall comply with Sections 1206.2.10.1 through 1206.2.10.8.

**1206.2.10.1 Listings.** Storage batteries and battery storage systems shall comply with the following:

1. Storage batteries shall be listed in accordance with UL 1973-2013.
2. Prepackaged and preengineered stationary storage battery systems shall be listed in accordance with UL 9540-2014.

**Exception:** Lead-acid batteries are not required to be listed.

**1206.2.10.2 Prepackaged and preengineered systems.** Prepackaged and preengineered stationary storage battery systems shall be installed in accordance with their listing and the manufacturer's instructions.

**1206.2.10.3 Energy management system.** An approved energy management system shall be provided for battery technologies other than lead-acid and nickel cadmium for monitoring and balancing cell voltages, currents and temperatures within the manufacturer's specifications. The system shall transmit an alarm signal to an approved location if potentially

hazardous temperatures or other conditions such as short circuits, other voltage or under voltage are detected.

**1206.2.10.4 Battery chargers.** Battery chargers shall be compatible with the battery chemistry and the manufacturer's electrical ratings and charging specifications. Battery chargers shall be listed and labeled in accordance with UL 1564-2015 or provided as part of a listed preengineered or prepackaged stationary storage battery system.

**1206.2.10.5 Inverters.** Inverters shall be listed and labeled in accordance with UL 1741-2015. Only inverters listed and labeled for utility interactive system use and identified as interactive shall be allowed to operate in parallel with the electric utility power system to supply power to common loads.

**1206.2.10.6 Safety caps.** Vented batteries shall be provided with flame-arresting safety caps.

**1206.2.10.7 Thermal runaway.** Where required by Section 1206.2.12, storage batteries shall be provided with a listed device or other approved method to prevent, detect and control thermal runaway.

**1206.2.10.8 Toxic and highly toxic gas.** Stationary storage battery systems that have the potential to release toxic and highly toxic gas during charging, discharging and normal use conditions shall comply with Chapter 60.

**1206.2.11 Fire-extinguishing and detection systems.** Fire-extinguishing and detections systems shall be provided in accordance with Sections 1206.2.11.1 through 1206.2.11.5.

**1206.2.11.1 Fire-extinguishing systems.** Rooms containing stationary storage battery systems shall be equipped with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1. Commodity classifications for specific technologies of storage batteries shall be in accordance with Chapter 5 of NFPA 13-2016. If the storage battery types are not addressed in Chapter 5 of NFPA 13-2016, the *fire code official* is authorized to approve the fire-extinguishing system based on full-scale fire and fault condition testing conducted or witnessed and reported by an *approved laboratory*.

**Exception:** Spaces or areas containing stationary storage battery systems used exclusively for telecommunications equipment in accordance with Section 903.2.

**1206.2.11.1.1 Alternative fire-extinguishing systems.** Battery systems that utilize water-reactive materials shall be protected by an approved alternative automatic fire-extinguishing system in accordance with Section 904. The system shall be listed for protecting the type, arrangement and quantities of storage batteries in the room. The *fire code official* shall be permitted to approve the alternative fire extinguishing system based on full-scale fire and fault condition testing conducted or witnessed and reported by an *approved laboratory*.

**1206.2.11.2 Smoke detection system.** An *approved automatic smoke detection system* shall be installed in rooms containing

stationary storage battery systems in accordance with Section 907.2.

**1206.2.11.3 Ventilation.** Where required by Section 1206.2.3 or 1206.2.12, ventilation of rooms containing stationary storage battery systems shall be provided in accordance with the *Mechanical Code* and one of the following:

1. The ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammability limit, or for hydrogen, 1.0 percent of the total volume of the room.
2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute (cfm) per square foot [0.00508 m<sup>3</sup>/(s • m<sup>2</sup>)] of floor area, but not less than 150 cfm (4 m<sup>3</sup>/min).

The exhaust system shall be designed to provide air movement across all parts of the floor for gases having a vapor density greater than air and across all parts of the vault ceiling for gases having a vapor density less than air.

**1206.2.11.3.1 Cabinet ventilation.** Where cabinets located in occupied spaces contain storage batteries that are required by Section 1206.2.3 or 1206.2.12 to be provided with ventilation, the cabinet shall be provided with ventilation in accordance with Section 1206.2.11.3.

**1206.2.11.3.2 Supervision.** Required mechanical ventilation systems for rooms and cabinets containing storage batteries shall be supervised by an *approved* central station, proprietary or remote station service or shall initiate an audible and visual signal at an *approved* constantly attended on-site location.

**1206.2.11.4 Gas detection system.** Where required by Section 1206.2.3 or 1206.2.12, rooms containing stationary storage battery systems shall be protected by a gas detection system complying with Section 916. The gas detection system shall be designed to activate where the level of flammable gas exceeds 25 percent of the lower flammable limit (LFL), or where the level of toxic or highly toxic gas exceeds one-half of the IDLH, or where gas indicative of venting from a lithium-ion cell is detected.

**1206.2.11.4.1 System activation.** Activation of the gas detection system shall result in all of the following:

1. Initiation of distinct audible and visible alarms in the battery storage room.
2. Transmission of an alarm to an approved location.
3. De-energizing of the battery charger.

4. Activation of the mechanical ventilation system, where the system is interlocked with the gas detection system.

**Exception:** Lead-acid and nickel-cadmium stationary storage battery systems shall not be required to comply with Items 1, 2 and 3.

**1206.2.11.5 Spill control and neutralization.** Where required by Section 1206.2.12, approved methods and materials shall be provided for the control and neutralization of spills of electrolyte or other hazardous materials in areas containing stationary storage batteries as follows:

1. For batteries with free-flowing electrolyte, the method and materials shall be capable of neutralizing a spill of the total capacity from the largest cell or block to a pH between 5.0 and 9.0.
2. For batteries with immobilized electrolyte, the method and material shall be capable of neutralizing a spill of 3.0 percent of the capacity of the largest cell or block in the room to a pH between 5.0 and 9.0.

**1206.2.12 Specific battery-type requirements.** This section includes requirements applicable to specific types of storage batteries. Stationary storage battery systems with more than one type of storage battery shall comply with requirements applicable to each battery type.

**1206.2.12.1 Lead-acid storage batteries.** Stationary storage battery systems utilizing lead-acid storage batteries shall comply with the following:

1. Ventilation shall be provided in accordance with Section 1206.2.11.3.
2. Spill control and neutralization shall be in accordance with Section 1206.2.11.5.
3. Thermal runaway protection shall be provided for valve-regulated lead-acid (VRLA) storage batteries in accordance with Section 1206.2.10.7.
4. The signage in Section 1206.2.8.6 shall indicate the room contains lead-acid batteries.

**1206.2.12.2 Nickel-cadmium (Ni-Cd) storage batteries.** Stationary storage battery systems utilizing nickel-cadmium (Ni-Cd) storage batteries shall comply with the following:

1. Ventilation shall be provided in accordance with Section 1206.2.11.3.
2. Spill control and neutralization shall be in accordance with Section 1206.2.11.5.
3. Thermal runaway protection shall be provided for valve-regulated sealed nickel-cadmium storage batteries in accordance with Section 1206.2.10.7.

4. The signage in Section 1206.2.8.6 shall indicate the room contains nickel-cadmium batteries.

**1206.2.12.3 Lithium-ion storage batteries.** The signage in Section 1206.2.8.6 shall indicate the type of lithium batteries contained in the room.

**1206.2.12.4 Sodium-beta storage batteries.** Stationary storage battery systems utilizing sodium-beta storage batteries shall comply with the following:

1. Ventilation shall be provided in accordance with Section 1206.2.11.3.
2. The signage in Section 1206.2.8.6 shall indicate the type of sodium batteries in the room and include the instructions, "APPLY NO WATER."

**1206.2.12.5 Flow storage batteries.** Stationary storage battery systems utilizing flow storage batteries shall comply with the following:

1. Ventilation shall be provided in accordance with Section 1206.2.11.3.
2. Spill control and neutralization shall be in accordance with Section 1206.2.11.5.
3. The signage required in Section 1206.2.8.6 shall indicate the type of flow batteries in the room.

**1206.2.12.6 Other battery technologies.** Stationary storage battery systems utilizing battery technologies other than those described in Sections 1206.2.12.1 through 1206.2.12.5 shall comply with the following:

1. Gas detection systems complying with Section 916 shall be provided in accordance with Section 1206.2.11.4 where the batteries have the potential to produce toxic or highly toxic gas in the storage room or cabinet in excess of the permissible exposure limits (PEL) during charging, discharging and normal system operation.
2. Mechanical ventilation shall be provided in accordance with Section 1206.2.11.3.
3. Spill control and neutralization shall be in accordance with Section 1206.2.11.5.
4. In addition to the signage required in Section 1206.2.8.6, the marking shall identify the type of batteries present, describe the potential hazards associated with the battery type, and indicate that the room contains energized electrical circuits.

**1206.3 Capacitor energy storage systems.** Capacitor energy storage systems having capacities exceeding 3 kWh (10.8 megajoules) shall comply with Sections 1206.3 through 1206.3.2.6.1.

**Exception:** Capacitors regulated by NFPA 70, Chapter 460, and capacitors included as a component part of other listed electrical equipment are not required to comply with this section.

**1206.3.1 Permits.** Permits shall be obtained for the installation of capacitor energy storage systems in accordance with Section 105.6.51.

**1206.3.2 Location and construction.** Rooms and areas containing capacitor energy storage systems shall be designed, located and constructed in accordance with Sections 1206.3.2 through 1206.3.2.5.

