

**TITLE 748. OKLAHOMA UNIFORM BUILDING CODE COMMISSION
CHAPTER 20. ADOPTED CODES**

SUBCHAPTER 3. IFC® 2015

748:20-3-1. Adoption of International Fire Code®, 2015 Edition (IFC® 2015) [AMENDED AND RENUMBERED TO 748:20-4-1]

- (a) ~~The Oklahoma Uniform Building Code Commission (the "OUBCC") hereby adopts the International Fire Code®, 2015 Edition (IFC® 2015) as amended and modified in this subchapter as the statewide minimum code for residential and commercial fire prevention and fire protection systems in the State of Oklahoma pursuant to 59 O.S. § 1000.23.~~
- (b) ~~The OUBCC through formal action expressly chose to adopt the IFC® 2015 as amended and modified in this subchapter, as the statewide minimum code for residential and commercial fire prevention and fire protection systems in the State of Oklahoma. In like manner, the OUBCC through formal action expressly chose to not adopt the International Fire Code®, 2012 Edition (IFC®, 2012) for any purpose.~~
- (c) ~~As part of its 2012 code cycle, the International Code Council, Inc. (ICC) reorganized the format of certain of its model codes as it was foreseeable to ICC that additional chapters will need to be added in the future as model regulations for new processes or operations are developed. The format reorganization was designed by ICC to accommodate such future chapters by providing reserved (unused) chapters in several parts of certain of its model codes as part of its 2012 code cycle. The format reorganization continues into the ICC's 2015 code cycle and is adopted by the OUBCC to the extent provided in this subchapter by the phrase "reserved for future use" inserted in lieu of titles for chapters.~~
- (d) ~~This material contains information which is proprietary to and copyrighted by the International Code Council, Inc. The acronym "ICC" and the ICC logo are trademarks and service marks of ICC. ALL RIGHTS RESERVED.~~

748:20-3-2. Effect of Adoption [AMENDED AND RENUMBERED TO 748:20-4-2]

~~The IFC® 2015 as amended and revised by these rules is hereby established and adopted as the statewide minimum code for residential and commercial fire prevention and fire protection systems in the State of Oklahoma pursuant to 59 O.S. 1000.23, and may only be amended or altered by other jurisdictions pursuant to Oklahoma law and the administrative rules of the OUBCC as set forth in Title 748, Chapter 15 of the Oklahoma Administrative Code.~~

748:20-3-3. IFC® 2015 and Other Appendices [AMENDED AND RENUMBERED TO 748:20-4-3]

- (a) ~~None of the appendices of the IFC® 2015 have been adopted by the OUBCC for inclusion in the statewide minimum code for residential and commercial fire prevention and fire protection systems in the State of Oklahoma.~~
- (b) ~~The OUBCC hereby creates a new appendix entitled "Appendix N, Egress Path Markings for Existing Buildings."~~
- (c) ~~The OUBCC has removed from Chapter 11 of the IFC® 2015 Section 1104.25 entitled "Egress Path Markings" and has relocated and renumbered the section to the newly created Appendix N entitled "Egress Path Markings for Existing Buildings."~~
- (d) ~~Appendices A through N are not adopted as the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma. However,~~

other jurisdictions within the State of Oklahoma may adopt any or all of said appendices in accordance with 59 O.S. § 1000.29.

748:20-3-4. IFC® 2015 Provisions Adopted and Modified [AMENDED AND RENUMBERED TO 748:20-4-4]

(a) ~~All chapters and provisions within chapters, including exceptions, of the IFC® 2015 not specifically addressed within these rules as being modified, deleted, moved or removed are hereby adopted without modification as the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma pursuant to 59 O.S. § 1000.23. Chapters and provisions within chapters, including exceptions adopted with modifications are specifically addressed in these rules.~~

(b) ~~The ICC® has reserved Chapters 12 through 18, Chapters 38 through 49, Chapter 52, and Chapters 68 through 79 for possible future use. The OUBCC has not adopted Chapters 12 through 18, Chapters 38 through 49, Chapter 52, and Chapters 68 through 79 and these chapters are not considered part of the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma.~~

(c) ~~To the extent any references in the IFC® 2015 as amended and modified in this sub-chapter are made to any other code or standard, the particular edition for that reference is defined in the referenced standards found in the IFC® 2015 as amended and modified in this sub-chapter and in the IFC® 2015 Chapter 80 entitled "Referenced Standards."~~

748:20-3-5. Participation in Federal Programs and/or Federally Funded or Financed Projects [AMENDED AND RENUMBERED TO 748:20-4-5]

~~In order to maximize federal financial aid, assistance, participation, financing and/or funding in any public project(s) and/or federal financial aid, participation, funding for and participation in any federal program(s) by the State of Oklahoma, its agencies, public trusts and instrumentalities, or by any Oklahoma municipalities and other political subdivisions, that receive financial aid, assistance, participation, financing and/or funding for and participate in any federal program(s), the State of Oklahoma, its agencies and instrumentalities, and any Oklahoma municipalities and other political subdivisions, may cooperate with the United States Government and any agency or instrumentality thereof, in the manner authorized and provided by federal law and regulation and in doing so may perform all necessary functions and take all necessary actions for accomplishing such federal purposes and programs, including but not limited to, following and/or complying with federal laws, regulations and/or requirements arising from or related to federal financial aid, assistance, participation, financing and/or funding, in the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupaney, location, improvement, expansion, operation, maintenance, removal, and demolition of buildings and structures or any appurtenances attached to such buildings or structures, notwithstanding any provisions of any and all uniform building codes and standards adopted by the OUBCC to the contrary.~~

748:20-3-6. IFC® 2015 Chapter 1 Scope and Administration [AMENDED AND RENUMBERED TO 748:20-4-6]

~~Chapter 1 of the Oklahoma-adopted IFC® 2015, includes the following Preamble at the very beginning of the chapter:~~

~~(1) Pursuant to 59 O.S. § 1000.23, the OUBCC has adopted the IFC® 2015 as amended and revised by the Commission, as the statewide minimum code to be used by all entities for~~

residential and commercial fire prevention and fire protection systems in jurisdictions throughout the State of Oklahoma. However, the OUBCC's adoption of Chapter 1 "Scope and Administration" of the IFC® 2015 is for continuity purposes and the OUBCC's adoption of Chapter 1 recognizes the methods of best practice in fully implementing the statewide minimum code for residential and commercial fire prevention and fire protection systems.

(2) All provisions of the adopted IFC® 2015, including Chapter 1, as amended and revised by the OUBCC, are hereby established and adopted as the statewide minimum code for residential and commercial fire prevention and fire protection systems in Oklahoma pursuant to 59 O.S. § 1000.23, which may only be amended or altered pursuant to Oklahoma law and the administrative rules of the OUBCC as set forth in Title 748, Chapter 15 of the Oklahoma Administrative Code. However, the provisions of Chapter 1 adopted herein are only intended to be in force and effect to the extent that the respective provisions do not conflict with State law or the lawful exercise of code administration and enforcement jurisdiction by entities empowered to do so pursuant to applicable law.

(3) Section 105.1.1 Annual permit. This section has been modified to clarify what an annual permit is. This section shall read: An annual permit is a yearly permit which represents a group of individual permits for each alteration to an already approved electrical, gas, mechanical or plumbing installation. The building official is authorized to issue an annual permit upon application therefor to any person, firm or corporation regularly employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

(4) Section 105.1.2 Annual permit records. This section has been modified to require the building official to collect the OUBCC permit fee for each individual permit that is part of the annual permit at the completion of the annual permit term. This section has been modified to read: Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of alterations made under such annual permit. The building official shall have access to such detailed records of alterations at all times. At the completion of the entity's annual permit term, the applicant shall file such detailed records of alterations with the building official. Pursuant to the authority of 59 O.S. § 1000.25, the building official shall collect fees for each individual permit which is part of the annual permit once the detailed records are submitted and remit such fees to the OUBCC.

