

CHAPTER 1 ADMINISTRATION

SECTION 101 SCOPE AND GENERAL REQUIREMENTS

101.1 Title is amended to read as follows:

101.1 Title. These regulations shall be known as the 2018 International Fire Code with Rio Verde Fire District Amendments, hereinafter referred to or cited as the Fire Code of the Rio Verde Fire District or “this code.”

101.2.1 Appendices is amended to read as follows:

101.2.1 Appendices. The following appendices are adopted as part of this Code by the Rio Verde Fire District: B, C, D, E, F, H, I, J as added:

- Appendix B Fire-Flow Requirements for Buildings
- Appendix C Fire Hydrant Locations and Distribution
- Appendix D Fire Apparatus Access Roads
- Appendix E Hazard Categories
- Appendix F Hazard Ranking
- Appendix H Hazardous Materials Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) Instructions
- Appendix I Fire Protection Systems—Noncompliant Conditions
- Appendix J Building Information Sign

SECTION 102 APPLICABILITY

Amend Section 102 by adding Subsection 102.10.1 as follows:

102.10.1 Conflicting references. When a provision of the *2018 International Fire Code* conflicts with a provision of the National Fire Protection Association (NFPA) Standards, and the conflict relates to life and building safety performance requirements, the Chief shall have the discretion to determine which provision shall apply.

SECTION 104 GENERAL AUTHORITY AND RESPONSIBILITIES

Amend Section 104 by adding Subsection 104.1.1 as follows:

104.1.1 Assuming Jurisdiction of Fire Prevention Standards. Pursuant to A.R.S. §48.805(B)(5)(6)(7), the Rio Verde Fire District, having in effect a nationally recognized fire code, does hereby assume jurisdiction to enforce this code as authorized by the Office of the State Fire Marshal for prescribing and enforcing fire prevention standards throughout the Rio Verde Fire District except for Federal, State or County owned buildings.

Amend Section 104.10 by adding Subsection 104.10.2 as follows:

104.10.2 Forensic Analysis. The *fire code official* may require a forensic analysis of the cause of failure by an independent laboratory approved by the *fire code official*.

**SECTION 105
PERMITS**

105.6.2 is amended to read as follows:

105.6.2 Amusement buildings and events. An operational permit is required for any amusement building or event.

105.6.8 is amended as follows:

Add the following Exception to the existing Exception:

Carbon Dioxide (Inert and simple asphyxiant) shall require a permit for 200 cubic feet or more at NTP.

Section 105.6.27 is amended to read as follows:

105.6.27 LP-gas. An operational permit is required for:

1. Storage and use of LP-gas.

Exception: A permit is not required for individual containers having less than a 10-gallon (37.85L) water capacity or multiple container systems having an aggregate quantity less than a 10-gallon (37.85L) water capacity serving occupancies in Group R-3.

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

SECTION 106 FEES

106.2 is amended to read as follows:

106.2 Schedule of permit fees.

- (a) Fees shall be paid in accordance with the District Governing Board adopted fee schedule for charges associated with permitting and inspections, special event staffing, copies of records and reports, and other services provided by the District.
- (b) A schedule of fees is available at the District administrative offices and on the District's website.

SECTION 107 INSPECTIONS

Add Section 107.5 as follows:

107.5 Reinspection. A reinspection fee may be assessed for each permitted inspection or reinspection when such portion of work for which inspection is called, is not complete or when corrections called for are not made. If the items that were identified during the first reinspection of a particular phase are not corrected at the time of the reinspection, the permit will be locked out and further inspections will not be scheduled until a reinspection fee is paid. Reinspection fees may also be assessed when:

1. The permit is not posted or otherwise available on the work site.
2. The approved plans are not readily available to the inspector.
3. Access to the site is not provided on the date for which the inspection is scheduled.
4. A competent responsible party representative is not on-site at time of inspection.
5. Significant deviations from the approved plans are found that have not been approved by the fire code official.
6. The correct address is not provided so that an inspection can be made as scheduled.

Each reinspection may be assessed this fee. This procedure will be repeated on each phase of the installation and inspection process.

SECTION 109 BOARD OF APPEALS

Section 109.1 is hereby deleted and replaced with the following language:

109.1 Board of appeals. Reference to the "board" or "the board of appeals" in this code shall mean the Rio Verde Fire District Board of Directors as elected by the qualified electors of the Rio Verde Fire District.

Any person who disputes the application or interpretation of this code by the *fire code official* or other District staff may submit a written appeal to the District Fire Chief within 14 calendar days. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted hereunder have been incorrectly interpreted, the provisions of this code do not apply, or an equally good or better method of fire prevention is proposed.

1. The fire chief or an authorized representative will render a decision within 10 working days of the receipt of the appeal.
2. Adequate information shall be provided by the appellant to fully describe the condition(s) in question.
3. The fire chief shall consult with the fire code official, and/or an authorized representative, as deemed appropriate, to provide additional information regarding the appeal.
4. The appellant may, but is not required to, meet with the fire chief or a designated representative to discuss the appeal.
5. If the appeal is denied, the appellant shall comply with the requirement(s) of the fire code or file an appeal with the Board within 30 (thirty) calendar days from the date the appeal was denied.
6. The Board shall convene within 10 (ten) business days to hear the matter.
7. If the appeal is denied the appellant shall comply with the requirement(s) of the fire code within 30 (thirty) calendar days of the Board's decision or the time set forth in their decision.
8. The decision of the Board shall be final. Their decision shall be rendered in writing and given to the appellant and all affected District staff.

Delete Section 109.2 in its entirety.

Delete Section 109.3 in its entirety.

SECTION 110 VIOLATIONS

Section 110.4 is amended to read as follows:

110.4 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 Class 1 misdemeanor punishable by a fine of not more than \$2,500.00 dollars or by imprisonment not exceeding six months, or both such fine and imprisonment. Such fine and imprisonment shall be at the discretion of the court. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

SECTION 112 STOP WORK ORDER

Section 112.4 is amended to read as follows:

112.4 Failure to comply. 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 \$500.00 dollars or more than \$2,500.00 dollars.

CHAPTER 2 DEFINITIONS

SECTION 202 GENERAL DEFINITIONS

(a.) The following definitions are added to Section 202:

Access Challenged Residence. Single family homes with additional challenges including, but not limited to, access, or size, as determined by the fire code official.

Big Box Single Family Residence (BB-SFR). Single family residences over 12,000 square foot in area

Landlord. Shall have the meanings given in Arizona Revised Statutes.

Multiple single-family. Attached single family dwellings not more than three (3) stories in height with a separate means of egress constructed under the International Residential Code (IRC).