**1206.3.2.1 Location.** Capacitor energy storage systems shall not be located in areas where the floor is located more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access, or where the floor level is more than 30 feet (9,144 mm) below the finished floor of the lowest level of exit discharge.

**1206.3.2.2 Separation.** Rooms containing capacitor energy storage systems shall be separated from the following occupancies by fire barriers or horizontal assemblies, or both, constructed in accordance with the *Building Code*.

- 1.** Group B, F, M, S and U occupancies by 1-hour fire-resistance-rated construction.
- 2.** Group A, E, I and R occupancies by 2-hour fire-resistance-rated construction.

**1206.3.2.3 Capacitor arrays.** Capacitor energy storage systems shall be segregated into capacitor arrays not exceeding 50 kWh (180 megajoules) each. Each array shall be spaced not less than 3 feet (914 mm) from other arrays and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10.

**Exception:** Capacitor energy storage systems in noncombustible containers located outdoors shall not be required to be spaced 3 feet (914 mm) from the container walls.

**1206.3.2.4 Signage.** Approved signs shall be provided on doors or in locations adjacent to the entrances to capacitor energy storage system rooms and shall include the following or equivalent verbiage and information:

- 1.** "CAPACITOR ENERGY STORAGE ROOM."
- 2.** "THIS ROOM CONTAINS ENERGIZED ELECTRICAL CIRCUITS."
- 3.** An identification of the type of capacitors present and the potential hazards associated with the capacitor type.

**1206.3.2.5 Electrical disconnects.** Where the capacitor energy storage system disconnecting means is not within sight of the main service disconnecting means, placards or directories shall be installed at the location of the main service disconnecting means identifying the location of the capacitor energy storage system disconnecting means in accordance with NFPA 70.

**1206.3.2.6 Outdoor installation.** Capacitor energy systems located outdoors shall comply with Sections 1206.3.2.6 through 1206.3.2.6.4 in addition to all applicable requirements of Section 1206.3. Installations in outdoor enclosures or containers that can be occupied for servicing, testing, maintenance and other functions shall be treated as capacitor storage rooms.

**Exception:** Capacitor arrays in noncombustible containers shall not be required to be spaced 3 feet (914 mm) from the container walls.

**1206.3.2.6.1 Separation.** Capacitor energy systems located outdoors shall be not less than 5 feet (1,524 mm) from the following:

1. Lot lines.
2. Public ways.
3. Buildings.
4. Stored combustible materials.
5. Hazardous materials.
6. High-piled stock.
7. Other exposure hazards.

**Exception:** The *fire code official* is authorized to approve lesser separation distances if large-scale fire and fault condition testing conducted or witness and reported by an approved testing laboratory is provided showing that a fire involving the system will not adversely impact occupant egress from adjacent buildings, or adversely impact adjacent stored materials or structures.

**1206.3.2.6.2 Means of egress.** Capacitor energy storage systems located outdoors shall be separated from any means of egress as required by the *fire code official* to ensure safe egress under fire conditions, but not less than 10 feet (3,048 mm).

**Exception:** The *fire code official* is authorized to approve lesser separation distances if large-scale fire and fault condition testing conducted or witness and reported by an approved testing laboratory is provided showing that a fire involving the system will not adversely impact occupant egress.

**1206.3.2.6.3 Security of outdoor areas.** Outdoor areas in which *capacitor energy storage systems* are located shall be secured against unauthorized entry and safeguarded in an approved manner.

**1206.3.2.6.4 Walk-in units.** Where a capacitor energy storage system includes an outer enclosure, the unit shall only be entered for inspection, maintenance and repair of batteries and electronics, and shall not be occupied for other purposes.

**1206.3.3 Maximum allowable quantities.** Fire areas within buildings containing *capacitor energy storage systems* that exceed 6000 kWh of energy capacity shall comply with all applicable Group H occupancy requirements in this code and the *Building Code*.

**1206.3.4 Capacitors and equipment.** The design and installation of *capacitor energy storage systems* and related equipment shall comply with Sections 1206.3.4.1 through 1206.3.4.5.

**1206.3.4.1 Listing.** Capacitors and *capacitor energy storage systems* shall comply with the following:

1. Capacitors shall be listed in accordance with UL 1973-2013.
2. Prepackaged and preengineered stationary capacitor energy storage systems shall be listed in accordance with UL 9540-2014.



**1206.3.4.2 Prepackaged and preengineered systems.** In addition to other applicable requirements of this code, prepackaged and preengineered *capacitor energy storage systems* shall be installed in accordance with their listing and the manufacturer's instructions.

**1206.3.4.3 Energy management system.** An approved energy management system shall be provided for monitoring and balancing capacitor voltages, currents and temperatures within the manufacturer's specifications. The system shall transmit an alarm signal to an approved location if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.

**1206.3.4.4 Capacitor chargers.** Capacitor chargers shall be compatible with the capacitor manufacturer's electrical ratings and charging specifications. Capacitor chargers shall be listed and labeled in accordance with UL 1564-2015 or provided as part of a listed preengineered or prepackaged *capacitor energy storage system*.

**1206.3.4.5 Toxic and highly toxic gas.** *Capacitor energy storage systems* that have the potential to release toxic and highly toxic materials during charging, discharging and normal use conditions shall comply with Chapter 60.

**1206.3.5 Fire-extinguishing and detection systems.** Fire-extinguishing and smoke detection systems shall be provided in *capacitor energy storage system* rooms in accordance with Sections 1206.3.5.1 through 1206.3.5.2.

**1206.3.5.1 Fire-extinguishing systems.** Rooms containing *capacitor energy storage systems* shall be equipped with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1. Commodity classifications for specific capacitor technologies shall be in accordance with Chapter 5 of NFPA 13-2016. If the capacitor types are not addressed in Chapter 5 of NFPA 13-2016, the *fire code official* is authorized to approve the *automatic sprinkler system* based on full-scale fire and fault condition testing conducted by an *approved laboratory*.

**1206.3.5.1.1 Alternative fire-extinguishing systems.** *Capacitor energy storage systems* that utilize water-reactive materials shall be protected by an *approved alternative automatic fire-extinguishing system* in accordance with Section 904. The system shall be listed for protecting the type, arrangement and quantities for capacitors in the room. The *fire code official* shall be permitted to approve the system based on full-scale fire and fault condition testing conducted by an *approved laboratory*.

**1206.3.5.2 Smoke detection system.** An approved *automatic smoke detection system* shall be installed in rooms containing *capacitor energy storage systems* in accordance with Section 907.2.

**1206.3.5.3 Ventilation.** Where capacitors release flammable gases during normal operating conditions, ventilation of rooms containing capacitor energy storage systems shall be provided in accordance with the *Mechanical Code* and one of the following:

1. The ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammability limit.

2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute (cfm) per square foot [0.00508 m<sup>3</sup>/(s • m<sup>23</sup>/min).

The exhaust system shall be designed to provide air movement across all parts of the floor for gases having a vapor density greater than air and across all parts of the ceiling for gases having a vapor density less than air.

**1206.3.5.3.1 Supervision.** Require mechanical ventilation systems for rooms containing capacitor energy storage system shall be supervised by an approved central station, proprietary or remote station service, or shall initiate an audible and visible signal at an approved, constantly attended on-site location.

**1206.3.5.4 Spill control and neutralization.** Where capacitors contain liquid electrolyte, approved methods and materials shall be provided for the control and neutralization of spills of electrolyte or other hazardous materials in areas containing capacitors as follows:

1. For capacitors with free-flowing electrolyte, the method and materials shall be capable of neutralizing a spill of the total capacity from the largest cell or block to a pH between 5.0 and 9.0.
2. For capacitors with immobilized electrolyte, the method and material shall be capable of neutralizing a spill of 3.0 percent of the capacity of the largest cell or block in the room to a pH between 5.0 and 9.0.

**1206.3.6 Testing, maintenance and repair.** Capacitors and associated equipment and systems shall be tested and maintained in accordance with the manufacturer's instructions. Any capacitors or system components used to replace existing units shall be compatible with the capacitor charger, energy management system, other capacitors, and other safety systems. Introducing different capacitor technologies into the capacitor energy storage system shall be treated as a new installation and require approval by the fire code official before the replacements are introduced into service.

## CHAPTER 21

# DRY CLEANING

**2104.2.1 Ventilation.** Ventilation shall be provided in accordance with Section ~~502~~ 505 of the ~~International Mechanical Code~~ and DOL 29 CFR Part 1910.1000, where applicable.



## CHAPTER 23

# MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

**2303.2 Emergency disconnect switches.** An *approved*, clearly identified and readily accessible emergency disconnect switch shall be provided at an *approved* location to stop the transfer of fuel to the fuel dispensers in the event of a fuel spill or other emergency. The emergency disconnect switch for exterior fuel dispensers shall be located within 100 feet (30,480 mm) of, but not less than 20 feet (6,096 mm) from, the fuel dispensers. For interior fuel-dispensing operations, the emergency disconnect switch shall be installed at an *approved* location. Such devices shall be distinctly *labeled* as: EMERGENCY FUEL SHUTOFF. The sign lettering shall be not less than 2 inches (50 mm) in height on a background of contrasting color so that the lettering is clearly visible. Signs shall be provided in *approved* locations.

**2306.2.3 Above-ground tanks located outside, ~~above-grade~~.** Above-ground tanks shall not be used for the storage of Class I, II or III liquid motor fuels, except as provided by this section and Houston Fire Department LSB Standard No. 13, "Outside Protected Aboveground Tanks for Generators and Fire Pumps."