(5) The OUBCC's adoption of Chapter 1 in this manner is made with the recognition that the legal authority granting state and local code administration and enforcement jurisdictions the power and discretion to administer and enforce codes arises from Oklahoma laws governing those jurisdictions. Furthermore, the OUBCC also recognizes that many state and local code administration and enforcement jurisdictions have already created, or have the lawful authority to create, departments, offices and administrative policies pursuant to various applicable laws and other adopted model codes with "Scope and Administration" provisions similar to Chapter 1 of the adopted IFC® 2015.

(6) This limited adoption of Chapter 1 is made in recognition of the authority and discretion possessed by jurisdictions to administer and enforce building codes. Exercising such authority and jurisdiction in a manner inconsistent with Chapter 1 must be supported by Oklahoma law. Code administration and enforcement jurisdictions shall not use the OUBCC's limited adoption of Chapter 1 to circumvent the remainder of the requirements established by the Oklahoma adopted IFC® 2015 and the OUBCC will strongly oppose any such practice.

748:20-3-7. IFC® 2015 Chapter 2 Definitions [AMENDED AND RENUMBERED TO 748:20-4-7]

Chapter 2 of the IFC® 2015 is adopted with the following modifications:

(1) The definition of an ~~AUTHORITY HAVING JURISIDCTION~~ has been added to clarify the different individuals that may have authority with in the code. This definition has been added to read: ~~AUTHORITY HAVING JURISDICTION~~. Means an organization, office, or individual responsible for enforcing the requirements of the State Adopted Building Codes, including the prior authorization or approval of any equipment, materials, installations or procedures used in all or part of the construction of a new, or alteration or renovation of an existing building or structure, including integral finishes, fixtures and building system therein.

(2) The definition of a ~~DISPENSING AREA~~ has been added to clarify multiple references in the code with regard to fuel dispensing. This definition has been added to read: ~~DISPENSING AREA~~. The appropriate hazardous (classified) locations for the fuel being dispensed in accordance with the National Electrical Code® NFPA® 70.

(3) The definition of a ~~MAIN RAILROAD TRACK~~ has been added to provide clarity to building code officials. This definition has been added to read: ~~MAIN RAILROAD TRACK~~. That part of the railway, exclusive of switch tracks, branches, yards, and terminals upon which trains are operated by timetable or train order or both.

(4) The definition for Residential Group R-3 has been modified to clarify the International Residential Code® 2015 (IRC® 2015) can be utilized so long as the facilities have four or fewer rooms. This definition has been modified to read: [BG] Residential Group R-3. Residential R-3 occupancies where occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-5, or I including Boarding houses (non-transient) 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 (non-transient with 16 or fewer occupants), Congregate living facilities (transient) with 10 or fewer occupants and Lodging houses with four or fewer guest rooms.

(A) [BG] Care facilities within a dwelling. Care facilities for five or fewer persons receiving care that are within a single family dwelling are permitted to comply with the IRC® provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the IRC®.

(B) [BG] Lodging houses. Owner occupied lodging houses with four or fewer guest rooms shall be permitted to be constructed in accordance with the IRC®.

(5) The definition of a ~~SELF-SERVICE STORAGE FACILITY~~ from the International Building Code®, 2015 Edition (Section 202) has been added to the International Fire Code®, 2015 Edition. This definition has been added to read: ~~SELF-SERVICE STORAGE FACILITY~~. Real property designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property on a self-service basis.

748:20-3-7.1. IFC® 2015 Chapter 3 General Requirements [AMENDED AND RENUMBERED TO 748:20-4-8]

Chapter 3 of the IFC® 2015 is adopted with the following modification: Section 308.1.6.3 Sky lanterns. This section has been modified to prohibit the use of any sky lanterns in the State

of Oklahoma. This section has been modified to read: 308.1.6.3 Sky lanterns. A person shall not release or cause to be released a sky lantern in the State of Oklahoma per Title 68 O.S. § 1624.1.

748:20-3-8. IFC® 2015 Chapter 5 Fire Service Features [AMENDED AND RENUMBERED TO 748:20-4-10]

Chapter 5 of the IFC® 2015 is adopted with the following modification: Section 508.1.3 Size has been modified to include an exception to make the fire command center smaller when approved by the fire code official. This section has been modified to read: 508.1.3 Size. The fire command center shall be a minimum of 200 square feet (19 square meters) in area, with a minimum dimension of 10 feet (3048 mm). Exception: When approved by the fire code official the fire command center can be reduced in size to not less than a minimum of 96 square feet (9 square meters) with a minimum dimension of 8 feet (2438 mm).

748:20-3-11. IFC® 2015 Chapter 9 Fire Protection Systems [AMENDED AND RENUMBERED TO 748:20-4-14]

Chapter 9 of the IFC® 2015 is adopted with the following modifications:

(1) Section 903.2.7 Group M. This section has been modified to reword subsection 4 to provide a reasonable limit for these occupancies and adequate protection without excessive burden on Group M occupancies with small areas of upholstered furniture and mattresses. This section has been modified to read: 903.2.7 Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

- (A) A Group M fire area exceeds 12,000 square feet (1115 square meters).
- (B) A Group M fire area is located more than three stories above grade plane.
- (C) The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 square meters).
- (D) A group M occupancy where the cumulative area used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 square meters).

(2) 903.2.9 Group S-1. This section has been modified to add an exception to the fifth requirement in the list for when an automatic fire sprinkler system is required. This section has been modified to read: 903.2.9 Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

- (A) A Group S-1 fire area exceeds 12,000 square feet (1115 square meters).
- (B) A Group S-1 fire area is located more than three stories above grade plane.
- (C) The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 square meters).
- (D) A Group S-1 fire area used for the storage of commercial motor vehicles where the fire area exceeds 5,000 square feet (464 square meters).
- (E) A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 square meters). Exception: Self-service storage facility where the fire area is less than 5,000 square feet (464 square meters).

(3) Section 907.2.3 Group E. This section has been modified to remove the requirement for an emergency voice/alarm system and require a fire alarm system in Group E occupancies. The section has been modified to read: 907.2.3 Group E. A manual fire alarm system that activates the occupant notification signal in accordance with Section 907.5 and installed in accordance with 907.6 shall be installed in Group E occupancies. When automatic sprinkler

~~systems or smoke detectors are installed such systems or detectors shall be connected to the building fire alarm system. Exceptions:~~

~~(A) A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.~~

~~(B) Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:~~

~~(i) Interior corridors are protected by smoke detectors~~

~~(ii) Auditoriums, cafeterias, gymnasiums or similar areas are protected by heat detectors or other approved detection devices.~~

~~(iii) Shop and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.~~

~~(iv) The capability to activate the evacuation signal from a central point is provided.~~

~~(v) In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.~~

~~(C) Manual fire alarm boxes shall not be required in Group E occupancies where all the following apply:~~

~~(i) The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

~~(ii) The fire alarm system will activate on sprinkler waterflow.~~

~~(iii) Manual activation is provided from a normally occupied location.~~

748:20-3-12. IFC® 2015 Chapter 10 Means of Egress [AMENDED AND RENUMBERED TO 748:20-4-15]

Chapter 10 of the IFC® 2015 is adopted with the following modifications:

(1) ~~Section 1010.1.10 Panic and fire exit hardware. This section has been modified to add an exception to the requirement for panic hardware or fire exit hardware on the access doors for electrical rooms and working spaces. This section has been further modified to require personnel doors in rooms or spaces that contain electrical equipment rated 800 amperes or more that contain overcurrent devices, switching devices, or control devices where the personnel door intended for entrance to and egress from the working space is less than 25 feet from the nearest edge of the working space, to be equipped with panic hardware or fire exit hardware. This section has been modified to read: 1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware. Exceptions:~~

~~(A) A main exit of a Group A occupancy shall be permitted to have locking hardware devices in accordance with Section 1010.1.9.3, Item 2.~~

~~(B) Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.8 or 1010.1.9.9.~~

(2) ~~Electrical rooms and working spaces with equipment operating at more than 600 volts, nominal, and equipment operating at 600 volts or less, nominal and rated 800 amperes or more and that contain overcurrent devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel. Exception: Personnel entrance to and egress~~

from doors of the electrical equipment working spaces that are greater than 25 feet (7.6 m) from the nearest edge of the electrical equipment.