NICET. National Institute for the Certification of Engineering Technologies, 1420 King Street, Alexander, VA. 22314-2794

OCCUPANCY CLASSIFICATION: *The definition of “OCCUPANCY CLASSIFICATION” is amended by amending as follows only the specified existing occupancy classifications listed below:*

Institutional Group I-1 is amended to add the following to the list following the words “This group shall include, but not be limited to, the following:”

Congregate living facilities
Convalescent facilities

Facilities such as the above with five or fewer persons may be classified as Group R-3 or may comply with the International Residential Code in accordance with Section 101.2 of the International Building Code. A facility such as above, housing at least six and not more than 10 persons, may be classified as Group R-4. Occupancies providing care and accommodations for more than ten (10) occupants, excluding staff, shall be classified as Group I occupancy types.

The remaining portions of Institutional Group I-1 shall remain as in the 2018 IFC.

Residential Group R is amended by substituting the following for Residential Group R-3.

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

Adult care facilities that provide accommodations for 5 or fewer persons of any age for less than 24 hours.

Buildings that do not contain more than two dwelling units.

Child care facilities that provide accommodations for 5 or fewer persons of any age for less than 24 hour.

Congregate living care facilities with 5 or fewer persons.

Care Facilities within a single family dwelling. Adult and child care facilities that are within a single-family home are permitted to comply with the International Residential Code.

Residential Group R is amended by substituting the following for Residential Group R-4.

Residential Group R-4. Residential Group R-4 occupancies shall include buildings that do not contain more than two dwelling units and are arranged for occupancy as residential care/assisted living facilities including more than five but not more than 10 occupants, excluding staff. This group shall include, but not be limited to, the following:

1. Adult care facilities that provide accommodations for more than five but not more than 10 occupants of any age for less than 24 hours.
2. Child care facilities that provide accommodations for more than five but no more than 10 occupants of any age for less than 24 hours.
3. Congregate living care facilities with 5 or fewer persons.
4. Adult and child care facilities that are within a single-family home are permitted to comply with the International Residential Code.

Group R-4 occupancies shall meet the requirements for construction as defined in the International Building Code for Group R-3, except as otherwise provided for in that code, or shall comply with the International Residential Code.

(b) The following definitions are added to Section 202:

Rental Agreement. Shall have the meanings given in Arizona Revised Statutes.

Sky Lantern. A device designed to carry an open flame as an airborne light. Also known by such names as Kongming lantern, wish lantern, sky candle, fire balloon.

Tenant. Shall have the meanings given in Arizona Revised Statutes.

CHAPTER 3 GENERAL REQUIREMENT

SECTION 308 OPEN FLAME

308.1.4 is amended to read as follows, including the addition of one new subsection, 308.1.4.1:

308.1.4 Open-flame devices. Charcoal burners, chimineas, barbecues - fixed or portable, open flame heaters, firepots and other open-flame devices are prohibited on combustible balconies or within 10 feet (3048 mm) of combustible construction.

Exceptions:

1. One- and two-family dwellings.
2. When all of the following conditions are met:
 - a. Where buildings, balconies and decks are non-combustible construction,
 - b. Protected by an automatic sprinkler system,
 - c. Device(s) is only fueled by natural gas.

308.1.4.1 Use of Liquefied-petroleum-gas-fueled cooking devices. No person shall use individual fixed or portable, LP-gas burners or barbecues on or under any attached covered patios, balconies, covered walkways, stairs, or roof overhangs and shall not be located within 10 feet (3048 mm) of combustible construction.

Exceptions: Detached one- and two-family dwellings.

308.1.6.3 is amended to read as follows:

308.1.6.3 Sky lanterns. The lighting of, and the release of, sky lanterns is prohibited.

CHAPTER 4 EMERGENCY PLANNING AND PREPAREDNESS

SECTION 403 EMERGENCY PREPAREDNESS REQUIREMENTS

403.10 Group R Occupancies is amended by adding a new Subsection 403.10.4 and shall read as follows:

403.10 Group R Occupancies. Group R Occupancies shall comply with Sections 403.10.1 through 403.10.4.

403.10.4 Group R-3 group care home/assisted living facility. An approved fire safety evacuation plan in accordance with section 404 shall be prepared and maintained for Group R group care home/assisted living occupancies.

CHAPTER 5 FIRE SERVICE FEATURES

SECTION 503 FIRE APPARATUS ACCESS ROADS

Section 503.2.1 is amended to add subsection 503.2.1.1 as follows:

503.2.1.1 Dimensions for temporary fire department access. Prior to and during construction of every facility, building or portion of a building a temporary fire department access roadway 16'-0" (4,877mm) wide minimum, with a minimum 0'-4" (101.6mm) thickness of aggregate base course or decomposed granite compacted to a 90% density where natural soil will not meet compaction requirements, shall be installed and maintained.

Section 503.2.7 is amended to read as follows:

503.2.7 Grade. The grade of the fire apparatus access road shall be within the limits established by the fire code official based on the fire district's apparatus. Access roads shall comply with the following:

1. The grade of access for non-sprinklered properties shall not exceed 12%.
2. The grade of access for sprinklered properties shall not exceed 15%.
3. All grades of access in excess of 15% require approval by the Fire District.

Section 503.3 is amended to read as follows:

503.3 Marking. The chief may establish fire apparatus access roads (fire lanes) on public and private property for access and setup for fire-fighting equipment, apparatus and vehicles. Where required, approved signs or other approved notices shall be provided to identify such roads or prohibit the obstruction thereof on public and private property. Signs or notices shall always be maintained in a clean and

legible condition and shall be replaced or repaired when necessary to provide adequate visibility. All fire lanes shall be marked in the following manner:

1. Fire lane signs - Design Procedures and Criteria per section D103.6, and / or
2. Curb, street or driveway painted red to indicate fire lane and labeled "FIRE LANE NO PARKING" in white block letters 3 inches (76.2mm) in height, 3/4 in. (19.5 mm) stroke, on the vertical face of the curb to indicate fire lane. If a vertical curb face is not available, the fire code official may determine alternate height, stroke and spacing dimensions for the horizontal curb.
3. Lettering shall not be greater than 50'-0" (15.24m) apart and shall be posted at the beginning and end of the fire lane.

Section 503.4 is amended to read as follows:

503.4 Obstruction of fire apparatus access roads. Excluding authorized emergency vehicles, fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established by Section 503.2.1 through 503.2.8 shall be maintained at all times. Any vehicle, equipment or device found parked in or blocking a fire lane shall be cited as authorized by the laws of the State of Arizona and the County of Maricopa.