{EDITORIAL NOTE: THE REMAINDER OF THIS SECTION SHALL REMAIN AS SET FORTH IN THE 2015 IFC.}



## CHAPTER 24

# FLAMMABLE FINISHES

**2404.2 Location of spray-finishing operations.** Spray-finishing operations conducted in buildings used for Group A, E, I or R occupancies shall be located in a spray room protected with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 and separated vertically and horizontally from other areas in accordance with the *International Building Code*. In other occupancies, spray-finishing operations shall be conducted in a spray room, spray booth or spraying space *approved* for such use. Outside spraying or spray-finishing operations in basements or sub-basements are prohibited except when *approved* by the fire code official.

**Exceptions:**

1. Automobile undercoating spray operations and spray-on automotive lining operations conducted in areas with *approved* natural or mechanical ventilation shall be exempt from the provisions of Section 2404 when *approved* and where utilizing Class IIIA or IIIB *combustible liquids*.
2. In buildings other than Group A, E, I or R occupancies, *approved* limited spraying space in accordance with Section 2404.9.
3. Resin application areas used for manufacturing of reinforced plastics complying with Section 2409 shall not be required to be located in a spray room, spray booth or spraying space.

**2404.7 Ventilation.** Mechanical ventilation of flammable vapor areas shall be provided in accordance with Section ~~502.7~~ 505 of the ~~*International*~~ *Mechanical Code*.





# **CHAPTER 27**

## **SEMICONDUCTOR FABRICATION FACILITIES**

### **SECTION 2702 DEFINITIONS**

**GAS DETECTION SYSTEM.**

**HPM.**



# CHAPTER 28

## LUMBER YARDS AND AGRO-INDUSTRIAL, SOLID BIOMASS AND WOODWORKING FACILITIES

### SECTION 2810 OUTDOOR STORAGE OF PALLETS AT PALLET MANUFACTURING AND RECYCLING FACILITIES

**2810.1 General.** The outside storage of wood pallets and wood composite pallets on the same site as a pallet manufacturing or recycling facility shall comply with Sections 2810.2 through 2810.11.

**2810.2 Site plan.** Each site shall maintain a current site plan that includes a general description of the property, the boundaries of the lot, the size and location of buildings, and all of the following:

1. Utilities.
2. Type of construction and presence of sprinkler protection for other buildings on the site.
3. Water supply sources for fire-fighting purposes.
4. Location of hazardous material storage areas.
5. Location of pallet storage.
6. Equipment protected with a dust collection system.
7. Fire apparatus access roads.
8. Designated smoking areas.
9. Location of fire alarm control panels.

**2810.3 Fire prevention plan.** The owner or owner's authorized representative shall prepare an approved fire prevention plan that includes all of the following:

1. Frequency of walk-through inspections to verify compliance with the plan.
2. Hot work permit program in accordance with Chapter 35.
3. Preventative maintenance program for equipment associated with pallet activities.
4. Inspection, testing and maintenance of fire protection systems in accordance with Chapter 9.

**2810.4 Fire safety and emergency evacuation plan.** The owner or owner's authorized representative shall prepare and train employees in an approved fire safety and emergency evacuation plan in accordance with Chapter 4.

**2810.5 Security management plan.** The owner or owner's authorized representative shall prepare a security management plan based on a security risk assessment and shall make the plan and assessment available to the fire code official upon request.

**2810.6 Clearance to property line.** Stacks of pallets shall not be stored within 0.75 times the stack height or 8 feet (2,438 mm) of the property line, whichever is greater, or shall comply with Section 2810.11.

**2810.7 Clearance to important buildings.** Stacks of pallets shall not be stored within 0.75 times the stack height of any important building on site or shall comply with Section 2810.11.

**2810.8 Height.** Pallet stacks shall not exceed 20 feet (6,096 mm) in height.

**2810.9 Fire flow.** Fire-flow requirements for the site shall be determined by the *fire code official*.

**2810.10 Portable fire extinguishers.** Portable fire extinguishers shall be provided within 75 feet (22,860 mm) of any pallet stack.

**2810.11 Alternative approach.** Where *approved* by the *fire code official*, pallet stacks located closer to a property line or structure than as required by Sections 2810.6 and 2810.7 shall be provided with additional fire protection including, but not limited to, the following:

- 1.** The storage yard areas and materials-handling equipment selection, design, and arrangement are based on an *approved* risk assessment.
- 2.** Automatic fire detection that transmits an alarm to a supervising station in accordance with NFPA 72-2016.
- 3.** *Fire apparatus access roads* around all storage areas.

## CHAPTER 31

# TENTS AND OTHER MEMBRANE STRUCTURES

**3103.2 Approval required.** Tents, canopies, and membrane structures having an area in excess of ~~400~~ 1,200 square feet (~~37~~ 112 m<sup>2</sup>), or an aggregate area in excess of 1,200 square feet (112 m<sup>2</sup>), shall not be erected, operated or maintained for any purpose without first obtaining a permit and approval from the *fire code official*. See Houston Fire Department LSB Standard No. 22, "Tents and Other Membrane Structures."

**Exceptions:**

1. Tents used exclusively for recreational camping purposes.
- ~~2. Tents open on all sides that comply with all of the following:~~
  - ~~2.1 Individual tents having a maximum size of 700 square feet (65 m<sup>2</sup>).~~
  - ~~2.2 The aggregate area of multiple tents placed side by side without a fire break clearance of 12 feet (358 mm), not exceeding 700 square feet (65 m<sup>2</sup>) total.~~
  - ~~2.3 A minimum clearance of 12 feet (3,658 mm) to all structures and other tents.~~

**3103.5 Use period.** Temporary tents, and air-supported, air-inflated or tensioned membrane structures shall not be erected for a period of more than ~~179~~ 90 days within a 12-month period on a single premises.

**3104.8 Fireworks.** Fireworks shall not be used within 100 feet (30,480 mm) of tents, canopies or membrane structures except as approved by the fire code official.

**3105.2 Approval.** Temporary stage canopies in excess of ~~400~~ 1,200 square feet (~~37~~ 112 m<sup>2</sup>) shall not be erected, operated or maintained for any purpose without first obtaining approval and a permit from the *fire code official* and the building official.



## CHAPTER 32

# HIGH-PILED COMBUSTIBLE STORAGE

**3206.6.1.4 Marking of access doors.** Firefighter access doors shall be labeled with HFD on the exterior in the top left-hand corner. The letters shall be not less than 4 inches (100 mm) in height on a contrasting background. Lettering shall be legible, durable and reflective in nature.





## CHAPTER 33

# FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

**3304.2.1 Combustible waste material accumulation.** Combustible debris, rubbish and waste material shall not be accumulated within buildings or allowed to accumulate around or overflow from dumpsters.

**3304.2.2 Combustible waste material removal.** Combustible debris, rubbish and waste material shall be removed from buildings at the end of each shift of work. Combustible waste storage dumpsters shall be used and maintained in accordance with Section 304.

**3304.3 Burning of combustible debris, rubbish and waste.** Combustible debris, rubbish and waste material shall not be disposed of by burning on the site ~~unless approved.~~

### SECTION 3310

#### ACCESS FOR FIRE FIGHTING AND E.M.S. OPERATIONS

**3310.1 Required access.** Approved vehicle access for fire fighting and emergency medical service shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet (30,480 mm) of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading as required by Section D102.1 of this code under all weather conditions up to the foundation of every structure on the site prior to the start of any vertical construction. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

**3317.2.1 Permits.** Permits are required for the use of asphalt kettles and for torching operations. See Section 105.6.

**3317.4 Torches and other flame-producing devices.** Use of torches or other flame-producing devices for application of roofing membranes is prohibited.

**Exception:** When approved by the fire code official, roofing operations shall be conducted in accordance with Houston Fire Department LSB Standard No. 11, "Roofing Operations."



## CHAPTER 35

# WELDING AND OTHER HOT WORK

**3503.7 Roofing operations utilizing flame-producing devices.** Use of torches or other flame-producing devices for application of roofing membranes is prohibited. See Section 3317.4.

**Exception:** When *approved* by the *fire code official*, roofing operations shall be conducted in accordance with Houston Fire Department LSB Standard No. 11, "Roofing Operations."



## CHAPTER 37

# COMBUSTIBLE FIBERS

**3703.5 Dust collection.** Where located within a building, equipment or machinery that generates or emits *combustible fibers* shall be provided with an *approved* dust-collecting and exhaust system. Such systems shall comply with Chapter 22 of this code and Section ~~544~~ 506.4 of the *International Mechanical Code*.



# CHAPTER 50

## HAZARDOUS MATERIALS—GENERAL PROVISIONS

**5001.7 Enterprise permit.** Businesses and facilities storing or utilizing hazardous materials exceeding the maximum allowable quantity limits per control area identified in Tables 307.1(1) and 307.1(2) of the Building Code shall comply with Chapter 28 of the City Code for a hazardous enterprise.

### SECTION 5003 GENERAL REQUIREMENTS

**5003.1 Scope.** The storage, use and handling of all hazardous materials shall be in accordance with this section and the applicable provisions of the Hazardous Enterprise Ordinance of Chapter 28, Article VII, of the City Code for a hazardous enterprise.

**5003.9.2 Security.** ~~Storage~~ When required by the *fire code official*, storage, dispensing, use and handling areas shall be secured against unauthorized entry and safe-guarded in a manner *approved* by the *fire code official*. When security fencing is installed, the fence shall comply with all of the following:

1. Substantially built of iron, steel or concrete that is fabricated and installed in accordance with the Building Code.
2. A minimum height of not less than 6 feet (1,830 mm) above the surrounding floor or ground surface.
3. Topped by three rows of barbed wire, separated 4 inches (100 mm) apart and applied in compliance with Section 28-9 of the City Code.
4. Equipped with necessary openings designed and fabricated to provide security equivalent to the fence that includes locks that always remain locked except when in use by authorized personnel, and
5. Located 5 feet (1,525 mm) or more from any tank, valves or piping associated with hazardous materials.