(3) Section 1015.6 Mechanical equipment, systems and devices. This section has been modified to clarify the circumstances under which guards shall be provided and to modify the exception to require the authority having jurisdiction approve the use of a fall/restraint system instead of guards. This section has been modified to read: 1015.6 Mechanical equipment, systems and devices. Guards shall be provided where various components that require services are located on a roof or elevated structure and have a condition as set forth in Sections 1015.6.1 through 1015.6.3. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter. Exception: When approved by the authority having jurisdiction, guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.

(4) Section 1015.6.1 Roof edge. This section has been added to clarify the circumstances required to exist for the installation of guards at the roof edge when the components needing service are within a specific distance of the roof edge. This section has been added to read: 1015.6.1 Roof edge. Guards shall be provided when components are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface or elevated structure and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of the component that requires service.

(5) Section 1015.6.2 Skylights. This section has been added to clarify the circumstances for the installation of guards around components near skylights and to provide exceptions to the requirement. This section has been added to read: 1015.6.2 Skylights. Guards shall be provided when a skylight is within 10 feet (3048 mm) of the component that requires service. The guard shall extend 30 inches (762 mm) beyond the edge of the skylight. Exceptions:

(A) Guards are not required when the skylight is located at least 42 inches (1067 mm) above the highest point of the walking surface adjacent to the skylight or component.

(B) Guards are not required if some other provision for skylight fall thru protection is provided and approved by the authority having jurisdiction.

(6) Section 1015.6.3 Roof hatch. This section has been added to clarify the circumstances for the installation of guards around components installed within a specific distance from the roof hatch. This section has been added to read: 1015.6.3 Roof hatch. Guards shall be provided when a roof hatch is within 10 feet (3048 mm) of the component that requires service. The guard shall extend 30 inches (762 mm) beyond the edge of the roof hatch. If the component is within 10 feet (3048 mm) of the ladder access side of the roof hatch, the guard shall incorporate a self-closing, self-latching gate. The gate shall have a top edge of not less than 42 inches (1067 mm) above the elevated surface adjacent to the gate and shall not allow the passage of a 21 inch (533 mm) sphere.

(7) Section 1015.7 Roof access. This section has been modified to require the authority having jurisdiction approve the use of a fall-restraint system instead of a guard in the exception. This section has been modified to read: 1015.7 Roof access. Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or

open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter. Exception: When approved by the authority having jurisdiction, guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of the walking surfaces.

**748:20-3-13. IFC® 2015 Chapter 11 Construction Requirements for Existing Buildings
[AMENDED AND RENUMBERED TO 748:20-4-16]**

Chapter 11 of the IFC® 2015 is adopted with the following modifications:

(1) Section 1101.1 Scope. This section has been modified to include an exception allowing for structures complying with the International Existing Building Code® (IEBC®) be considered safe enough to where the provisions of Chapter 11 would not apply and resolve discrepancies between the two codes. This section has been modified to read: 1101.1 Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code. Exception: Buildings or portions of a building that comply with the latest edition of the IEBC® or the edition that was adopted at the time a remodel occurred.

(2) Section 1103.4.2 Three to five stories. This section has been modified to add a fifth exception to provide relief from this section of the code when vertical openings comply with the requirements of Section 803.2.1 of the IEBC®. This section has been modified to read: 1103.4.2 Three to five stories. In other than Group I-2 and I-3 occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistant-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2. Exceptions:

(A) Vertical opening protection is not required for Group R-3 occupancies.

(B) Vertical opening protection is not required for open parking garages.

(C) Vertical opening protection for escalators shall be in accordance with Section 1103.4.5, 1103.4.6 or 1103.4.7.

(D) Exit access stairways and ramps shall be in accordance with Section 1103.4.8.

(E) Vertical openings that comply with the requirements of Section 803.2.1 of the IEBC®.

(3) Section 1104.1 General. This section has been modified to allow the means of egress in an existing building to be considered as complying if in the opinion of both the building code official and the fire code official they do not constitute a distinct hazard to life. This section has been modified to read: 1104.1 General. Means of egress in existing buildings shall comply with the minimum egress requirements when specified in Table 1103.1 as further enumerated in Section 1104.2 through 1104.25 or the building code that applied at the time of construction, if, in the opinions of the building official and the fire code official, they do not constitute a distinct hazard to life. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements when specified in Table 1103.1 as further enumerated in Sections 1104.2 through 1104.25.

(4) Section 1104.18 Dead ends. This section has been modified to add another exception to the requirements of this section provided the dead ends comply with the requirements of

Section 705.6 of the International Existing Building Code®. This section has been modified to read: 1104.18 Dead ends. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead ends do not exceed the limits specified in Table 1104.18. In Group I-2, in smoke compartments containing patient sleeping rooms and treatment rooms, dead end corridors shall be in accordance with Section 1105.5.6.

Exceptions:

(A) A dead end passageway or corridor shall not be limited in length where the length of the dead end passageway or corridor is less than 2.5 time the least width of the dead end passageway or corridor.

(B) Dead ends that comply with the requirements of Section 805.6 of the IEBC®.

(5) Section 1104.25 Egress path markings. This section, including the exception, has been moved and renumbered into the newly created Appendix N entitled "Egress Path Markings for Existing Buildings" and is not adopted as a minimum standard for residential or commercial fire prevention and fire protection systems within the State of Oklahoma. The section number 1104.25 itself, will stay as part of this code for numbering alignment but will not have any requirements attached to it.

748:20-3-13.2. IFC® 2015 Chapter 23 Motor Fuel-Dispensing Facilities and Repair Garages [AMENDED AND RENUMBERED TO 748:20-4-28]

Chapter 23 of the IFC® 2015 is adopted with the following modifications:

(1) Section 2301.7 Liquid natural gas (LNG) motor fuel dispensing facilities. This section has been added to clarify that motor fuel dispensing facilities for LNG shall comply with the requirements of Section 2303 and Chapter 55. This section has been added to read: 2301.7 Liquid natural gas motor fuel dispensing facilities. Motor fuel dispensing facilities utilizing liquid natural gas (LNG) fuel shall comply with the requirements of Section 2303 and Chapter 55.

(2) Section 2302 Definitions. This section has been modified to add to the terms "Main Railroad Track" and "Dispensing Area" to the list of terms defined in Chapter 2. This section has been modified to read: 2302.1 Definitions. The following terms are defined in Chapter 2:

(A) AIRCRAFT MOTOR VEHICLE FUEL DISPENSING FACILITY.

(B) ALCOHOL BLENDED FUELS.

(C) AUTOMOTIVE MOTOR FUEL DISPENSING FACILITY.

(D) DISPENSING AREA.

(E) DISPENSING DEVICE, OVERHEAD TYPE.

(F) FLEET VEHICLE MOTOR FUEL DISPENSING FACILITY.

(G) LIQUEFIED NATURAL GAS (LNG).

(H) MAIN RAILROAD TRACK.

(I) MARINE MOTOR FUEL DISPENSING FACILITY.

(J) REPAIR GARAGE.

(K) SELF-SERVICE MOTOR FUEL DISPENSING FACILITY.

(3) Section 2303.1 Location of dispensing devices. This section has been modified to provide a sixth requirement when different types of fuel dispensing devices for different fuels are located under the same canopy to prevent the accumulation or entrapment of ignitable vapors or all the electrical equipment located under the canopy must be suitable for Class I, Division 2 hazardous (classified) location. This section has been modified to read: 2303.1 Location of dispensing devices. Dispensing devices shall be located as follows:

(A) Ten feet (3048 mm) or more from lot lines.