Add subsection 503.4.2 as follows:

503.4.2 Traffic control spikes. Traffic control spike or similar devices that immobilize a vehicle shall be prohibited.

Section 503.6 is amended by adding subsections 503.6.1, 503.6.1.1, and 503.6.2 as follows:

503.6.1 Key switch and sensor pre-emption location. A key switch and preemption sensor shall be required on all electric entry control gates. Key switch shall be installed in a location on the gate control panel that is readily visible and accessible. The pre-emption sensor shall be at or behind the gate.

503.6.1.1 Single family residence. A key switch shall be installed in a location on the gate control panel that is readily visible and accessible. A pre-emption sensor is optional.

503.6.2 Manual gates. An approved dual padlock locking system shall be used on manual gates. An approved Fire Department Knox padlock shall be used on one side and the owners/management on the other.

SECTION 505 PREMISES IDENTIFICATION

Section 505.1 is deleted and replaced with new Section 505.1 and Subsection 505.1.1 to read as follows:

505.1 Address numbers. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Address and building numbers for commercial properties shall be a minimum of 12 inches (305 mm) high with a minimum stroke width of 2.0 inch (51 mm). Units within a building shall be a minimum of 6 inches (152 mm) high with a minimum stroke width of 1.0 inch (25.4 mm). Individual unit or suite numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). One- and two-family dwellings shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). 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 numbers shall be maintained.

505.1.1 Interior room numbers. New and existing buildings shall have an approved room and suite numbers identification placed in positions that are plainly legible and visible. Numbers shall contrast with their background; interior suite and room numbers shall be Arabic numeral or alphabet letters. Interior room and suite numbers shall be a minimum of 1.25 (1 ¼) inches (31.75 mm) high with a brush stroke width of 0.25 (1/4) inches (6.35 mm).

SECTION 506 KEY BOXES

Section 506.1 is amended to read as follows:

506.1 Where required. A key box shall be required on all commercial structures that contain off-site monitored fire systems or where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for lifesaving or firefighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037 and shall contain keys to gain necessary access as required by the fire code official. Authorized lock box order forms are available at the District's Administrative Office during normal business hours.

1. The first key box shall be installed at the main entrance of the structure. Additional key boxes may be required based on the size, layout, and location of fire sprinkler riser room. (Example: strip malls may have one centered on the front and at the riser room; large office, warehouses and big box retail buildings would have boxes at the main entry, rear or additional entry and the riser room.)

2. The key box shall be installed between 4'-0" (1.219 m) to 6'-0" (1.829 m) above finished grade. The key box shall be immediately visible to fire personnel from the emergency apparatus or placed in a location approved by the fire code official that is immediately visible to firefighting personnel as they approach the front of the building. Posts, fences, vehicles, vegetation, trash, storage and other materials shall not be placed or kept near the key boxes in a manner that would prevent the key boxes from being immediately discernible.

Add Section 506.3 as follows:

506.3 Residential key boxes. When installed, residential key boxes shall be installed at the first possible position, practical for mounting, to the right of the main entry door, between 3' and 5' above grade. They shall be maintained in a condition that makes them accessible and readily visible to fire personnel.

SECTION 507 FIRE PROTECTION WATER SUPPLY

Section 507.1 is amended by adding the following to the end of the paragraph:

In areas where municipal or private water supply is not available, *NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting*, may be utilized to calculate required fire flows.

Section 507.5 is amended by adding Subsections 507.5.7, 507.5.7.1, 507.5.8 and 507.5.8.1 as follows:

508.5.7. Fire hydrant color. All fire hydrants shall have aboveground barrels painted with a prime coat plus two (2) coats of OSHA yellow paint.

507.5.7.1 Reclaimed water fire hydrant color. All fire hydrants using a reclaimed water supply shall have the caps and bonnet painted with a prime coat plus two (2) coats of purple paint. A placard shall be affixed to the hydrant in English and Spanish "DO NOT DRINK WATER."

507.5.8 Reflective markers. All fire protection equipment, fire department connections and hydrants shall be clearly identified by installation of reflective blue markers.

507.5.8.1 Replacement during renovations. It shall be the responsibility of the company contracted to complete such work, to replace and /or install missing or damaged markers at the time of resurfacing or other street renovations or improvements.

CHAPTER 9 FIRE PROTECTION AND LIFE SAFETY SYSTEMS

SECTION 901 GENERAL

Section 901.2 is amended by adding Subsections 901.2.2, 901.2.3, 901.2.4 and 901.2.5 as follows:

901.2.2 Plan certification for fire alarm systems and occupant notification. All fire monitoring and occupant notification system plans submitted to the fire district for review and approval shall bear a qualified registrant's seal or review certification of a minimum level III in Fire Alarms Systems from the National Institute for the Certification of Engineering Technologies (NICET).

901.2.3 Plan certification for fire sprinkler systems. All fire sprinkler plans submitted to the fire district for review and approval shall bear a qualified registrant's seal or review certification of a minimum level III NICET in Water Based Systems Layout, (National Institute for the Certification of Engineering Technologies).

901.2.4 Plan certification for all other fire protection systems. Plan certification for all other fire protection systems will be accompanied by a certification of competence when required.

901.2.5 On-site plans. Plans and specifications shall be submitted to the fire department for review and approval prior to construction. One set of fire department approved plans shall be on the job site for each inspection.

Section 901.6.3 is amended to read as follows:

Section 901.6.3 Records. Records of all system inspections, tests, and maintenance required by the referenced standards shall be maintained, and reports of system deficiencies shall be forwarded to the authority having jurisdiction.

Add Section 901.11 as follows:

901.11 Clearance Around Fire-Protection Systems and Equipment. A minimum 3-foot (92 cm) clear space shall be maintained for access to fire protection equipment, including control valves and control panels, when fire protection equipment is not located within a dedicated room.

**SECTION 903
AUTOMATIC SPRINKLER SYSTEMS**

Section 903, Subsections 903.2, 903.2.1, 903.2.2, 903.2.3, 903.2.4, 903.2.5, 903.2.6, 903.2.7, 903.2.8, 903.2.8.1, 903.2.9, 903.2.9.1, 903.2.10, 903.3, 903.3.6, 903.3.7, and 903.4 Exception 2, 903.4.2 are amended as follows and Subsections 903.2.13, 903.3.7.1, 903.3.9, 903.3.10 are added:

903.2 Where required. An automatic sprinkler system shall be installed throughout all levels of all new Group A, B, E, F, H, I, M, R, S and U occupancies of more than zero (0) square feet. In accordance with section 903, and the Fire District Interpretation and Applications Manual, and as set in this section:

1. In every story or basement of all buildings.
2. At the top of rubbish and linen chutes and in their terminal rooms. Chutes extending through three or more floors shall have additional sprinkler heads installed within such chutes at alternate floors. Sprinkler heads shall be accessible for servicing.
3. In rooms where nitrate film is stored or handled. See also Section 306.
4. In protected combustible fiber storage vaults.
5. In any building that has a change in occupancy as defined in the building code.