**Note:** For LP-gas transfer and storage facilities see Section 3807.4.

**5004.13 Weather protection.** Where overhead noncombustible construction is provided for sheltering outdoor hazardous material storage areas, such storage shall not be considered indoor storage where the area is constructed in accordance with the requirements for weather protection as required by the ~~International Building Code~~.

**Exception:** For the purpose of applying the Hazardous Enterprise Ordinance of Chapter 28, Article VII, of the City Code, and the fire separation distance provisions of the Building Code, ~~S~~storage of hazardous ~~explosive~~ materials exceeding the maximum allowable quantity limits per control area identified in Section 307 and Tables 307.1(1) and 307.1(2) of the Building Code shall be considered as indoor storage.





## CHAPTER 55

# CRYOGENIC FLUIDS

**5504.3.1.1.2 Surfaces beneath containers.** Containers shall be placed on surfaces that are compatible with the fluid in the container. For liquid oxygen stationary containers, surfacing of noncombustible material shall be provided at ground level under liquid delivery connections for the storage container and the delivery vehicle. Asphaltic and bitumastic paving or organic material (wood, wood byproducts or similar materials) shall not be used as paving materials. The area below the liquid delivery connections shall be at least 3 feet (910 mm) in diameter from points at ground level upon which leakage of liquid oxygen might occur during unloading and normal operation of the system. The area under the mobile supply equipment shall be at least the full width of the vehicle and at least 8 feet (2.4 m) in the direction of the vehicle axis. The layout of the slope, if any, of such areas shall consider possible flow of spilled liquid oxygen to adjacent combustible materials. The area around the stationary containers, fill connections and delivery pad shall be kept clear of all trash and organic matter.



## CHAPTER 56

# EXPLOSIVES AND FIREWORKS

**5601.1.3 Fireworks.** The possession, manufacture, storage, sale, handling ~~or and~~ use of fireworks is prohibited.

**Exceptions:**

1. Storage and handling of fireworks as allowed in Section 5604.
2. ~~Manufacture, assembly and testing of fireworks as allowed in Section 5605.~~
3. The use of fireworks for firework displays as allowed in Section 5608.
4. ~~The possession, storage, sale, handling and use of specific types of Division 1.4G fireworks where allowed by applicable laws, ordinances and regulations, provided such fireworks and facilities comply with NFPA 1124, CPSC 16 CFR Parts 1500 and 1507, and DOTn 49 CFR Parts 100-185, for consumer fireworks.~~
5. Fireworks being transported in international, intrastate, or interstate commerce through the jurisdiction between points of origin and destination outside of the jurisdiction in accordance with all applicable municipal or state laws, ordinances, and regulations, provided the fireworks comply with federal regulations CPSC 16 CFR Parts 1500-1507, and DOTn 49 CFR Parts 100-185, for consumer fireworks. The provisions of this exception shall extend only to bona fide commercial transportation and distribution of fireworks in commercial quantities among manufacturers, wholesalers and dealers. Transportation shall be by way of established hazardous materials transportation routes through and around the jurisdiction.

**5601.1.3.1 Seizure of fireworks.** The presence of any fireworks within this jurisdiction in violation of this chapter is hereby declared to be a common and public nuisance. The *fire code official* is directed and required to seize and cause to be safely destroyed any fireworks found in violation of this code. Any member of the Life Safety and Fire Prevention Bureau of the Houston Fire Department or any police officer of the jurisdiction is empowered to stop the transportation of and detain any fireworks found being transported illegally.

**5605.1.1 Manufacturing of fireworks prohibited.** The manufacturing of fireworks is prohibited, and no provision of this section shall be construed to authorize the manufacturing of fireworks within the jurisdiction.



## CHAPTER 57

# FLAMMABLE AND COMBUSTIBLE LIQUIDS

**5703.5.5 Security.** When required by the *fire code official*, storage areas, tanks, piping, valves, regulating equipment and accessories shall be protected against tampering or trespassers by fencing or other control measures in accordance with Section 5003.9.2.

**5703.6.9.2 Swing joints.** Approved swing joints shall be installed on all underground liquid, vapor and vent piping where the piping leaves the dispensing island or location and just before where the pipe connects to any underground tank fittings. Swing joints shall also be installed on piping that is rigidly supported or connected between fixed points and that is subject to thermal expansion or differential movements. No pipe nipple used in connection with a double swing joint or where piping joins tanks shall exceed 12 inches (300 mm) in length.

**Exception:** Listed flexible connectors are allowed in lieu of swing joints when approved by the *fire code official*.

**5704.1 General.** The storage of flammable and *combustible liquids* in containers and tanks shall be in accordance with this section, API 653, and the applicable section of Chapter 50.

**5704.2.9.6.1 Locations where above-ground tanks are prohibited.** Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited within the limits established by law as the limits of districts in which such storage is prohibited (see Section 3 of the Sample Legislation for Adoption of the *International Fire Code* on page xxi) in accordance with Section 203, unless approved by the *fire code official*. See Houston Fire Department LSB Standard No. 13, "Outside Protected Aboveground Tanks for Generators and Fire Pumps."

**5704.2.12.3 Existing tanks and testing.** The *fire code official* is authorized to require leak-testing for existing underground storage tanks and piping when there is reasonable cause to believe that a leak exists. The method of testing shall be approved by the *fire code official*.

**5704.3.4.4 Liquids Special provisions for liquids used for maintenance and operation of equipment.** In all occupancies, quantities of flammable and *combustible liquids* in excess of 10 gallons (38 L) used for maintenance purposes and the operation of equipment shall be stored in liquid storage cabinets in accordance with Section 5704.3.2. Quantities not exceeding 10 gallons (38 L) are allowed to be stored outside of a cabinet where in approved containers safety cans located in private garages or other approved locations. In other than Group H occupancies, quantities of flammable and *combustible liquids* used for demonstration, treatment and laboratory work exceeding 10 gallons (38 L) shall be

stored in storage cabinets in accordance with Section 5704.3.2. Quantities not exceeding 10 gallons (38 L) shall be stored in *approved* safety cans located in *approved* locations.

**5704.4.8 Empty containers and tank storage.** ~~The storage of e~~Empty tanks and containers previously used for the storage of flammable or *combustible liquids*, unless free from explosive vapors, shall be stored as required for filled containers and tanks. Tanks and containers when emptied shall have the covers or plugs immediately replaced in openings. Empty tanks and containers that have been rendered free of explosive vapors shall be visibly marked as EMPTY, or the area where containers are stored shall be marked with an *approved* sign indicating EMPTY CONTAINERS. Containers marked as EMPTY shall be separated from filled containers.

**5706.2.4.4 Locations where above-ground tanks are prohibited.** The storage of Class I and II liquids in above-ground tanks is prohibited within the limits established by law as the limits of districts in which such storage is prohibited (~~see Section 3 of the Sample Legislation for Adoption of the *International Fire Code* on page xxi~~) in accordance with Section 203, unless *approved* by the *fire code official*. See Houston Fire Department LSB Standard No. 13, "Outside Protected Aboveground Tanks for Generators and Fire Pumps."

**5706.5.4.5 Commercial, industrial, governmental or manufacturing.** Dispensing of Class I, II, and III motor vehicle fuel from tank vehicles into the fuel tanks of motor vehicles located at commercial, industrial, governmental or manufacturing establishments is allowed where permitted, provided such dispensing operations are conducted in accordance with the following:

{EDITORIAL NOTE: REMAINDER OF SECTION REMAINS AS SET FORTH IN 2015 IFC.}

## CHAPTER 58

# FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS

**5808.7 Standby power.** Mechanical ventilation and gas detection systems shall be connected to a standby power system in accordance with Sections 604 and 1203, most restrictive provisions prevail.





## CHAPTER 60

# HIGHLY TOXIC AND TOXIC MATERIALS

**6004.2.2.7 Treatment systems.** The exhaust ventilation from gas cabinets, exhausted enclosures and gas rooms, and local exhaust systems required in Sections 6004.2.2.4 and 6004.2.2.5 shall be directed to a treatment system. The treatment system shall be utilized to handle the accidental release of gas and to process exhaust ventilation. The treatment system shall be designed in accordance with Sections 6004.2.2.7.1 through 6004.2.2.7.5 and Section ~~549~~ 505 and 506 of the *International Mechanical Code*.

{EDITORIAL NOTE: REMAINDER OF SECTION 6004.2.2.7 REMAINS AS SET FORTH IN 2015 IFC.}

**6004.2.2.10 Gas detection system.** A gas detection system complying with Section 916 shall be provided to detect the presence of gas at or below the PEL or ceiling limit of the gas for which detection is provided. The system shall be capable of monitoring the discharge from the treatment system at or below one-half the IDLH limit and shall initiate a response in accordance with sections 6004.2.2.10.1 through 6004.2.2.10.4 if the gas detection alarm is activated.

**Exception:** A gas detection system is not required for toxic gases when the physiological warning threshold level for the gas is at a level below the accepted PEL for the gas.



# CHAPTER 61

## LIQUEFIED PETROLEUM GASES

**6101.2 Permits.** Permits shall be required as set forth in Sections 105.6 and 105.7, to store, use, handle or dispense LP-gas, or to install or maintain any LP-gas container in excess of 125 gallons (473 L) aggregate water capacity. A permit is required to use any amount of LP-gas for demonstrations, public exhibitions, portable heating (excluding R occupancies) or temporary commercial cooking or on mobile food units. As used in this chapter, the term mobile food unit has the meaning set forth in Chapter 20 of the City Code.