~~(B) Ten feet (3048 mm) or more from buildings having combustibile exterior wall surfaces or buildings having noncombustibile exterior wall surfaces that are not part of a 1-hour fire resistance-rated assembly or buildings having combustibile overhangs. Exception: Canopies constructed in accordance with the International Building Code® providing weather protection for the fuel islands.~~

~~(C) Such that all portions of the vehicle being fueled will be on the premises of the motor fuel dispensing facility.~~

~~(D) Such that the nozzle, when the hose is fully extended, will not reach within 5 feet (1524 mm) of building openings.~~

~~(E) Twenty feet (6096 mm) or more from fixed sources of ignition.~~

~~(F) Where compressed natural gas (CNG), LNG, or Hydrogen motor fuel dispensing devices are installed beneath a canopy or within an enclosure, either the canopy or enclosure shall be designed to prevent the accumulation or entrapment of ignitable vapors, including provisions for natural or mechanical ventilation means, or all electrical equipment installed beneath the canopy or within the enclosure shall be suitable for Class I, Division 2 hazardous (classified) locations. Tank vents that are installed within or attached to the canopy or enclosure shall extend a minimum of 5 feet (1524 mm) above the highest projection of the canopy. Compression and storage equipment located on top of the motor fuel dispensing facility canopies shall be in accordance with current State of Oklahoma adopted International Fire Code®, Section 2309 and International Building Code®, Section 406.~~

~~(4) Section 2303.2.1 Local emergency disconnect switches. This section has been added to clarify when local emergency disconnect switches are required and when those switches are required to be interlocked with other local emergency disconnect switches. This section has been added to read: 2303.2.1 Local emergency disconnect switches. A local emergency disconnect switch, provided within 20 feet (6096 mm) of any dispensing unit shall be interlocked with all other dispensing units of the same fuel type and all other dispensing devices located within 20 feet (6096 mm) of the local emergency disconnect switch.~~

~~(5) Section 2303.2. Emergency disconnect switch lighting. This section has been added to clarify the requirements for providing illumination for emergency disconnect switch lighting. This section has been added to read: 2303.2.2 Emergency disconnect switch lighting. Permanent lighting shall be provided during hours of operation in times of darkness at all dispensing devices, required signage, emergency disconnects and emergency shutdown controls. The lighting shall be designed to provide illumination such that all dispensing devices, required signage, emergency disconnect switches and emergency shutdown controls are visible to the operator.~~

~~(6) Section 2304.3.7 Quantity Limits. This section has been modified to include an exception to the requirement that dispensing devices at unsupervised locations be programmed or set to limit uninterrupted fuel delivery to 25 gallons and require manual action to resume delivery. This section has been modified to read: 2304.3.7 Quantity limits. Dispensing equipment used at unsupervised locations shall comply with one of the following:~~

~~(A) Dispensing devices shall be programmed or set to limit uninterrupted fuel delivery to 25 gallons (95 L) and require a manual action to resume delivery. Exception: Dispensing devices that are equipped with a listed breakaway device or equal approved by the Authority Having Jurisdiction. Such emergency breakaway device shall be installed, maintained and replaced in accordance with the manufacturer's instructions.~~

(B) The amount of fuel being dispensed shall be limited in quantity by a preprogrammed card as approved.

(7) Section 2307.3 Attendants. This section has been modified to add an exception to the requirement for an attendant when the dispensing equipment meets the guidelines of NFPA@ 58 for a "Low emission transfer." This section has been modified to read: 2307.3 Attendants. Motor fuel dispensing operations for LP gas shall be conducted by qualified attendants or in accordance with Section 2307.7 by persons trained in the proper handling of LP gas. Exception: When the dispensing equipment meets the guidelines of NFPA@ 58 for "Low emission transfer" an attendant is not required.

(8) Section 2307.4.1 Low emission transfer. This section has been added to clarify when the dispensing equipment meets the guidelines of NFPA@ 58, Section 6.28.5 for "Low emission transfer" then the transfer distance shall be reduced by one half. This section has been modified to read: 2307.4.1 Low emission transfer. When the dispensing equipment is installed in accordance with Section 6.28.5 of NFPA@ 58 for "Low emission transfer," the transfer distance requirements in Table 6.5.2.1 and Section 6.25.4.3(1) of NFPA@ 58 shall be reduced by one half.

(9) Section 2307.7 Public fueling of motor vehicles. This section has been modified to provide an exception to the owner's requirement to train users when the dispensing equipment meets the guidelines of NFPA@ 58 for a "Low emission transfer." This section has been added to read: 2307.7 Public fueling of motor vehicles.

(A) Self-service LP gas dispensing systems, including key, code and card lock dispensing systems, shall be limited to the filling of permanently mounted containers providing fuel to the LP-gas powered vehicle.

(B) The requirements for self-service LP-gas dispensing systems shall be in accordance with the following:

(i) The arrangement and operation of the transfer of product into a vehicle shall be in accordance with this section and Chapter 61.

(ii) The system shall be provided with an emergency shut-off switch located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from dispensers.

(iii) The owner of the LP-gas motor fuel dispensing facility or the owner's designee shall provide for the safe operation of the system and the training of users. Exception: If the LP-gas motor fuel dispensing facility meets the requirements of a low emission transfer station per NFPA@ 58, then training of the users is not the responsibility of the facility.

(iv) The dispenser and hose end valve shall release not more than 1/8 fluid ounce (4 cc) of liquid to the atmosphere upon breaking the connection with the fill valve on the vehicle.

(v) Portable fire extinguishers shall be provided in accordance with Section 2305.5.

(vi) Warning signs shall be provided in accordance with Section 2305.6.

(vii) The area around the dispenser shall be maintained in accordance with Section 2305.7.

(10) Section 2308.3.2 Warning signs. This section has been added to include warning signs to be posted on Compressed Natural Gas (CNG) dispensing devices. This section has been added to read: 2308.3.2 Warning signs. Warning signs complying with Section 310 shall be posted as follows:

(A) Warning sign(s) shall be conspicuously posted within sight of each dispenser in the fuel dispensing area and shall state the following:

(i) No smoking

(ii) Shut off motor

(iii) Flammable Gas

(iv) Natural gas vehicle fuel cylinders shall be inspected at intervals not exceeding 3 years or 36,000 miles to ensure safe operation of the vehicle

(v) Natural gas fuel cylinders past their end-of-life date shall not be refueled and shall be removed from service.

(B) A warning sign with the words "No smoking, flammable gas" shall be posted in all compressor and storage areas.

(C) The lettering on the sign shall be legible and large enough to be visible from each point of transfer.

(D) The service pressure of each dispenser shall be posted in view of the operator.

(11) Section 2308.4 Private fueling of motor vehicles. This section has been modified to allow for the industry practice of utilizing CNG trailers that are not permanently attached to CNG powered vehicles and delete the requirement for the owner to ensure the user of a CNG powered vehicle to be properly trained on the vehicle's filling procedures. This section has been modified to read: 2308.4 Private fueling of motor vehicles:

(A) Self-service CNG dispensing systems, including key, code and card lock dispensing systems, shall be limited to the filling of approved, permanently mounted fuel containers.

(B) In addition to the requirements in Section 2305, the owner of a self-service CNG motor fuel dispensing facility shall ensure the safe operation of the system.

(12) Section 2308.7 Emergency shutdown control. This section has been modified to change the word "control" to "devices" in the section heading, clarify the requirements of the emergency manual shutdown device and provide an exception to those requirements for time-fill applications. This section has been modified to read: 2308.7 Emergency shutdown devices. A remote and local emergency manual shutdown device shall be provided. Upon activation, the emergency shutdown system shall automatically close valves between the main gas supply and the compressor and between the storage containers and dispensers, and automatically shut off the power supply to the compressor and the following associated devices: dispensing enclosures; remote pumps; power, control, and signal circuits; and electrical equipment in the hazardous (classified) locations surrounding the fuel dispensing enclosures. All labeled emergency shutdown devices shall be interconnected, whether required or not. Resetting from an emergency shutoff condition shall require manual intervention and the manner of resetting shall be approved by the Authority Having Jurisdiction. Exception: In time-fill applications, in lieu of a defined remote and local emergency manual shutdown device, an emergency manual shutdown device shall be provided within 50 feet (15 240 mm) of each fixed point of dispensing hose attachment and located inside and outside the compressor area within 10 feet (3048 mm) of the main access to the compressor area.