Exceptions: The following accessory structures shall be exempt from fire sprinkler requirements:

1. Gazebos and ramadas for residential and public use.
2. Independent rest room buildings that are associated with golf courses, parks and similar uses.
3. Guardhouses for residential and commercial developments.
4. Detached non-combustible carports for residential and commercial developments with covered parking less than 15,000 square feet (1394 m²).
5. Barns and agricultural buildings for private, residential, non-commercial use, not exceeding 1,500 square feet (139.35m²) with no habitable areas.
6. Detached storage sheds for private, residential, non-commercial use, not exceeding 1500 square feet (139.35m²).
7. Detached 1, 2 and 3 car garages (without habitable spaces) in existing R-3 developed parcels.

8. For fuel dispensing canopies not exceeding 1500 square feet (139.35 m²).
9. Open shade horse stalls of non-combustible construction for private, residential, non-commercial use, not exceeding 5,000 square feet (464.52 m²) and no storage of combustible products, vehicles, or agricultural equipment.
10. Detached one story accessory building used as tool and storage shed of non-hazardous materials, and not exceeding 200 square feet (11.15 m²).
11. Special use non-combustible structures as approved by the chief.

903.2.1 Group A. An automatic sprinkler system shall be installed throughout all Group A occupancies in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Editor's note. Assembly occupancies: A building where 50 or more gather for social purposes.

903.2.2 Ambulatory care facilities. An automatic sprinkler system shall be installed throughout all ambulatory care facilities in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual. **Editor's note. Ambulatory care facilities: Use of a building to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis for those already or rendered incapable of self-preservation.**

903.2.3 Group E. An automatic sprinkler system shall be installed throughout all Group E occupancies in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Editor's note. Educational occupancies: Use of a building for educational purposes, for six or more people through the 12th grade.

903.2.4 Group F. An automatic sprinkler system shall be installed throughout all Group F occupancies in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Editor's note. Factory industrial occupancies: The use of a building for assembling or disassembling things that are not hazardous by nature.

903.2.5 Group H. An automatic sprinkler system shall be installed throughout all Group H occupancies in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Editor's note. High hazard occupancies: Use of a building where manufacturing or handling of hazardous materials occurs above the exempt amount.

903.2.6 Group I. An automatic sprinkler system shall be installed throughout all Group I occupancies in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Exception: In jails, prisons and reformatories, the piping system may be dry, provided a manually operated valve is installed at a continuously monitored location. Opening of the valve will cause the piping system to be charged. Sprinkler heads in such systems shall be equipped with fusible elements or the system shall be designed as required for deluge systems in the Building Code.

Editor's note. Institutional occupancies: A building where people are cared for because of physical or mental limitations or detained for other reasons.

903.2.7 Group M. An automatic sprinkler system shall be installed throughout all Group M occupancies in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Editor's note. Mercantile occupancies: A building used for the sale and display of merchandise.

903.2.8 Group R An automatic sprinkler system shall be installed throughout all Group R or IRC occupancies in accordance with NFPA 13, 13-R, or 13D Installation of Sprinkler Systems and the Fire District Interpretation and Applications Manual.

Editor's note. Residential occupancies: Buildings used for sleeping that are not classified as institutional.

903.2.9 Group S-1 occupancies. An automatic sprinkler system shall be installed throughout all Group S-1 occupancies in accordance with NFPA 13 Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Editor's note. Storage occupancies: Building used for storage that is not hazardous.

903.2.9.1 Repair garages. An automatic sprinkler system shall be installed throughout all repair garages in accordance with NFPA 13 Installation of Sprinkler Systems as modified by Fire District Interpretation and Applications Manual.

903.2.10 Group S-2 occupancies. An automatic sprinkler system shall be installed throughout all Group S-2 occupancies in accordance with NFPA 13 Installation of Sprinkler Systems as modified by Fire District Interpretation and Applications Manual.

903.2.10.1 Commercial parking garages. An automatic sprinkler system shall be installed throughout all commercial parking garages in accordance with NFPA 13 Installation of Sprinkler Systems as modified by Fire District Interpretation and Applications Manual.

903.2.11 Specific buildings areas and hazards. An automatic sprinkler system shall be installed throughout all Group R-3 and U occupancies in accordance with NFPA 13 or 13-D Installation of Sprinkler Systems and Fire District Interpretation and Applications Manual.

Editor's note. Group R-3 includes one- and two-family dwellings. Group U, miscellaneous: Buildings of an accessory character not classified as any other occupancy.

903.2.13 Group B occupancies. An automatic sprinkler system shall be installed throughout all Group B occupancies in accordance with NFPA 13 Installation of Sprinkler Systems as modified by Fire District Interpretation and Applications Manual.

Editor's note. Business occupancies: A building used as an office.

903.3 Installation requirements. Automatic sprinkler systems shall be designed and installed in accordance with NFPA 13, 13-R, 13-D Installation of Sprinkler Systems as modified by Fire District Interpretation and Applications Manual.

903.3.6 Hose Threads. Fire hose threads used in connection with automatic sprinkler system shall be National Standard Threads.

903.3.7 Fire Department Connections. Fire department connections shall be located within four (4) feet (1219.2mm) to eight (8) feet (2438.4mm) of the curb line of an access road or public street, or as otherwise specified, or as approved by the chief. The fire department connection line shall be a wet line with the check valve at the hose connection above grade. The access to the fire department connection shall be at curb grade. See Fire District Interpretation and Applications Manual.

903.3.7.1 Wall mounted. Wall mounted fire department connections are permitted on systems not over ordinary hazard Group 2, when:

1. There are no glazed structural openings within 5 feet (1524mm) horizontally from inlet connection.
2. The structure is not classified as an "H" occupancy.
3. The fire department connection is within 50 feet of an approved roadway or driveway and arranged so that hose lines can be readily attached to the inlets without interference from any nearby objects including buildings, fences, post, plantings

or other fire department connections or as approved by the fire code official

903.3.9 Additions, alterations and repairs. When additions, alterations or repairs within a twelve-month period exceed seventy-five (75) percent of the full assessed value or if fifty (50) percent of the square footage (livable under roof) is added to an existing building or structure or if more than seventy-five (75) percent

of the building or structure is taken to the building framing or substructure, such building or structure shall be made to conform to the requirements for new buildings or structures.