Distributors shall not fill an LP-gas container for which a permit is required unless a permit for installation has been issued for that location by the *fire code official*.

**6101.3 Construction documents.** Where a single LP-gas container is more than 2,000 500 gallons (7570 1893 L) in water capacity or the aggregate water capacity of LP-gas containers is more than 4,000 2,000 gallons (15140 7570 L), the installer shall submit construction documents for such installation.

**6103.2.1 Portable containers.** Portable LP-gas containers, as defined in NFPA 58, shall not be used in buildings except as specified in NFPA 58, and Sections 6103.2.1.1 through 6103.2.1.78, and Houston Fire Department LSB Standards No. 10, "LP-Gas and Open Flame Use" and No. 11, "Roofing Operations."

**6103.2.1.2 Construction and temporary heating.** Portable LP-gas containers are allowed to be used in buildings or areas of buildings undergoing construction or for temporary heating as set forth in Sections 6.19.4, 6.19.5 and 6.19.8 of NFPA 58 when attached to approved torches. The aggregate capacity of LP-gas containers inside a building shall not exceed 250 pounds (113 kg) water capacity. Containers connected for use shall be promptly removed from the building when the torch is not in use. Containers not connected for use shall be stored outside the building in accordance with Table 6104.3. Portable LP-gas containers shall not be attached to temporary or portable heating appliances as set forth in Sections 6.20.4, 6.20.5 and 6.20.8 of NFPA 58.

**6103.2.1.3 Group F occupancies.** In Group F occupancies, portable LP-gas containers are allowed to be used to supply quantities necessary for processing, research or experimentation. Where manifolded, the aggregate water capacity of such containers shall not exceed 735 pounds (334 kg) per manifold. Where multiple manifolds of such containers are present in the same room, each manifold shall be separated from other manifolds by a distance of not less than 20 feet (6,096 mm). The aggregate capacity of LP-gas containers inside a building shall not exceed 250 pounds (113 kg) water capacity. Containers connected for use shall not be stored inside a building or structure unless stored within a room constructed in accordance with the requirements of Section 6109.10. Containers not connected for use shall be stored outside the building in accordance with Table 6104.3.

**6103.2.1.7 Use for food preparation inside buildings.** ~~Where approved, listed LP-gas commercial food service appliances are allowed to be used for food preparation within restaurants and in attended commercial food-catering operations in accordance with the *International Fuel Gas Code*, the *International Mechanical Code* and NFPA-58. LP-gas containers shall not be used for residential or commercial food preparation inside of a building or structure.~~

**Exception:** When approved, listed LP-gas commercial food service appliances are allowed to be used for food preparation within restaurants and in attended commercial food catering operations, provided that an individual appliance shall not have more than two 10-oz (0.3 L), non-refillable LP-gas containers connected directly to the appliance any time. Containers shall comply with nationally recognized standards, have a maximum water capacity of 1.08 pounds (0.5 kg) per container and shall not be manifolded. The appliance's fuel containers shall be an integral part of the listed commercial food service device and shall be connected without the use of a rubber hose. The aggregate amount of LP-gas used or stored shall not exceed 60 pounds (27 kg) LP-gas capacity. In educational occupancies, portable LP-gas containers shall not be used or stored except as permitted by Sections 6103.1.2.5 and 6103.2.1.6.

**6103.2.1.8 Use for food preparation outside buildings.** When approved, LP-gas containers may be used for commercial cooking outside buildings or in the operation of a mobile food unit in accordance with Houston Fire Department LSB Standard No. 10, "LP-Gas and Open Flame Use." For permits, see Section 105.6.

**6103.2.1.9 Group B and M occupancies.** In Group B and M occupancies, portable LP-gas containers are allowed to be used to supply quantities necessary for minor repairs or minor fabrication work, when connected to an approved appliance. The containers shall not exceed a 12-pound water capacity. When more than one container is present in the same room, each container shall be separated from the others by a distance of not less than 20 feet. Containers not connected for use shall be stored outside the building in accordance with Table 6104.3.

**6103.2.2 Industrial vehicles and floor maintenance machines.** LP-gas containers on industrial vehicles and floor maintenance machines shall comply with Sections 11.13 and 11.14 of NFPA 58. Industrial lift trucks stored inside of buildings shall be kept in an approved area. LP-gas containers not attached for use shall be stored outside of the building in accordance with Table 6104.3.

**6104.2 Maximum capacity within established limits.** Within the limits established by law restricting the storage of liquefied petroleum gas for the protection of heavily populated or congested areas, the aggregate capacity of any one installation shall not exceed a water capacity of 2,000 gallons (7570 L) (see Section 3 of the Sample Legislation for Adoption of the *International Fire Code* on page xxi).

**Exception:** In particular installations, this capacity limit shall be determined by the fire code official, after consideration of special features such as topographical conditions, nature of occupancy, and proximity to buildings, capacity of proposed LP-gas containers, degree of fire protection to be provided and capabilities of the local fire department. See also Houston Fire Department LSB Standard No. 10, "LP-Gas and Open Flame Use."

**SECTION 6112**  
**MOBILE FOOD UNITS**

**6112.1 General.** No permit for the use of LP-gas in connection with a mobile food unit shall be issued unless the operator provides to the fire department a detailed description of the means and methods by which the operator will secure the LP-gas container against shifting (bracing) and will protect the LP-gas container against damage (blocking) by third parties, which means and methods are *approved* by the *fire code official*, and pays the administrative and permit fees required in Section 113. In addition to complying with the applicable requirements of this chapter, the operator of a mobile food unit in, on, or in conjunction with which LP-gas is used to cook or otherwise prepare food shall obtain from the fire department a permit for the use of LP-gas and LP-gas equipment for each mobile food unit and shall make the permit available for inspection and/or copying upon the request of any peace officer, *fire code official*, or health officer.

**6112.2 Filling.** Distributors shall not fill an LP-gas container for which a permit is required unless a permit for installation has been issued for that location by the *fire code official*.

**6112.3 Spacing.** The operator of a mobile food unit in, on, or in conjunction with which any amount of LP-gas is used to prepare food shall not operate such unit within 60 feet of another mobile food unit.

**6112.4 Transport.** The *fire code official* is authorized and directed to take action as may be reasonably necessary to protect the public health, safety and welfare where any operator of a mobile food unit engaged in the transportation of LP-gas within the city is suspected of violating any state or federal laws, rules and regulations, as amended from time to time, specifically Title 49, Part 173.6 of the Federal Code of Regulations.



# CHAPTER 80

## REFERENCED STANDARDS

### ASCE/SEI

American Society of Civil Engineers  
Structural Engineering Institute  
1801 Alexander Bell Drive  
Reston, VA 20191

Standard reference number	Title	Referenced in code section number
ASCE/SEI 24—14 <sup>13</sup>	Flood Resistant Design and Construction	604.1.7, 1203.1.8

### CSA

CSA Group  
8501 East Pleasant Valley Road  
Cleveland, OH 44131

Standard reference number	Title	Referenced in code section number
CSA FC1—12	Stationary Fuel Cell Power Systems	1205.3

### NFPA

National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02169-7471

Standard reference number	Title	Referenced in code section number
02—16 <sup>14</sup>	Hydrogen Technologies Code	2309.3.1.1, 2309.3.1.2, 5301.1, 5307.3, 5801.1
13—16 <sup>13</sup>	Standard for the Installation of Sprinkler Systems	903.3.1.1, 903.3.2, 903.3.8.2, 903.3.8.5, 904.12, 905.3.4, 907.6.4, 914.3.2, 1019.3, 1103.4.8, 1206.2.11.1, 1206.3.5.1, 3201.1, 302.4.2, Table 3206.2, 3206.4.1, 3206.9, 3207.2, 3207.2.1, 3208.2.2, 3208.2.2.1, 3208.4, 3210.1, 3401.1, 5104.1, 504.1.1, 5106.5.7, 5704.3.3.9, Table 5704.3.6.3(7), 5704.3.7.5.1, 5704.3.8.4,

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National Electrical Code

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5706.2.8,

5803.1.5,  
5803.1.5.1,



		5807.1.10, 5906.5.5, 5906.5.6, 6109.15.1
72— <u>16</u> <sup>13</sup>	National Fire Alarm and Signaling Code	508.1.6, 604.2.4, Table 901.6.1, 903.4.1, 904.3.5, 907.2, 907.2.6, 907.2.9.3, 907.2.11, 907.2.13.2, 907.3, 907.3.3, 907.3.4, 907.5.2.1.2, 907.5.2.2, 907.5.2.2.5, 907.6, 907.6.1, 907.6.2, 907.6.6, 907.7, 907.7.1, 907.7.2, 907.8, 907.8.2, 907.8.5, 1103.3.2, <u>1203.2.4</u> , <u>2810.11</u> , <u>1103.1</u>
99— <u>18</u> <sup>15</sup>	Health Care Facilities Code	611.1, 1105.5.2, 1105.10.1, 1105.10.2, <u>1203.4.1</u> , <u>1203.5.1</u> , 5306.4, 5603.5
110— <u>16</u> <sup>13</sup>	Standard for Emergency and Standby Power Systems	604.1.2, 604.4, 604.5, 913.5.2, 913.5.3, <u>1203.1.3</u> , <u>1203.4</u> , <u>1203.5</u>
111—13	Standard on Stored Electrical Energy Emergency and Standby Power Systems	308.3.2, <u>320.1</u> , <u>1203.1.3</u> , <u>1203.4</u> , <u>1203.5</u>
<u>853—15</u>	<u>Installation of Stationary Fuel Cell Power Systems</u>	<u>1205.3</u> , <u>1205.4</u> , <u>1205.6.2</u> , <u>1205.11</u> , <u>1205.12</u>
<u>855—20</u>	<u>Standard for the Installation of Stationary Energy Storage Systems</u>	<u>320.1</u>
<u>1221-16</u>	<u>Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems</u>	<u>510.4.2</u> , <u>510.5</u>