(13) Section 2308.7.1 Remote emergency shutdown device. This section has been added to clarify the distance requirements remote emergency manual shutdown device placement and provide for an exception to the maximum distance required when located within line of sight of the dispensing enclosures and approved by the Authority Having Jurisdiction. This section has been added to read: 2308.7.1 Remote emergency shutdown device. A remote emergency

manual shutdown device shall be located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from all dispensing enclosures and shall be provided inside and outside the compressor area within 10 feet (3048 mm) of the main access to the compressor area. Exception: A remote emergency shutdown device may be located greater than 100 feet (30 480 mm) from one or more dispensing enclosures when within line of sight of the dispensing enclosures and approved by the Authority Having Jurisdiction.

(14) Section 2308.7.2 Local emergency shutdown device. This section has been added to require a local emergency manual shutdown device be provided within 15 feet (4572 mm) of each dispensing enclosure. This section has been added to read: 2308.7.2 Local emergency shutdown device. A local emergency manual shutdown device shall be located within 15 feet (4572 mm) of each dispensing enclosure.

(15) Section 2311.4.3 Ventilation. This section has been modified to clarify the point at which the mechanical ventilation should be exhausted in a basement or pit. This section has been modified to read: 2311.4.3. Ventilation. Where class I liquids or LP gas are stored or used within a building having a basement or pit wherein flammable vapors could accumulate, the basement or pit shall be provided with mechanical ventilation in accordance with the International Mechanical Code®, at a minimum rate of 1 1/2 cubic feet per minute per square foot (cfm/square foot) [0.0008 cubic meters per (second meter squared)] taken from a point within 12 inches (305 mm) of the floor to prevent the accumulation of flammable vapors.

(16) Section 2311.5 Preparation of vehicles for repair. This section has been modified to clarify Liquefied Natural Gas vehicles comply with Section 2311.5.1 as applicable. This section has been modified to read: 2311.5 Preparation of vehicles for repair.

(A) For vehicles powered by gaseous fuels, the fuel shutoff valves shall be closed prior to repairing any portion of the vehicle fuel system.

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

Liquefied Natural Gas (LNG) vehicles shall comply with Section 2311.5.1 as applicable.

(17) Section 2311.5.1 Liquefied Natural Gas (LNG) This section has been added to clarify the process needed to measure and record the pressure of the LNG vehicle fuel system prior to and on every third day while in the repair facility to ensure the fuel pressure does not exceed the maximum allowable fuel pressure. This section has been added to read: 2311.5.1 Liquefied Natural Gas. Liquefied Natural Gas (LNG) vehicle fuel system pressure shall be measured and recorded prior to entering the repair facility and at least every third day the vehicle remains in the building. Records shall be posted on the windshield of the vehicle. The maximum allowable system pressure shall be no more than 170 psig. Pressure above 170 psig shall be reduced by operating the vehicle, or limited venting outdoors as required.

(18) Section 2311.7 Repair garages for vehicles fueled by lighter than air fuels. This section has been modified to include a third exception for repair garages where work is conducted only on vehicles that have been defueled and their systems purged with nitrogen gas and where there are standard operating procedures to document and maintain the fueling status throughout the repair operations are approved. This section has been modified to read: 2311.7 Repair garages for vehicles fueled by lighter than air fuels. Repair garages for the conversion and repair of vehicles that use CNG, liquefied natural gas (LNG), hydrogen or other lighter than air motor fuels shall be in accordance with Sections 2311.7 through 2311.7.2.3 in addition to the other requirements of Section 2311. Exceptions:

~~(A) Repair garages where work is conducted only on vehicles that have been defueled and their systems purged with nitrogen gas, and where standard operating procedures to document and maintain the fueling status throughout the repair operations has been approved.~~

~~(B) Repair garages where work is not performed on the fuel system and is limited to exchange of parts and maintenance not requiring open flame or welding on the CNG-, LNG-, hydrogen or other lighter than air fueled motor vehicle.~~

~~(C) Repair garages for hydrogen fueled vehicles where work is not performed on the hydrogen storage tank and is limited to the exchange of parts and maintenance not requiring open flame or welding on the hydrogen fueled vehicle. During the work, the entire hydrogen fuel system shall contain a quantity that is less than 200 cubic feet (5.6 cubic meters) of hydrogen.~~

~~(19) Section 2311.7.1.1 Design. This section has been modified to clarify exhaust outlets should be located within 18 inches (475 mm) of the high point of the room on exterior walls or the roof and to change the ventilation rate from not less than 1 cubic foot per minute per 12 cubic feet of room volume to 1 cubic foot per square foot of room area. This section has been modified to read: 2311.7.1.1 Design.~~

~~(A) Indoor locations shall be ventilated utilizing air supply inlets and exhaust outlets arranged to provide uniform air movement to the extent practical. Inlets shall be uniformly arranged on exterior walls near floor level. Outlets shall be located within 18 inches (457 mm) of the high point of the room in exterior walls or the roof.~~

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

~~(C) The ventilation rate shall be not less than 1 cubic foot per minute per square foot [0.0051 cubic meters per (second square meter)] of room area.~~

748:20-3-13.3. IFC® 2015 Chapter 55 Cryogenic Fluids [AMENDED AND RENUMBERED TO 748:20-4-60]

Chapter 55 of the IFC® is adopted with the following modification: Section 5501.1 Scope. This section has been modified to add a third exception for liquefied natural gas (LNG) facilities for LNG vehicular applications to comply with Chapter 23 and NFPA® 52. This section has been modified to read: 5501.1 Scope.

~~(1) Storage, use and handling of cryogenic fluids shall comply with this chapter and NFPA® 55. Cryogenic fluids classified as hazardous materials shall also comply with the general requirements of Chapter 50. Partially full containers containing residual cryogenic fluids shall be considered as full for the purposes of the controls required. Exceptions:~~

~~(A) Fluids used as refrigerants in refrigeration systems (see Section 606).~~

~~(B) Liquefied natural gas (LNG), which shall comply with NFPA® 59 A.~~

~~(C) LNG facilities for LNG vehicular applications, which shall comply with Chapter 23 and NFPA® 52.~~

~~(2) Oxidizing cryogenic fluids, including oxygen, shall comply with Chapter 63, as applicable.~~

(3) Flammable cryogenic fluids, including hydrogen, methane, and carbon monoxide, shall comply with Chapters 23 and 58, as applicable.

(4) Inert cryogenic fluids, including argon, helium and nitrogen, shall comply with ANSI/CGA P-18.