903.3.10 Partial systems prohibited. In all new additions to existing non-sprinklered buildings and structures an automatic sprinkler system shall be installed in accordance with this section. There shall be no partially sprinklered compartments. Sprinklered and unsprinklered areas of a structure shall be separated in accordance with all applicable codes and standards.

903.4 Sprinkler system supervision and alarms. All valves controlling the water supply for automatic sprinkler systems, pumps, tanks, water levels and temperature, critical air pressure and water-flow switches on all sprinkler systems shall be electrically supervised by a *listed* fire alarm control unit. See Fire District Interpretation and Applications Manual.

Exceptions:

1. Automatic sprinkler systems protecting one- and two-family dwellings.
2. Limited area systems serving fewer than 20 sprinklers for E, H, and I occupancies, and more than 100 sprinklers in all other occupancies.
3. Automatic sprinkler systems installed in accordance with 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, pre-action and deluge sprinkler systems that are sealed or locked in the open position.

903.4.2 Alarms. Approved audible devices shall be connected to every automatic sprinkler system. Such sprinkler water-flow alarm device shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. An interior alarm to alert the occupants shall be provided in the interior of the building in a normally occupied location when off-site monitoring is required. Where a fire alarm system is installed, activation of the automatic sprinkler system shall actuate the building fire alarm system.

SECTION 905 STANDPIPE SYSTEMS

Section 905.3 has Subsection 905.3.1.1 added as follows:

905.3.1.1 Building area. In buildings exceeding 10,000 square feet (929 m²) in area per story, Class I automatic wet standpipes shall be provided and where any portion of the building's interior area is more than 200 feet (60.96 m) of travel, vertically and horizontally, from the nearest point of fire department vehicle access.

Exceptions:

1. Single story structures are not required to have hose connections, except in those interior portions of the building that exceed 200 feet (60.96 m) of travel from an emergency access road.
2. Required wet standpipes may be an integral part of an approved sprinkler system and may be connected to the sprinkler systems horizontal cross mains. Calculations for required hose demand shall be submitted with sprinkler plans.
3. Unless required by Fire District Interpretation and Applications Manual a hose connection is not required in Group R-3 occupancies.

Section 905.3.4 is amended to read as follows including the deletion of the Exception and subsection 905.3.4.1 Hose and cabinet:

905.3.4 Stages. Stages greater than 1,000 square feet in area (93 m²) shall be equipped with a Class I wet standpipe system with 2.5 inch (64 mm) hose connections on each side of the stage supplied from the automatic fire sprinkler system and shall have a flow rate of not less than that required for class 1 standpipes.

Section 905 is amended by adding the following Subsection 905.13 to read as follows:

905.13 Hose connections for access challenges. Buildings exceeding 10,000 square feet (929 m²) in area per story not otherwise required to be equipped with a standpipe system by section 905.3 of the 2018 IFC, shall be equipped with class I manual hose connections (2-1/2" NST) for fire department use as follows:

1. The locations shall be in accordance with Scottsdale Revised Code, NFPA 13, and 2015 IFC sec. 905.4, except item 1. 905.4, item 1 locations shall be at each floor-level landing, including grade level, within enclosed stairways, rather than located at intermediate floor level landings.
2. The hose connections are required when exterior ground floor walls exceed the required distance from fire apparatus access roads.
3. Single story structures are not required to have hose connections except in those

interior portions of the building that exceed 200 feet (60.96 m) of travel from an emergency access road.

4. Where the most remote portion of a floor or story is more than 200 feet from a hose connection, additional hose connections are required.

5. The hose connections may be combined with the fire sprinkler system and sized to deliver 250 gallons per minute at 100 psi from the most hydraulically remote outlet, using 150 psi fire department pump-in pressure. Calculations for hose demand shall be submitted with sprinkler plans.

SECTION 906 PORTABLE FIRE EXTINGUISHERS

Section 906.1 is amended by amending subpoint 1 to add R-3 Residential Care/Assisted Living Facilities; the remaining portions of Section 906.1 remain as in the 2018 I.F.C., including the Exceptions:

906.1 Where required. Portable fire extinguishers shall be installed in all of the following locations: 1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-3 Residential Care/Assisted Living Facilities, R-4 and S occupancies.

SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

Section 907.2 is hereby deleted including the Exceptions and is replaced to read as follows:

Section 907.2 Where Required – New Buildings and Structures. All new commercial occupancies (any structure other than one- and two-family dwelling) for which a building or construction permit is obtained shall be protected throughout the entire structure by a fully automatic fire alarm system. Installation of the fire alarm system shall be in accordance with the requirements of NFPA 72, unless otherwise approved by the Fire Chief or his or her designee. All fire alarms shall be addressable systems with Class “A” wiring. An approved fully automatic fire detection system shall be installed in accordance with the provisions of this code and with NFPA 72. Monitoring shall be by a central station as defined by NFPA 72 Section 3.3.193.1. Devices, combinations of devices, appliances, and equipment shall comply with Section 907.1.3. The automatic fire detectors shall be smoke detectors, except that an approved alternative type of detectors shall be installed in spaces such as boiler rooms, utility rooms and janitor closets with water heater and sink, where, during normal operation, products of combustion are present in sufficient quantity to actuate a smoke detector.

Section 907.7 is amended by adding a new Subsection 907.7.4 to read as follows:

907.7.4 Activation. Where an alarm notification system is required by another section of this code, it shall be activated by:

1. Required automatic fire alarm system.
2. Sprinkler water-flow devices.
 - a. Multi-level structures: All multilevel structures are required to have a flow switch and tampered control valve per floor.
3. Required manual fire alarm boxes.

SECTION 912 FIRE DEPARTMENT CONNECTIONS

Section 912.2 is amended by adding Subsections 912.2.3 and 912.2.4 as follows:

912.2.3 Remote Fire Department Connections. Remote fire department connections shall be located within four (4) feet (1219.2mm) to eight (8) feet (2438.4mm) of the curb line of an access road or public street, or as otherwise specified. The fire department connection line shall be a wet line with the check valve at the hose connection above grade.

912.3.4 Wall mounted. Wall mounted fire department connections are permitted on systems not over ordinary hazard Group 2, when:

1. There are no glazed structural openings within 5 feet (1524mm) horizontally from inlet connection.
2. The structure is not classified as an “H” occupancy.
3. The fire department connection is within 50 feet of an approved roadway or driveway and arranged so that hose lines can be readily attached to the inlets without interference from any nearby objects including buildings, fences, post, plantings or other fire department connections
4. As approved by the Chief.

CHAPTER 11 CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

SECTION 1103 FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

Section 1103.5 is amended by adding a new Subsection 1103.5.5 as follows:

1103.5 Sprinkler systems. An automatic sprinkler system shall be provided in existing buildings in accordance with section 1103.5.1 through 1103.5.5.