<b>UL</b>	Underwriters Laboratories LLC 333 Pfingsten Road Northbrook, IL 60062	
Standard reference number	Title	Referenced in code section number
<u>UL 1564—15</u>	<u>Industrial Battery Chargers</u>	<u>1206.2.10.4,</u> <u>1206.3.4.4</u>
<u>UL 1741—15</u>	<u>Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources</u>	<u>1206.2.10.5</u>
<u>UL 1973—13</u>	<u>Standard for Batteries for Use in Light Electric Rail (LER) Applications and Stationary Applications</u>	<u>1206.2.10.1,</u> <u>1206.3.4.1</u>
<u>UL 9540—14</u>	<u>Outline of Investigation for Energy Storage Systems and Equipment</u>	<u>1206.2.10.1,</u> <u>1206.3.4.1</u>

## APPENDIX A

# BOARD OF APPEALS

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

**A101.2 Membership Organization.** ~~The membership of the board shall consist of five voting members having the qualifications established by this section. Members shall be nominated by the fire code official or the chief administrative officer of the jurisdiction, subject to confirmation by a majority vote of the governing body. Members shall serve without remuneration or compensation, and shall be removed from office prior to the end of their appointed terms only for cause. There is hereby created a Board of Appeals, consisting of 11 members. Five members at a meeting shall constitute a quorum. The positions on the board shall be filled as follows:~~

- ~~Position 1. By a well-respected citizen of the jurisdiction.~~
- ~~Position 2. By the fire code official or the official's duly authorized representative, who shall provide a board secretary.~~
- ~~Position 3. By the fire chief or the chief's duly authorized representative.~~
- ~~Position 4. By the director of Houston Public Works or the director's duly authorized representative.~~
- ~~Position 5. By a well-respected citizen of the jurisdiction, who shall serve as chairman.~~
- ~~Position 6. By a professional engineer registered as such under the laws of Texas, who shall be actively engaged in the practice as a fire protection engineer.~~
- ~~Position 7. By a person who is a member of the Building Owners and Managers Association of Houston.~~
- ~~Position 8. By a person who is engaged or employed in the chemical or petroleum industry.~~
- ~~Position 9. By a person who is a member of the Houston Apartment Association.~~
- ~~Position 10. By a person who is fire protection contractor.~~
- ~~Position 11. By a person who is an architect registered by the State of Texas.~~

~~The legal department shall have an attorney present for each board meeting, who shall advise the board on legal matters relative to topics under board jurisdiction.~~

~~The fire chief, the fire code official, and director of Houston Public Works may each designate in writing a person under his supervision to act in his place as his duly authorized representative. The representative designation shall be filed in the minutes of the board.~~

~~With the exception of the fire chief, the fire code official, and the director of Houston Public Works, members of the board shall be appointed by the mayor, subject to confirmation by the city council, and shall serve for a term of two years. The terms of the appointees for Positions 1, 6, 7, and 9 commence on January 1 of each odd-numbered year and end on December 31 of the following even-numbered year. The terms of the appointees for Positions 5, 8, 10, and 11 commence on January 1 of each even-numbered year and end on December 31 of the following odd-numbered year. Members shall hold over until a successor is appointed and qualified.~~

Whenever any position on the board becomes vacant by reason of death, resignation or removal, the vacancy shall be filled for the unexpired term of the member being replaced. Should a vacancy occur on the board, the mayor shall appoint, subject to confirmation by the city council, another qualified person to serve the unexpired term of the vacancy. Any member of the board may be removed at any time by the mayor without consent of the city council.

**~~A101.2.1 Design professional.~~** One member shall be a practicing design professional registered in the practice of engineering or architecture in the state in which the board is established.

**~~A101.2.2 Fire protection engineering professional.~~** One member shall be a qualified engineer, technologist, technician or safety professional trained in fire protection engineering, fire science or fire technology. Qualified representatives in this category shall include fire protection contractors and certified technicians engaged in *fire protection system* design.

**~~A101.2.3 Industrial safety professional.~~** One member shall be a registered industrial or chemical engineer, certified hygienist, certified safety professional, certified hazardous materials manager or comparably qualified specialist experienced in chemical process safety or industrial safety.

**~~A101.2.4 General contractor.~~** One member shall be a contractor regularly engaged in the construction, *alteration*, maintenance, repair or remodeling of buildings or building services and systems regulated by the code.

**~~A101.2.5 General industry or business representative.~~** One member shall be a representative of business or industry not represented by a member from one of the other categories of board members described above.

**A101.3 Terms of office Per diem.** Members shall be appointed for terms of 4 years. No member shall be reappointed to serve more than two consecutive full terms. Each member of the board shall be compensated at the rate of \$50.00 per diem for each meeting the member attends at which a quorum is present; provided, however, no member shall be paid for more than three meetings in any one month. A jurisdiction employee who is a member of the board shall be paid only for those meetings that the employee attends at which a quorum is present and that are not held during, or that continue beyond, the employee's regular working hours.

**~~A101.3.1 Initial appointments.~~** Of the members first appointed, two shall be appointed for a term of 1 year, two for a term of 2 years, one for a term of 3 years.

**~~A101.3.2 Vacancies.~~** Vacancies shall be filled for an unexpired term in the manner in which original appointments are required to be made. Members appointed to fill a vacancy in an unexpired term shall be eligible for reappointment to two full terms.

**~~A101.3.3 Removal from office.~~** Members shall be removed from office prior to the end of their terms only for cause. Continued absence of any member from regular meetings of the board shall, at the discretion of the applicable governing body, render any such member liable to immediate removal from office.

**A101.4 Quorum Duties of the Board of Appeals.** Three members of the board shall constitute a quorum. In varying the application of any provisions of this code or in modifying an order of the *fire code official*, affirmative votes of the majority present, but not less than three, shall be required. The duties of the board shall be to hear appeals from decisions of the *fire code official* as to the suitability of alternate materials and types of construction and to provide for reasonable interpretations of the provisions of this code. In cooperation with the *fire code official*, the board shall submit an annual report to the mayor and the city council containing a summary of the

actions of the board during the preceding year. The board may make recommendations to the mayor for amendments to this code.

**A101.5 Secretary of board Procedures.** ~~The *fire code official* shall act as secretary of the board and shall keep a detailed record of all its proceedings, which shall set forth the reasons for its decisions, the vote of each member, the absence of a member and any failure of a member to vote. The board shall adopt reasonable rules and regulations for conduct of its duties. Petitions for hearings before the board shall be in writing, filed with the *fire code official*, and heard by the board within 30 days after the date that the petition was filed. A majority of the members present, constituting a quorum, shall conduct business of board. All decisions and findings shall be rendered in writing with copies to the *fire code official*, petitioner and all other parties to the hearing. Subject to compliance with Rule 12 of the city council's rules of procedure (see Section 2-2 of the *City Code*), any interested person who is aggrieved by a decision of the board may appeal to city council, provided that written notice to the city council for the appeal is delivered to the city secretary within 10 days after the date the board renders the decision. All appeals to the city council are subject to Rule 12 of the city council's rules of procedure. Parties wishing to preserve their right of appeal must comply with Rule 12.~~

**A101.6 Legal counsel Posting of agenda.** ~~The jurisdiction shall furnish legal counsel to the board to provide members with general legal advice concerning matters before them for consideration. Members shall be represented by legal counsel at the jurisdiction's expense in all matters arising from service within the scope of their duties. The board shall prepare and post an agenda in compliance with the Texas Open Meeting Law.~~

**A101.7 Meetings.** ~~The board shall meet at regular intervals, to be determined by the chairman. In any event, the board shall meet within 10 days after notice of appeal has been received.~~

**A101.8 Conflict of interest.** ~~Members with a material or financial interest in a matter before the board shall declare such interest and refrain from participating in discussions, deliberations and voting on such matters.~~

**A101.9 Decisions.** ~~Every decision shall be promptly filed in writing in the office of the *fire code official* and shall be open to public inspection. A certified copy shall be sent by mail or otherwise to the appellant, and a copy shall be kept publicly posted in the office of the *fire code official* for 2 weeks after filing.~~

**A101.10 Procedures.** ~~The board shall be operated in accordance with the Administrative Procedures Act of the state in which it is established or shall establish rules and regulations for its own procedure not inconsistent with the provisions of this code and applicable state law.~~



## APPENDIX D

# FIRE APPARATUS ACCESS ROADS

*The provisions contained in this ~~Appendix D~~ are not mandatory unless specifically referenced in the adopting ordinance.*

**D101.1 Scope.** Fire apparatus access roads shall be in accordance with this appendix and all other applicable requirements of the International Fire Code, as well as Houston Fire Department LSB Standards No. 03, "Fire Department Access" and No. 04, "Access Control Gates."

**D102.1 Access and loading.** Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an *approved* fire apparatus access road with an asphalt, concrete or other *approved* driving surface capable of supporting the imposed load of fire apparatus weighing at least ~~75,000~~ 90,000 pounds (34-050 40 850 kg).