748:20-3-13.4. IFC® 2015 Chapter 57 Flammable and Combustible Liquids [AMENDED AND RENUMBERED TO 748:20-4-62]

~~Chapter 57 of the IFC® 2015 is adopted with the following modification: Section 5705.5 Alcohol-based hand rubs classified as Class I or II. This section has been modified to require guards or shields on alcohol-based hand rub dispensers when installed over a carpeted area. This section has been modified to read: 5705.5 Alcohol-based hand rubs classified as Class I or II liquids. The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or II liquids shall be in accordance with all of the following:~~

~~(1) The maximum capacity of each dispenser shall be 68 ounces (2 L).~~

~~(2) The minimum separation between dispensers shall be 48 inches (1219 mm)~~

~~(3) The dispensers shall not be installed above, below, or closer than 1 inch (25 mm) to an electrical receptacle, switch, appliance, device or other ignition source. The wall space between the dispenser and the floor or intervening counter top shall be free of electrical receptacles, switches, appliances, devices or other ignition sources.~~

~~(4) Dispensers shall be mounted so that the bottom of the dispenser is not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) above the finished floor.~~

~~(5) Dispensers shall not release their contents except when the dispenser is manually activated. Facilities shall be permitted to install and use automatically activated "touch free" alcohol-based hand rub dispensing devices with the following requirements:~~

~~(A) The facility or persons responsible for the dispensers shall test the dispensers each time a new refill is installed in accordance with the manufacturer's care and use instructions.~~

~~(B) Dispensers shall be designed and must operate in a manner that ensures accidental or malicious activations of the dispensing devices are minimized. At a minimum, all devices subject to or used in accordance with this section shall have the following safety features:~~

~~(i) Any activations of the dispenser shall only occur when an object is placed within 4 inches (98 mm) of the sensing device.~~

~~(ii) The dispenser shall not dispense more than the amount required for hand hygiene consistent with label instructions as regulated by the United States Food and Drug Administration (USFDA).~~

~~(iii) An object placed within the activation zone and left in place will cause only one activation.~~

~~(6) Storage and use of alcohol-based hand rubs shall be in accordance with the applicable provisions of Sections 5704 and 5705.~~

~~(7) Dispensers when installed over a carpeted area shall have a guard or shield to prevent alcohol-based hand rub product from dispensing onto the floor.~~

748:20-3-13.5. IFC® 2015 Chapter 61 Liquefied Petroleum Gases [AMENDED AND RENUMBERED TO 748:20-4-66]

~~Chapter 61 of the IFC® 2015 is adopted with the following modifications:~~

~~(1) Section 6106.1 Attendants. This section has been modified to provide an exception to the requirement for a qualified attendant if the motor fuel dispensing equipment meets the~~

guidelines of NFPA® 58 for a "Low emission transfer." This section has been modified to read: 6106.1 Attendants. Dispensing of LP gas shall be performed by a qualified attendant. Exception: When the dispensing equipment meets the guidelines of NFPA® 58 for "Low emission transfer" an attendant is not required.

(2) Section 6106.2 Overfilling. This section has been modified to include an overfilling prevention device on the container as one of the ways to measure the volume in the container. This section has been modified to read: 6106.2 Overfilling. LP gas containers shall not be filled or maintained with LP gas in excess of either the volume determined using the fixed liquid level gauge installed in accordance with the manufacturer's specifications and in accordance with Section 5.7.5 of NFPA® 58, the volume determined by the overfilling prevention device installed on the container, or the weight determined by the required percentage of water capacity marked on the container. Portable LP gas containers shall not be refilled unless equipped with an overfilling prevention device (OPD) where required by Section 5.7.3 of NFPA® 58.

748:20-3-14. IFC® 2015 Chapter 80 Referenced Standards [AMENDED AND RENUMBERED TO 748:20-4-85]

Chapter 80 of the IFC® 2015 is adopted with the following modifications:

(1) The reference to the International Building Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IBC® 15 International Building Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(2) The reference to the International Existing Building Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IEBC® 15 International Existing Building Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(3) The reference to the International Fuel Gas Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IFGC® 15 International Fuel Gas Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(4) The reference to the International Mechanical Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IMC® 15 International Mechanical Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(5) The reference to the International Plumbing Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through OUBCC." This section has been modified to read: IPC® 15 International Plumbing Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(6) The reference to the International Residential Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IRC® 15 International Residential Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(7) The referenced standard for NFPA® 2 Hydrogen Technologies Code has been modified to change the edition year from 2011 to 2016. This Section has been modified to read: 02-16 Hydrogen Technologies Code.

(8) The referenced standard for NFPA® 70® National Electrical Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma

through the OUBCC." This section has been modified to read: 70-14 National Electrical Code® as adopted and modified by the State of Oklahoma through the OUBCC.

748:20-3-15. Appendix N, Egress Path Markings for Existing Buildings [AMENDED AND RENUMBERED TO 748:20-4-86]

This appendix has been newly created and entitled "Appendix N, Egress Path Markings for Existing Buildings." The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

(1) Section N101 General. This section has been added to clarify scope and intent for this appendix. This section has been added to read: N101 General.

(A) Section N101.1 Scope. This section has been added to specify the provisions of the appendix and shall apply to existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies. This section has been added to read: N101.1 Scope. The provisions of this appendix shall apply to existing high-rise buildings of Group A, B, E, I, M, and R-1 occupancies in addition to the requirements of Chapter 11.

(B) Section N101.2 Intent. This section has been added to specify the intent of this appendix is to provide an additional degree of life safety to persons occupying existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies. This section has been added to read: N101.2 Intent. The intent of this appendix is to provide an additional degree of life safety to persons occupying existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies where such buildings do not contain luminous egress path markings.

(2) Section N102 Egress path markings. This section, formerly numbered Section 1104.25 has been moved into Appendix N entitled "Egress Path Markings for Existing Buildings." The section has been added to read: N102 Egress path markings. Existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies shall be provided with luminous egress path markings in accordance with Section 1025. Exception: Open, unenclosed stairwells in historic buildings designated as historic under a state or local historic preservation program.

SUBCHAPTER 4 IFC® 2018

748:20-4-1. Adoption of the International Fire Code®, 2018 Edition (IFC® 2018)

(a) The Oklahoma Uniform Building Code Commission (the "OUBCC") hereby adopts the International Fire Code®, 2018 Edition (IFC® 2018), second printing (April, 2018) as amended and modified in this subchapter as the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma pursuant to 59 O.S. § 1000.23.

(b) The OUBCC through formal action expressly chose to adopt the IFC® 2018 as amended and modified in this subchapter, as the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma.

(c) As part of its 2012 code cycle, the International Code Council, Inc. (ICC) reorganized the format of certain of its model codes as it was foreseeable to ICC that additional chapters will need to be added in the future as model regulations for new processes or operations are developed. The format reorganization was designed by ICC to accommodate such future chapters by providing reserved (unused) chapters in several parts of certain of its model codes as part of its 2012 code cycle. The format reorganization continues into the ICC's 2018 code cycle

and is adopted by the OUBCC to the extent provided in this subchapter by the phrase "reserved for future use" inserted in lieu of titles for chapters.

(d) The OUBCC has pulled from the ICC website, published errata to the second printing of the IFC® through July 31, 2019. Any errata published after that date has not been reviewed or incorporated into these rules.

(e) This material contains information which is proprietary to and copyrighted by the International Code Council, Inc. The acronym "ICC" and the ICC logo are trademarks and service marks of ICC. ALL RIGHTS RESERVED.

748:20-4-2. Effect of Adoption

The IFC® 2018 as amended and revised by these rules is hereby established and adopted as the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma pursuant to 59 O.S. § 1000.23, and may only be amended or altered by other jurisdictions pursuant to Oklahoma law and the administrative rules of the OUBCC as set forth in Title 748, Chapter 15 of the Oklahoma Administrative Code.

748:20-4-3. IFC® 2018 and Other Appendices

(a) None of the appendices of the IFC® 2018 have been adopted by the OUBCC for inclusion in the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma.

(b) The OUBCC hereby creates a new appendix entitled "Appendix O, Egress Path Markings for Existing Buildings."

(c) The OUBCC has removed from Chapter 11 of the IFC® 2018, Section 1104.25 entitled "Egress Path Markings" and has relocated and renumbered the section to the newly created Appendix O entitled "Egress Path Markings for Existing Buildings."

(d) Appendices A through O are not adopted as the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma. However, other jurisdictions within the State of Oklahoma may adopt any or all of said appendices in accordance with 59 O.S. § 1000.29.

748:20-4-4. IFC® 2018 Provisions Adopted and Modified

(a) All chapters and provisions within chapters, including exceptions, of the IFC® 2018 not specifically addressed within these rules as being modified, deleted, moved or removed are hereby adopted without modification as the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma pursuant to 59 O.S. § 1000.23. Chapters and provisions within chapters, including exceptions adopted with modifications are specifically addressed in these rules.