1103.5.5 Group R-4. An automatic sprinkler system shall be installed in accordance with section 903.2.8

Section 1103.7 is amended by adding a new Subsection 1103.7.7 to read as follows:

1103.7.7 Remodeling and conversions. Group R-1, R-2 & R-3 occupancies without a sprinkler system, if remodeled, shall be equipped with smoke alarms with a power source as outlined in section 907.2.10.6.

Exception: If remodeling or conversion does not expose the building framing, smoke alarms may be battery-operated only with a long-life lithium battery, or its equivalent, that is non-removable.

CHAPTER 12 ENERGY SYSTEMS

SECTION 1201 SCOPE

Section 1201.1 is amended as follows:

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.

Section 1203.1.1 is amended as follows:

1203.1.1 Stationary Generators. Stationary emergency and standby power generators required by this Code shall be listed in accordance with UL 2200. Associated flammable or combustible liquid tanks shall also comply with IFC Chapters 50 and 57.

Section 1206.2.1 is amended by adding an exception as follows:

Exception: A permit is not required for stationary storage battery systems with a capacity of 3 kWh or less.

Amend Section 1206.2.3 including adding Subsections 1206.2.3.4, 1206.2.3.5 and 1206.2.3.6 as follows:

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.

4. Where required by the fire code official.

Amend Section 1206.2.3.1 as follows:

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

8. Failure of temperature control.

Add Section 1206.2.3.4 as follows:

1206.2.3.4 Large-scale fire testing. Where required in Section 1206, large scale fire testing shall be conducted on a representative stationary storage battery system in accordance with UL9540A. The testing shall be conducted or witnessed by an approved testing laboratory. The test report shall be provided to the *fire code official* for review and approval in accordance with Section 104.7.2.

Add Section 1206.2.3.5 as follows:

1206.2.3.5 Fire remediation. Where a fire or other event has damaged a stationary storage battery system and ignition or reignition of the stationary storage battery system is possible, the *fire code official* may require the system owner, agent or lessee to take actions, at their expense, to mitigate the hazard or remove the damaged equipment from the premises to a safe location.

Add Section 1206.2.3.6 as follows:

1206.2.3.6 Forensic analysis. The *fire code official* may also require a forensic analysis of the cause of the failure by an independent laboratory approved by the *fire code official* in accordance with Section 104.10.2.

Amend Section 1206.2.8.3 as follows:

1206.2.8.3 Stationary Battery Arrays. Storage batteries, prepackaged stationary storage battery systems and pre-engineered 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.

2. Listed pre-engineered stationary storage battery systems and prepackaged stationary storage battery systems shall not exceed 250 kWh (900 megajoules) each, *where approved by the fire code official.*

Amend Section 1206.2.8.2 as follows:

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 *International Building Code*. Battery systems shall be allowed to be in the same room with the equipment they support.

Amend Section 1206.2.8.6 as follows:

1206.2.8.6 Signage. Approved signs shall be provided on or adjacent to all entry doors for battery storage room or areas and on enclosures of battery storage cabinets and walk-in units located outdoors, on roof tops or in open parking garages. Signs designed to meet both the requirements of this section and NFPA 70 shall be permitted. The signage shall include the following **or equivalent:**

1. “Energy Storage System,” “Battery Storage System,” “Capacitor Energy Storage System,” or the equivalent.
2. The identification of the electrochemical battery energy storage system technology present, e.g., “Energized Electrical Circuits.”
3. If water reactive electrochemical battery energy storage systems are present, the signage shall include “APPLY NO WATER.”
4. Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel.

Amend Section 1206.2.8.7 by adding the following prior to the exception:

Remote outdoor installations include stationary battery systems located more than 100 feet (30.480 m) from buildings, property lines, public ways, stored combustible storage, hazardous materials, high piled stock and other exposure hazards. Installations near exposures include all outdoor stationary battery systems that are not more than 100 feet (30.480 m) from buildings, property lines, public

ways, stored combustible storage, hazardous materials, high piled stock and other exposure hazards.

Add Table 1206.2.8.7 OUTDOOR INSTALLATIONS as follows:

TABLE 1206.2.8.7 OUTDOOR INSTALLATIONS

COMPLIANCE REQUIRED	REMOTE INSTALLATIONS	INSTALLATIONS NEAR EXPOSURES
General installation requirements	Yes	Yes
<u>Size and separation</u>	<u>No</u>	<u>Yes^a</u>
Smoke and automatic fire detection	Yes	Yes
<u>Fire suppression systems</u>	Yes ^b	Yes
Maximum enclosure size	Yes	Yes
Vegetation control	Yes	Yes
Means of egress separation	Yes	Yes
Clearance to exposures	Yes	Yes
Technology-specific protection	Yes	Yes

a. In outdoor walk-in units, spacing is not required between energy storage system units and the walls of the enclosure.

b. Where approved by the *fire code official*, fire suppression systems are permitted to be omitted.

Amend Section 1206.2.8.7.1 as follows:

1206.2.8.7.1 Separation. Stationary storage battery systems located outdoors shall be separated by a minimum of 10 feet (3,048 mm) from the following:

Amend Section 1206.2.10 including the addition of Table 1206.2.10 as follows:

The design and installation of storage batteries and related equipment shall comply with sections 1206.2.10.1 through 1206.2.10.8

Battery storage system installations shall comply with the requirements of this section and the applicable requirements of Table 1206.2.10.

TABLE 1206.2.10 BATTERY TECHNOLOGY SPECIFIC

COMPLIANCE REQUIRED ^b	BATTERY TECHNOLOGY				OTHER BATTERY STORAGE SYSTEMS AND BATTERY TECHNOLOGIES ^b
	Lead-acid	NiCad & Ni-MH	Lithium-ion	Flow	
Exhaust Ventilation	Yes	Yes	Yes	Yes	Yes
Spill control and neutralization	Yes ^c	Yes ^c	No	Yes	Yes
Explosion control	Yes ^a	Yes ^a	Yes	Yes	Yes
Safety caps	Yes	Yes	No	Yes	Yes
Thermal runaway	Yes ^d	Yes	Yes ^e	Yes	Yes ^e

a. Not required for lead-acid and nickel cadmium batteries at facilities under the exclusive control of communication utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.

b. Protection shall be provided unless documentation acceptable to the *fire code official*, in accordance with 2018 International Fire Code Section 104.7.2, provides justification why the protection is not necessary based on the technology used.

c. Applicable to vented (i.e. flooded) type lead acid batteries.

d. Not required for vented (i.e. flooded) type lead acid batteries.

e. The thermal runaway protection is permitted to be part of a battery management system that has been evaluated with the battery as part of the evaluation to UL 1973.