**D103.5 Fire apparatus access road gates.** For fire apparatus access road gate requirements, refer to Houston Fire Department LSB Standard No. 04, "Access Control Gates." ~~Gates securing the fire apparatus access roads shall comply with all of the following criteria:~~

- ~~1. — Where a single gate is provided, the gate width shall be not less than 20 feet (6,096 mm). Where a fire apparatus road consists of a divided roadway, the gate width shall be not less than 12 feet (3,658 mm).~~
- ~~2. — Gates shall be of the swinging or sliding type.~~
- ~~3. — Construction of gates shall be of materials that allow manual operation by one person.~~
- ~~4. — Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.~~
- ~~5. — Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the fire code official.~~
- ~~6. — Methods of locking shall be submitted for approval by the fire code official.~~
- ~~7. — Electric gate operators, where provided, shall be listed in accordance with UL 325.~~
- ~~8. — Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.~~

**D103.6 Signs.** For fire apparatus access road/fire lane sign requirements, refer to Houston Fire Department LSB Standard No. 03, "Fire Department Access." ~~Where required by the fire code official, fire apparatus access roads shall be marked with permanent NO PARKING — FIRE LANE signs complying with Figure D103.6. Signs shall have a minimum dimension of 12 inches (305 mm) wide by 18 inches (457 mm) high and have red letters on a white reflective background. Signs shall be posted on one or both sides of the fire apparatus road as required by Section D103.6.1 or D103.6.2.~~





## APPENDIX H

{EDITORIAL NOTE: DELETE THE ENTIRETY OF APPENDIX H AND REPLACE WITH THE FOLLOWING TEXT.}

# **STAIRWAY IDENTIFICATION**

## **SECTION H101** **GENERAL**

**H101.1 Signs in stairways.** Standardized signs shall be provided in buildings at each floor landing in an interior exit stairway and ramp connecting more than three stories. The signs shall be installed in stairways to identify each stair, floor level number, roof access information, the upper and lower termination of the stairway, and reentry information. Signs within stairways shall be located above the floor landing in a position that is readily visible when the door is in the open or closed position and in accordance with the *Texas Accessibility Standards*. See also Chapter 10.

## **SECTION H102** **OCCUPANCY SIDE OF STAIRWAY DOORS**

**H102.1 Signs on occupancy (tenant) side of stairway doors.** Standardized identification signs shall be located at each level on the occupancy (tenant) side of all enclosed stairways, regardless of the height of the building.

### **H102.2 Details for signs installed on the occupancy (tenant) side of doors.**

**H102.2.1 Stairway identification.** Stairway identification signs shall have an alphabetic letter or name identification. The name identification shall precede the word STAIR and any alphabetic letter shall follow the word STAIR, such as STAIR A or WEST STAIR, to be placed at the top of the sign in 1-inch (25 mm) high block lettering. Numerical and written numbers shall not be used for stairwell identification. See Section H105.

**H102.2.2 Reentry.** Where stairway doors are locked from the stairway side to prohibit reentry to a floor, NO REENTRY shall be placed at the bottom of the sign in 1-inch (25 mm) high block lettering.

## **SECTION H103** **SIGNS INSTALLED IN STAIRWAYS**

**H103.1 Stairway identification.** Stairway identification signs shall have an alphabetic letter or name identification. The name identification shall precede the word STAIR and any alphabetic letter shall follow the word STAIR, such as STAIR A or WEST STAIR, to be placed at the top of the sign in 1-inch (25 mm) high block lettering. Numerical and written numbers shall not be used for stairwell identification. See Section H105.

**H103.2 Roof access.** The roof access condition, such as ROOF ACCESS LOCKED or NO ROOF ACCESS, shall be placed under the stairway identification in 1-inch (25 mm) high block lettering.

**H103.3 Floor level number.** The floor level number shall be placed in the middle of the sign in 2-inch (50 mm) high block lettering. Mezzanine levels shall have the letter M preceding the floor number. Basement levels shall have the letter B preceding the floor number. No other designation for mezzanine and basement levels shall be used.

**H103.4 Lower and upper terminus.** The lower and upper terminus designation of the stairway shall be placed under the floor number in 1-inch (25 mm) high block lettering.

**H103.5 Reentry.** Where stairway doors are locked from the stairway side to prohibit reentry to a floor, NO REENTRY shall be placed under the lower and upper terminus designation in 1-inch (25 mm) high block lettering. Additionally, the nearest floor above and below where a person can reenter from the stairway shall be placed at the bottom of the sign in 1-inch (25 mm) high block lettering.

#### **SECTION H104** **COMPLIANCE WITH TEXAS ACCESSIBILITY STANDARDS (TAS)**

**H104.1 Raised and braille characters/character portions.** Stairway identification, floor level number and reentry information on signs shall comply with TAS requirements for raised and Braille characters. All other letters and numbers on the sign shall comply with TAS requirements for character proportions.

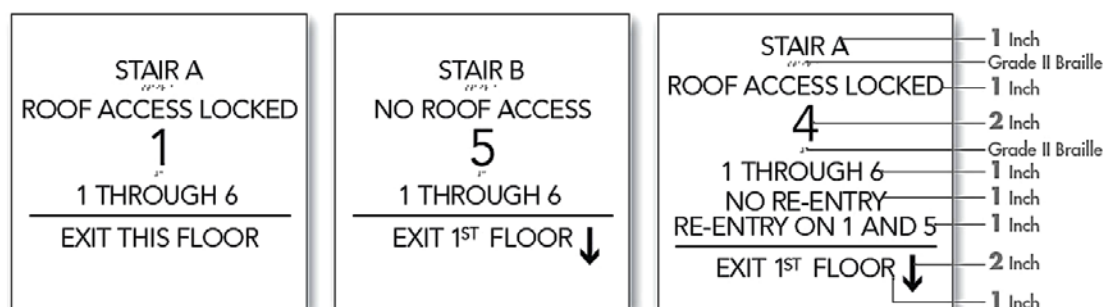
**H104.2 Finish and contrast.** All characters and backgrounds of signs shall comply with TAS requirements for finish and contrast.

**H104.3 Mounting location and height.** All signs shall comply with TAS requirements for mounting location and height.

#### **SECTION H105** **SIGN EXAMPLES**

**{On following pages}**

# STAIRWELL INTERIOR SIGN TYPE



FLOOR OF EXIT DISCHARGE

Front Elevation

**OPTION A**

SCALE: 3"=1'

UNRESTRICTED RE-ENTRY

Front Elevation

**OPTION B**

SCALE: 3"=1'

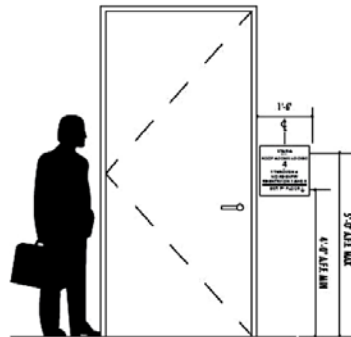
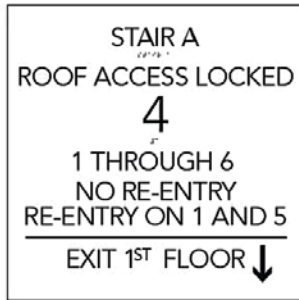
RESTRICTED RE-ENTRY

Front Elevation

**OPTION C**

SCALE: 3"=1'

# STAIRWELL INTERIOR SIGN TYPE



## RESTRICTED RE-ENTRY

Front Elevation

**OPTION C**

SCALE: 3"=1'

## MOUNTING PLACEMENT

Location Elevation (2012 TAS Code Mounting Height)

**OPTION C**

SCALE: 1/2"=1'

# OCCUPANCY SIDE STAIR ID



RESTRICTED RE-ENTRY

Front Elevation

**OPTION A**

SCALE: 3"=1'

UNRESTRICTED RE-ENTRY

Front Elevation

**OPTION B**

SCALE: 3"=1'



## APPENDIX I

{EDITORIAL NOTE: DELETE THE ENTIRETY OF APPENDIX I AND REPLACE WITH THE FOLLOWING TEXT.}

# **AUTOMATIC SPRINKLER SYSTEMS, FIRE ALARM AND DETECTION SYSTEMS IN EXISTING NON-HIGH-RISE ATRIUM BUILDINGS**

### **SECTION I101 GENERAL**

**I101.1 Purpose.** The purpose of this appendix chapter is to provide a reasonable degree of safety to persons occupying existing atrium buildings by providing for the installation of *automatic sprinkler systems* or fire alarm and detection systems in buildings that do not already have such systems in compliance with this appendix.

**I101.2 Application.** This appendix chapter shall apply to any atrium building annexed into the corporate limits.

**Exception:** The provisions of this appendix shall not apply to the following:

1. Atrium buildings built in accordance with Section 1717 as added to the Building Code by Ordinance 81-879 or subsequent versions of that section.
2. Existing high-rise buildings, as defined in Chapter 2.

### **SECTION I102 DEFINITION**

**I102.1 Definition.** The following term, for the purposes of this appendix, shall have the meaning ascribed in Chapter 2:

**ATRIUM.**

### **SECTION I103 FIRE PROTECTION AND DETECTION SYSTEMS**

**I103.1 Required.** All existing atrium buildings shall be equipped with one of the following:

1. An automatic and manual fire alarm system in accordance with NFPA 72 and smoke detectors installed in every room exceeding 40 square feet as well as all common areas according to the compliance schedule set forth in Section I104.
2. An automatic sprinkler system with total coverage throughout the building in accordance with NFPA 13 and with the capability to alarm all occupants throughout the building using alarm notification appliances as required by Section 907. Such sprinkler system shall be installed according to the compliance schedule set forth in Section I104.