(b) The ICC® has reserved Chapters 13 through 19, Chapters 40 through 49, Chapter 52, and Chapters 68 through 79 for possible future use. The OUBCC has not adopted Chapters 13 through 19, Chapters 40 through 49, Chapter 52, and Chapters 68 through 79 and these chapters are not considered part of the statewide minimum code for residential and commercial fire prevention and fire protection systems within the State of Oklahoma.

(c) To the extent any references in the IFC® 2018 as amended and modified in this sub-chapter are made to any other code or standard, the particular edition for that reference is defined in the referenced standards found in the IFC® 2018 as amended and modified in this sub-chapter and in the IFC® 2018 Chapter 80 entitled "Referenced Standards."

748:20-4-5. Participation in Federal Programs and/or Federally Funded or Financed Projects

In order to maximize federal financial aid, assistance, participation, financing and/or funding in any public project(s) and/or federal financial aid, participation, funding for and participation in any federal program(s) by the State of Oklahoma, its agencies, public trusts and instrumentalities, or by any Oklahoma municipalities and other political subdivisions, that receive financial aid, assistance, participation, financing and/or funding for and participate in any federal program(s), the State of Oklahoma, its agencies and instrumentalities, and any Oklahoma municipalities and other political subdivisions, may cooperate with the United States Government and any agency or instrumentality thereof, in the manner authorized and provided by federal law and regulation and in doing so may perform all necessary functions and take all necessary actions for accomplishing such federal purposes and programs, including but not limited to, following and/or complying with federal laws, regulations and/or requirements arising from or related to federal financial aid, assistance, participation, financing and/or funding, in the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, improvement, expansion, operation, maintenance, removal, and demolition of buildings and structures or any appurtenances attached to such buildings or structures, notwithstanding any provisions of any and all uniform building codes and standards adopted by the OUBCC to the contrary.

748:20-4-6. IFC® 2018 Chapter 1 Scope and Administration

Chapter 1 of the Oklahoma adopted IFC® 2018 includes the following Preamble at the very beginning of the chapter:

(1) Pursuant to 59 O.S. § 1000.23, the OUBCC has adopted the IFC® 2018 as amended and revised by the Commission, as the statewide minimum code to be used by all entities for residential and commercial fire prevention and fire protection systems in jurisdictions throughout the State of Oklahoma. However, the OUBCC's adoption of Chapter 1 "Scope and Administration" of the IFC® 2018 is for continuity purposes and the OUBCC's adoption of Chapter 1 recognizes the methods of best practice in fully implementing the statewide minimum code for residential and commercial fire prevention and fire protection systems.

(2) All provisions of the adopted IFC® 2018, including Chapter 1, as amended and revised by the OUBCC, are hereby established and adopted as the statewide minimum code for residential and commercial fire prevention and fire protection systems within Oklahoma pursuant to 59 O.S. § 1000.23, which may only be amended or altered pursuant to Oklahoma law and the administrative rules of the OUBCC as set forth in Title 748, Chapter 15 of the Oklahoma Administrative Code. However, the provisions of Chapter 1 adopted herein are only intended to be in force and effect to the extent that the respective provisions do not conflict with State law or the lawful exercise of code administration and enforcement jurisdiction by entities empowered to do so pursuant to applicable law.

(3) Section 105.1.1 Annual permit. This section has been modified to clarify an annual permit is a yearly permit that represents a group of individual permits for each alteration to an already approved electrical, gas, mechanical or plumbing installation. This section has been modified to read: 105.1.1 Annual permit. An annual permit is a yearly permit which represents a group of individual permits for each alteration to an already approved electrical, gas, mechanical or plumbing installation. The building official is authorized to issue an annual permit upon application therefor to any person, firm or corporation regularly

employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

(4) Section 105.1.2 Annual permit records. This section has been modified to require the building official to collect the OUBCC permit fee for each individual permit that is part of the annual permit at the completion of the annual permit term. This section has been modified to read: 105.1.2 Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of alterations made under such annual permit. The building official shall have access to such detailed records of alterations at all times. At the completion of the entity's annual permit term, the applicant shall file such detailed records of alterations with the building official. Pursuant to the authority of 59 O.S. § 1000.25, the building official shall collect fees for each individual permit which is part of the annual permit once the detailed records are submitted and remit such fees to the OUBCC.

(5) Section 105.6.51 Energy storage systems. This section has been added to require an operational permit for stationary and mobile energy storage systems regulated by Section 1206. This section has been added to read: 105.6.51 Energy storage systems. An operational permit is required for stationary and mobile energy storage systems regulated by Section 1206.

(6) Section 105.7.2 Energy storage systems. This section has been modified to change the heading from "Battery systems" to "Energy storage systems" and require a construction permit to install energy storage systems regulated by Section 1206. This section has been modified to read: 105.7.2 Energy storage systems. A construction permit is required to install energy storage systems regulated by Section 1206.

(7) Section 105.7.3 Capacitor energy storage systems. This section has been stricken from the code.

(8) The OUBCC's adoption of Chapter 1 in this manner is made with the recognition that the legal authority granting state and local code administration and enforcement jurisdictions the power and discretion to administer and enforce codes arises from Oklahoma laws governing those jurisdictions. Furthermore, the OUBCC also recognizes that many state and local code administration and enforcement jurisdictions have already created, or have the lawful authority to create, departments, offices and administrative policies pursuant to various applicable laws and other adopted model codes with "Scope and Administration" provisions similar to Chapter 1 of the adopted IFC® 2018.

(9) This limited adoption of Chapter 1 is made in recognition of the authority and discretion possessed by jurisdictions to administer and enforce building codes. Exercising such authority and jurisdiction in a manner inconsistent with Chapter 1 must be supported by Oklahoma law. Code administration and enforcement jurisdictions shall not use the OUBCC's limited adoption of Chapter 1 to circumvent the remainder of the requirements established by the Oklahoma adopted IFC® 2018 and the OUBCC will strongly oppose any such practice.

748:20-4-7. IFC® 2018 Chapter 2 Definitions

Chapter 2 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) The definition of [BG] ACCESSORY STORAGE SPACES has been modified to correct errata published by the ICC, in the printing of the definition. The definition has been modified to read: [BG] ACCESSORY STORAGE SPACES. A room or space used for storage purposes that is accessory to another occupancy shall be classified as part of that occupancy.

(2) The definition of an AUTHORITY HAVING JURISIDCTION has been added to clarify the different individuals that may have authority within the code. This definition has been added to read: AUTHORITY HAVING JURISDICTION. Means an organization, office, or individual responsible for enforcing the requirements of the State Adopted Building Codes, including the prior authorization or approval of any equipment, materials, installations or procedures used in all or in part of the construction of a new or alteration or renovation of an existing building or structure, including integral finishes, fixtures and building system therein.

(3) The definition of BATTERY TYPES has been modified to add a definition of the battery type "Nickle metal hydride (Ni-MH)" and delete the definitions of a "Preengineered stationary storage battery system," "Prepackaged stationary storage battery system," and "Sodium-beta storage battery." The definition of BATTERY TYPES has been modified to read:

(A) 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.

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

(C) Lithium metal polymer battery. A storage battery that is similar to the lithium ion battery except that it has a lithium metal anode in the place of a traditional carbon or graphite anode.

(D) Lithium-ion battery. A storage battery with lithium ions serving as 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.

(E) Nickle-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.

(F) Nickle metal hydride (Ni-MH) battery. An alkaline storage battery in which the positive active material is nickel oxide, the negative electrodes is an intermetallic compound and the electrolyte is usually potassium hydroxide.

(G) 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.

(4) The definition of a CAPACITOR ENERGY STORAGE SYSTEM has been modified to delete the two definitions for a "Preengineered capacitor energy storage system" and a "Prepackaged capacitor energy storage system." This definition has been modified to read: 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.

(A) The definition of a "Preengineered stationary storage battery system" has been stricken from the code.

(B) The definition of a "Prepackaged stationary storage battery system" has been stricken from the code.