Amend Section 1206.2.10.3 including the addition of Subsection 1206.2.10.3.1 as follows:

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 and to an annunciator panel if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.

1206.2.10.3.1 Annunciator Panel. The approved annunciator panel shall visibly indicate any hazardous temperature or other conditions. The location of the annunciator panel shall be approved by the *fire code official*.

Amend Section 1206.2.10.6 as follows:

1206.2.10.6 Safety caps. Where required by Table 1206.2.10, storage batteries shall be provided with flame arresting safety caps.

Amend Section 1206.2.10.7 as follows:

1206.2.10.7 Thermal runaway. Where required by Table 1206.2.10, storage batteries shall be provided with a listed device or other approved method to prevent, detect and control thermal runaway.

Amend Section 1206.2.11.3 as follows:

1206.2.11.3 Exhaust Ventilation. Where required by Table 1206.2.10, ventilation of rooms containing stationary storage battery systems shall be provided in accordance with the *International Mechanical Code* and one of the following:

1. The ventilation system shall be designed to limit the maximum concentration of flammable gas to 10 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 m³/(s • m²)] of floor area, but not less than 150 cfm (4 m³/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 vaulted ceiling for gases having a vapor density less than air.

Amend Section 1206.2.11.4 as follows:

1206.2.11.4 Gas detection system. Where required by Section 1206.2.3, 1206.2.10.8 or 1206.2.12, rooms containing 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 flammable gas exceeds 10 percent of the lower flammable limit (LFL) or where the level of toxic or highly toxic gas exceeds one-half of the IDLH.

Amend Section 1206.2.11.5 with items 1. and 2. to remain unchanged and Subsection 1206.2.11.5.1 to be added as follows:

1206.2.11.5 Spill control and neutralization. Where required by Table 1206.2.10, approved methods and materials shall be provided for the control and neutralization of spills of electrolytes or other hazardous materials in areas containing stationary storage batteries as follows:

1206.2.11.5.1 Spill Control Barrier. Each rack of batteries, or group of racks shall be provided with a liquid-tight, 4-inch (102mm) spill control barrier that extends at least 1 inch (25 mm) beyond the battery rack in all directions.

Add Section 1206.2.11.6 as follows:

1206.2.11.6 Explosion control. Where required by Table 1206.2.10, explosion control, complying with Section 911, NFPA 68 and NFPA 69, shall be provided for rooms, areas or walk-in units containing electrochemical battery energy storage system technologies.

Exceptions:

1. Where approved, explosion control is permitted to be waived by the fire code official based on large-scale fire testing demonstrating that flammable gases are not liberated from electrochemical battery energy storage system cells or modules.
2. Where approved, explosion control is permitted to be waived by the fire code official based on documentation provided in accordance with Section 104.7 demonstrating that the electrochemical battery energy storage system technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the lower flammable limit (LFL) anywhere in the room, area, walk-in unit or structure under thermal runaway or other fault conditions.

Add Section 1206.2.11.7 as follows:

1206.2.11.7 Emergency energy release. An approved means must be provided to safely release stored energy from the batteries in an emergency situation.

Amend Section 1206.2.12 as follows:

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. Ventilation, spill control and neutralization, explosion control, safety caps and thermal runaway shall be required in accordance with Table 1206.2.10.

Amend Section 1206.2.12.1, 1206.2.12.2, 1206.2.12.4, 1206.2.12.5 and 1206.2.12.6 as follows:

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

1. The signage required by Section 1206.2.8.6 shall indicate the room contains lead-acid batteries.

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

1. The signage required by Section 1206.2.8.6 shall indicate the room contains nickel-cadmium batteries.

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

1. The signage required by 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. The signage required by Section 1206.2.8.6 shall indicate the type of flow batteries the room.

Amend Section 1206.2.12.6 as follows:

Delete items 2. and 3 from the list. Renumber item 4. to number 2.

Add Section 1206.4 as follows:

1206.4 Energy storage systems in Group R-3 and R-4 occupancies. Energy storage systems in Group R-3 and R-4 occupancies shall be installed and maintained in accordance with this section. The temporary use of an owner or occupant’s electric powered vehicle as an energy storage system shall be in accordance with this section.

Exception: Energy storage systems in Group R-3 and R-4 occupancies with a capacity of 3 kWh or less.

1206.4.1 Equipment listings. Energy storage systems shall be listed and labeled for residential use in accordance with UL 9540.

Exceptions:

1. Where approved repurposed unlisted battery systems from electric vehicles may be installed outdoors or in detached dedicated cabinets located not less than 5 feet (1.524 m) from exterior walls, property lines and public ways.
2. Energy storage systems less than 1 kWh.

1206.4.2 Installation. Energy storage systems shall be installed in accordance with the manufacturer's listing.

1206.4.2.1 Spacing. Individual units shall be separated from each other by at least 3 feet (0.914 m) of spacing unless smaller separation distances are documented and approved by the fire code official to be adequate based on large-scale fire testing.

1206.4.3 Location. Energy storage systems shall only be installed in the following locations:

1. Detached garages and detached accessory structures.
2. Attached garages separated from the dwelling unit living space and sleeping units in accordance with Section 406.3.2 of the *International Building Code*.
3. Outdoors on exterior walls in accordance with 1206.4.3.1
4. Other locations with Fire Marshal approval.

1206.4.3.1 Exterior wall and outdoor installations. Energy storage systems shall be permitted to be installed outdoors on exterior walls of buildings or on the ground where all of the following conditions are met.

1. The maximum energy capacity of individual energy storage system units shall not exceed 20 kWh.
2. The installation is in accordance with zoning setback requirements.
3. The energy storage system shall be installed in accordance with the manufacturer's instructions and their listing.
4. Individual energy storage system units shall be separated from each other by not less than 3 feet (0.914 m).
5. The energy storage system shall be separated from doors, windows, operable openings into buildings or HVAC inlets by not less than 5 feet (1.514 m).

Exception: Where approved by the *fire code official*, smaller separation distances in Items 4 and 5 may be permitted based on large-scale fire testing.

1206.4.4 Energy ratings. Individual energy storage system units shall have a maximum rating of 20 kWh. The aggregate rating structure shall not exceed:

1. 80 kWh in attached or detached garages and detached accessory structures.
2. 80 kWh on exterior walls.

3. 80 kWh outdoors on the ground.

1206.4.5 Electrical installation. Energy storage systems shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction.

1206.4.6 Fire detection. Rooms and areas within dwelling units, sleeping units and attached garages in which energy storage systems are installed shall be protected by smoke alarms in accordance with Section 907.2.10. A heat detector listed and interconnected to the smoke alarms shall be installed in locations within dwelling units, sleeping units and attached garages where smoke alarms can not be installed based on their listing.