**SECTION I104**  
**COMPLIANCE SCHEDULE**

**I104.1 Letter of intent.** Within six months after the date of annexation of the building into the jurisdiction, owners of existing atrium buildings shall provide the *fire code official* with a letter expressing the owner's intent to comply with this section.

**I104.2 Compliance check points.** Except as provided by this section, owners of existing atrium buildings shall comply with the following schedule:

1.     If the owner chooses to install an alarm system and smoke detectors in accordance with subsection 1 of Section I103.1, the total square footage of the building shall be equipped with an operational automatic and manual fire alarm system and smoke detectors within two years after the date of annexation into the jurisdiction.
2.     If the owner chooses to install a sprinkler system in accordance with subsection 2 of Section I103.1:
  - 2.1     Fifty percent of the building shall be equipped with an operational *automatic sprinkler system* with the capability to alarm all occupants throughout the building within five years after the date of annexation of the building into the jurisdiction.
  - 2.2     The total square footage of the building shall be equipped with an operational *automatic sprinkler system* with the capability to alarm all occupants throughout the building within seven years after the date of annexation of the building into the jurisdiction.



## APPENDIX J

{EDITORIAL NOTE: DELETE THE ENTIRETY OF APPENDIX J AND REPLACE WITH THE FOLLOWING TEXT.}

# **AUTOMATIC SPRINKLER SYSTEMS IN EXISTING HIGH-RISE BUILDINGS**

### **SECTION J101 GENERAL**

**J101.1 Purpose.** The purpose of this appendix chapter is to provide a reasonable degree of safety to persons occupying existing high-rise buildings by providing for installation of *automatic sprinkler systems* in such buildings that do not already have such systems.

**J101.2 Application.** This appendix chapter shall apply to and the term “existing high-rise building” shall be construed to mean any high-rise building existing within the corporate limits of the city on December 31, 2005, and any high-rise building annexed into the corporate limits after that date.

**Exception:** The provisions of this appendix shall not apply to the following:

1. Airport traffic control towers in accordance with Sections 412 and 907.2.22 of the *Building Code*.
2. Open parking garages in accordance with Section 406.5 of the *Building Code*.
3. Buildings with an occupancy in Group A-5 in accordance with Section 303.6 of the *Building Code*.
4. Low-hazard special industrial occupancies in accordance with Section 503.1.1 of the *Building Code*.
5. Buildings with an occupancy in Group H in accordance with Section 415 of the *Building Code*.
6. Individually owned individual *dwelling units* in high-rise buildings.

### **SECTION J102 DEFINITION**

**J102.1 Definition.** The following term, for the purposes of this appendix, shall have the meaning ascribed in Chapter 2:

**HIGH-RISE BUILDING.**

### **SECTION J103 AUTOMATIC SPRINKLER SYSTEMS**

**J103.1 Required.** All existing high-rise buildings shall be equipped with an *automatic sprinkler system* in accordance with NFPA 13 according to the compliance schedule set forth in Section J104.

**SECTION J104**  
**COMPLIANCE SCHEDULE**

**J104.1 Letter of intent.** On or before December 31, 2006, or within one year after the date of annexation of the building into the jurisdiction, owners of existing high-rise buildings shall provide the *fire code official* with a letter expressing the owner's intent to comply with this section.

**J104.2 Compliance check points.** Except as provided by this section, owners of existing high-rise buildings shall comply with the following schedule for installation of *automatic sprinkler systems*:

1. On or before December 31, 2009, or within four years after the date of annexation of the building into the jurisdiction, a water supply in accordance with NFPA 13 shall be installed to all floors of the building, and the owner shall provide the *fire code official* with written plans for compliance with this appendix and schedules for completion of the work stated in the written plan.
2. On or before December 31, 2014, or within nine years after the date of annexation of the building into the jurisdiction, a minimum of 50% of the floors shall be equipped with an operational *automatic sprinkler system*.
3. On or before December 31, 2017, or within twelve years after the date of annexation of the building into the jurisdiction, the total square footage of the building shall be equipped with an operational *automatic sprinkler system*.

## APPENDIX M

{EDITORIAL NOTE: DELETE THE ENTIRETY OF APPENDIX M AND REPLACE WITH THE FOLLOWING TEXT.}

# HOME DAY CARE—R-3 OCCUPANCY

### SECTION M101 GENERAL

**M101.1 General.** This appendix chapter shall apply to a home day care operated within a dwelling. The area of application shall include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents, guardians or relatives by blood, marriage, or adoption in a place other than the home of the person cared for.

### SECTION M102 DEFINITION

**EXIT ACCESS.** That portion of a means of egress system that leads from any occupied point in a building or structure to an exit.

### SECTION M103 MEANS OF EGRESS

**M103.1 Exits required.** If the occupant load of the residence is more than nine, including those who are residents, during the time of operation of the day care, two exits are required from the ground-level story. Two exits are required from a home day care operated in a manufactured home regardless of the occupant load. Exits shall comply with Section R311 of the Residential Code.

**M103.1.1 Exit access prohibited.** An exit access from the area of day care operation shall not pass through bathrooms, bedrooms, closets, garages, fenced rear yards or similar areas.

**Exception:** An exit may discharge into a fenced yard if the gate or gates remain unlocked during day care hours. The gates may be locked if there is an area of refuge located within the fenced yard and more than 50 feet (15,240 mm) from the dwelling. The area of refuge shall be large enough to allow 5 square feet (0.5 m<sup>2</sup>) per occupant.

**M103.1.2 Basements.** If the basement of a dwelling is to be used in the day care operation, two exits are required from the basement regardless of the occupant load. One of the exits may pass through the dwelling and the other must lead directly to the exterior of the dwelling.

**Exception:** An emergency and escape window complying with Section R310 of the Residential Code which does not conflict with Section M103.1.1 may be used as the second means of egress from a basement.

**M103.1.3 Yards.** If the yard is to be used as part of the day care operation it shall be fenced.

**M103.1.3.1 Type of fence and hardware.** The fence shall be of durable materials and be at least 6 feet (1,529 mm) tall, completely enclosing the area used for the day care operations. Each opening shall be a gate or door equipped with a self-closing and self-latching device to be installed at a minimum of 5 feet (1,528 mm) above the ground.

**Exception:** The door of any *dwelling* which forms part of the enclosure need not be equipped with self-closing and self-latching devices.

**M103.1.3.2 Construction of fence.** Openings in the fence, wall or enclosure required by this section shall have intermediate rails or an ornamental pattern that does not allow a sphere 4 inches (102 mm) in diameter to pass through. In addition, the following criteria must be met:

- 1.** The maximum vertical clearance between *grade* and the bottom of the fence, wall or enclosure shall be 2 inches (51 mm).
- 2.** Solid walls or enclosures that do not have openings, such as masonry or stone walls, shall not contain indentations or protrusions, except for tooled masonry joints.
- 3.** Maximum mesh size for chain link fences shall be 1¼ inches (32 mm) square, unless the fence has slats at the top or bottom which reduce the opening to no more than 1¾ inches (44 mm). The wire shall be not less than 9 gauge [0.148 inch (3.8 mm)].

**M103.1.3.3 Decks.** Decks that are more than 12 inches (305 mm) above *grade* shall have a guard in compliance with Section R312 of the *Residential Code*.

**M103.2 Width and height of an exit.** The minimum width of a required exit is 36 inches (914 mm) with a net clear width of 32 inches (813 mm). The minimum height of a required exit is 6 feet, 8 inches (2,032 mm).

**M103.3 Type of lock and latches for exits.** Regardless of the occupant load served, exit doors shall be operable from the inside without the use of a key or any special knowledge or effort. When the occupant load is 10 or less, a night latch, dead bolt or security chain may be used, provided such devices are operable from the inside without the use of a key or tool, and mounted at a height not to exceed 48 inches (1,219 mm) above the finished floor.

**M103.4 Landings.** Landings for stairways and doors shall comply with Section R311 of the *Residential Code*, except that a landing shall be required for the exterior side of a sliding door when a home day care is being operated in a Group R-3 occupancy.

## **SECTION M104** **SMOKE DETECTION**

**M104.1 General.** Smoke detectors shall be installed in *dwelling units* used for home day care operations. Detectors shall be installed in accordance with the approved manufacturer's instructions. If the current smoke detection system in the *dwelling* is not in compliance with the currently adopted code for smoke detection, it shall be upgraded to meet the currently adopted code requirements and Section M103 before day care operations commence.

**M104.2 Power source.** Required smoke detectors shall receive their primary power from the building wiring when that wiring is served from a commercial source and shall be equipped with a battery backup. The detector shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent

protection. Required smoke detectors shall be interconnected so if one detector is activated, all detectors are activated.

**M104.3 Location.** A detector shall be located in each bedroom and any room that is to be used as a sleeping room, and centrally located in the corridor, hallway or area giving access to each separate sleeping area. When the *dwelling unit* has more than one *story*, and in *dwelling units* with *basements*, a detector shall be installed on each *story* and in the *basement*. In *dwelling units* where a *story* or *basement* is split into two or more levels, the smoke detector shall be installed on the upper level, except that when the lower level contains a sleeping area, a detector shall be installed on each level. When sleeping rooms are on the upper level, the detector shall be placed at the ceiling of the upper level in close proximity to the stairway. In *dwelling units* where the ceiling height of a room open to the hallway serving the bedrooms or sleeping area exceeds that of the hallway by 24 inches (610 mm) or more, smoke detectors shall be installed in the hallway and the adjacent room. Detectors shall sound an alarm audible in all sleeping areas of the *dwelling unit* in which they are located.