1206.4.7 Protection from impact. Stationary storage battery systems installed in a location subject to vehicle damage shall be protected by approved barriers. Appliances in garages shall also be installed in accordance with Section 304.3 of the *International Mechanical Code*.

1206.4.8 Ventilation. Indoor installations of energy storage systems that include batteries that produce hydrogen or other flammable gasses during charging shall be provided with ventilation in accordance with Section 1206.2.11.3.

1206.4.9 Toxic and highly toxic gas. Energy storage systems that have the potential to release toxic or highly toxic gas during charging, discharging and normal use conditions shall not be installed within Group R-3 or R-4 occupancies.

CHAPTER 23 MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

SECTION 2301 GENERAL

Section 2301 is amended including the addition of subsection 2301.7 as follows:

2301.4 Indoor motor fuel-dispensing facilities is amended to read as follows:

2301.4 Indoor motor fuel-dispensing facilities. Motor fuel-dispensing facilities

located inside buildings are prohibited.

Section 2301.7 is added and reads as follows:

2301.7 Fire Protection. Fire sprinkler protection shall be designed in accordance with the building code as required for minimum Ordinary Group Hazard 2.

**SECTION 2304
DISPENSING OPERATIONS**

Section 2304.3 is deleted in its entirety and replaced as follows:

2304.3 Unattended self-service motor fuel-dispensing facilities. Unattended self-service motor fuel-dispensing facilities are prohibited.

**SECTION 2306
FLAMMABLE AND COMBUSTIBLE LIQUID
MOTOR FUEL-DISPENSING FACILITIES**

2306.2.2 is amended to read as follows:

2306.2.2 Above-ground tanks located inside buildings. Above-ground tanks, located inside buildings and used for the storage of Class I, II and IIIA liquid fuels are prohibited.

2306.2.3 is amended to read as follows:

2306.2.3 Above-ground tanks located outdoors, above grade. Above-ground tanks, located outside of buildings and used for the storage of Class I, II or IIIA liquid motor fuels, are prohibited.

Exception: Installation of 2000 gallons (7,570.8L) or less aggregate quantity may be approved by special permit by the Chief.

**CHAPTER 31
TENT AND OTHER MEMBRANE STRUCTURES**

Section 3103.8.2 is amended to read as follows:

3103.8.2 Location. Tents or membrane structures shall not be located within 20 feet (6096 mm) of lot lines, buildings, other tents or membrane structures, parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure or tent.

Exception: Membrane structures, tents need not be separated from buildings protected throughout with an automatic sprinkler system when all of the following conditions are met:

1. The aggregate floor area of the membrane structure, tent shall not exceed 10,000 square feet (929m²).
2. The aggregate floor area of the building and membrane structure, tent shall not exceed the allowable floor area including increases as indicated in the International Building Code.
3. Required means of egress provisions are provided for the building and the membrane structure, tent, including travel distance.
4. Fire apparatus access roads are provided in accordance with Section 503.

CHAPTER 33 FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

SECTION 3310 ACCESS FOR FIRE FIGHTING

3310.1 is amended to read as follows:

3310.1 Required access. Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet (30 480 mm) of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available. All open trenches shall have steel plates capable of maintaining the integrity of the access road design when these trenches cross an access road. These access roads may be temporary or permanent. This policy applies only during construction and/or demolition. Permanent access per the fire code shall be in place prior to any final inspection or certificate of occupancy.

Section 3310.1.1 Access road signs is added as follows:

3310.1.1 Access road signs. During construction, approved signs shall be erected and located to direct emergency responders into and through the construction site.

CHAPTER 57 FLAMMABLE AND COMBUSTIBLE LIQUIDS

SECTION 5704 STORAGE

Section 5704.2.9.5 is deleted in its entirety and replaced as follows:

5704.2.9.5 Above-ground tanks located inside buildings. Above-ground tanks for the storage of class I, II, IIIA liquid fuels are prohibited within the entire District.

Section 5704.2.13.1.4 is amended to read as follows:

5704.2.13.1.4 Tanks abandoned in place. The abandonment of tanks in place shall be prohibited within the entire District.

SECTION 5706 SPECIAL OPERATIONS

Section 5706.2.4.4 is amended to read as follows:

5706.2.4.4 Locations where above-ground tanks are prohibited. The storage of Class I, II and III liquids in above ground tanks is prohibited.

Exception: Installations of 2000 gallons (7,570.8L) or less aggregate quantity may be approved by special permit by the Chief.

Section 5706.2.5.2 is amended to read as follows:

5706.2.5.2 Tanks for gravity discharge. Tanks with a connection in the bottom or the end for gravity-dispensing of flammable or combustible liquids shall be prohibited within the entire District.

CHAPTER 61 LIQUEFIED PETROLEUM GASES

SECTION 6101 GENERAL

6101.2 Permits is amended with an added exception as follows:

6101.2 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7.

Exception: A permit is not required to install or maintain portable containers of less than 10 gallons (37.9L) aggregate water capacity.

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.

SECTION 6104 LOCATION OF LP-GAS CONTAINERS

Section 6104.3 is hereby amended by substituting the following for footnote e to Table 6104.3:

e. The following shall apply to above-ground containers installed alongside buildings:

1. Containers of less than a 125-gallon water capacity are allowed next to the building they serve when in compliance with Items 2, 3 and 4.
2. Department of Transportation (DOT) specification containers shall be located and installed so that the discharge from the container pressure relief device is at least 3 feet horizontally from building openings below the level of such discharge and shall not be beneath buildings unless the space is well ventilated to the outside and is not enclosed for more than 50 percent of its perimeter. The discharge from container pressure relief devices shall be located not less than 5 feet from exterior sources of ignition, openings into direct-vent (sealed combustion system) appliances or mechanical ventilation air intakes.
3. ASME containers of less than a 125-gallon water capacity shall be located and installed such that the discharge from pressure relief devices shall not terminate in or beneath buildings and shall be located at least 5 feet horizontally from building openings below the level of such discharge and not less than 5 feet from exterior sources of ignition, openings into direct vent (sealed combustion system) appliances, or mechanical ventilation air intakes.

4. The filling connection and the vent from liquid-level gauges on either DOT or ASME containers filled at the point of installation shall not be less than 10 feet from exterior sources of ignition, openings into direct vent (sealed combustion system) appliances or mechanical ventilation air intakes.

5. A container less than 125 gallons (473.2l) may be located next to a block fence when the tank is not within 5 feet (1524mm) of a structure on adjoining property.

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