- (5) The definition of a "CAPACITOR ARRAY" has been stricken from the code.
- (6) The definition of a DISPENSING AREA has been added to clarify multiple references in the code with regard to fuel dispensing. This definition has been added to read: DISPENSING AREA. The appropriate hazardous (classified) locations for the fuel being dispensed in accordance with the National Electrical Code® – NFPA® 70.
- (7) The definition of an ENERGY STORAGE MANAGEMENT SYSTEM has been modified to amend the definition title to add the word "storage" between "energy" and "management;" remove a reference to stationary batteries; remove the requirement to generate an alarm and trouble signal; and require the system to disconnect electrical power to the energy storage system or place it in a safe condition if potentially hazardous temperatures or other conditions are detected. This definition has been modified to read: ENERGY STORAGE MANAGEMENT SYSTEM. An electronic system that protects energy storage systems from operating outside their safe operating parameters, and disconnects electrical power to the energy storage system or places it in a safe condition if potentially hazardous temperatures or other conditions are detected.
- (8) The definition of an ENERGY STORAGE SYSTEM (ESS) has been added to clarify multiple references in the code. This definition has been added to read: ENERGY STORAGE SYSTEM (ESS). One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.
- (9) The definition of an ENERGY STORAGE SYSTEM CABINET has been added to clarify multiple references in the code. This definition has been added to read: ENERGY STORAGE SYSTEM CABINET. A cabinet containing components of the energy storage system that is included in the UL 9540 listing for the system. Personnel are not able to enter the enclosure, other than reaching in to access components for maintenance purposes.
- (10) The definition of an ENERGY STORAGE SYSTEM COMMISSIONING has been added to clarify multiple references in the code. This definition has been added to read: ENERGY STORAGE SYSTEM COMMISSIONING. A systematic process that provides documented confirmation that an energy storage system functions according to the intended design criteria and complies with applicable code requirements.
- (11) The definition of an ENERGY STORAGE SYSTEM, ELECTROCHEMICAL has been added to clarify multiple references in the code. This definition has been added to read: ENERGY STORAGE SYSTEM, ELECTROCHEMICAL. An energy storage system that stores energy and produces electricity using chemical reactions. It includes, among others, battery energy storage systems and capacitor energy storage systems.
- (12) The definition of an ENERGY STORAGE SYSTEM, MOBILE has been added to clarify multiple references in the code. The definition has been added to read: ENERGY STORAGE SYSTEM, MOBILE. An energy storage system capable of being moved and utilized for temporary energy storage applications, and not installed as fixed or stationary electrical equipment. The system can include integral wheels for transportation, or be loaded on a trailer and unloaded for charging, storage, and deployment.
- (13) The definition of an ENERGY STORAGE SYSTEM, STATIONARY has been added to clarify multiple references in the code. This definition has been added to read: ENERGY STORAGE SYSTEM, STATIONARY. An energy system installed as fixed or stationary electrical equipment in a permanent location.
- (14) The definition of an ENERGY STORAGE SYSTEM, WALK-IN UNIT has been added to clarify multiple references in the code. This definition has been added to read: ENERGY

STORAGE SYSTEM, WALK-IN UNIT. A pre-fabricated building that contains energy storage systems. It includes doors that provide walk-in access for personnel to maintain, test and service the equipment, and is typically used in outdoor and mobile energy storage system applications.

(15) The definition of a MAIN RAILROAD TRACK has been added to provide clarity to building code officials. This definition has been added to read: MAIN RAILROAD TRACK. That part of the railway, exclusive of switch tracks, branches, yards, and terminals upon which trains are operated by timetable or train order or both.

(16) The definition for Residential Group R-3 has been modified to align the section to the requirements in Title 74 O.S. § 317.1 and clarify the International Residential Code® 2015 (IRC® 2015) can be utilized so long as the lodging house facilities have four or fewer rooms and limit the number of guests to no more than two persons per room, if constructed in compliance with the requirements of the International Residential Code®. This definition has been modified to read: [BG] Residential Group R-3. Residential R-3 occupancies where occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I including Boarding houses (non-transient) 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 (non-transient with 16 or fewer occupants), Congregate living facilities (transient) with 10 or fewer occupants and Lodging houses with four or fewer guest rooms and no more than 2 persons per room.

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

(B) [BG] Lodging houses. Owner-occupied lodging houses with four or fewer guest rooms and no more than 2 persons per room, shall be permitted to be constructed in accordance with the International Residential Code®.

(17) The definition of [BG] MISCELLANEOUS GROUP U has been modified to include greenhouses not classified as another occupancy. This definition has been modified to read: [BG] MISCELLANEOUS GROUP U. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

(A) Agricultural buildings

(B) Aircraft hangar, accessory to a one- or two-family residence (see Section 412.4 of the International Building Code®)

(C) Barns

(D) Carports

(E) Communication equipment structures with a gross floor area of less than 1,500 square feet (139 square meters)

(F) Fences more than 6 feet (1829 mm) high

(G) Grain silos, accessory to a residential occupancy

(H) Livestock shelters

(I) Private garages

(J) Retaining walls

(K) Sheds

(L) Stables

(M) Tanks

(N) Towers

(O) [BG] GREENHOUSES. Greenhouses not classified as another occupancy shall be classified as Use Group U.

(18) The definition of a SELF-SERVICE STORAGE FACILITY from the International Building Code®, (Section 202) has been added to clarify multiple references in the code. This definition has been added to read: SELF-SERVICE STORAGE FACILITY. Real property designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property on a self-service basis.

748:20-4-8. IFC® 2018 Chapter 3 General Requirements

Chapter 3 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 301.1 Scope. This section has been modified to clarify the scope of the chapter applies to life safety in addition to the occupancy and maintenance of all structures and premises for precautions against the spread of fire and general requirements of fire safety. This section has been modified to read: 301.1 Scope. The provisions of this chapter shall govern the occupancy and maintenance of all structures and premises for precautions against fire and the spread of fire and general requirements of fire and life safety.

(2) Section 308.1.6.3 Sky lanterns. This section has been modified to prohibit the use of any sky lanterns in the State of Oklahoma. This section has been modified to read: 308.1.6.3 Sky lanterns. A person shall not release or cause to be released a sky lantern in the State of Oklahoma per Title 68 O.S. § 1624.1.

(3) Section 311.5 Placards. This section has been modified to correct errata published by the ICC by changing the section number reference, to be utilized when determining if vacant or abandoned buildings or structures are deemed unsafe related from structural or interior hazards, from Section 110 to Section 111. This section has been modified to read: 311.5 Placards. Any vacant or abandoned buildings or structures determined to be unsafe pursuant to Section 111 of this code relating to structural or interior hazards shall be marked as required by Sections 311.5.1 through 311.5.5.

(4) Section 311.5.4 Placard symbols. This section has been modified to correct errata published by the ICC. The correction adds the symbols to be used for the placards. The section has been modified to read: 311.5.4 Placard symbols. The design of placards shall use the following symbols:

(A) A square comprised of four equal sides with four equal 90-degree angles drawn in black with a white center has been added as the symbol for the first placard. This symbol shall mean that the structure had normal structural conditions at the time of marking.

(B) A square comprised of four equal sides with four equal 90-degree angles drawn in black with a white center and a diagonal line drawn in the middle of the white center from the upper left 90-degree angle to the lower right 90-degree angle has been added for the symbol for the second placard. This symbol shall mean that structural or interior hazards exist and interior fire-fighting or rescue operations should be conducted with extreme caution.

(C) A square comprised of four equal sides with four equal 90-degree angles drawn in black with a white center and two diagonal lines drawn in the middle of the white center, one from the upper left 90-degree angle to the lower right 90-degree angle and one from the upper right 90-degree angle to the lower left 90-degree angle, forming a "X" has been added. This symbol shall mean that structure or interior hazards exist to a degree that consideration should be given to limit fire-fighting to exterior operations only; with entry only occurring for known life hazards.

(D) Vacant marker hazard identification symbols: The following symbols shall be used to designate known hazards on the vacant building marker. They shall be placed directly above the symbol.

(i) R/O - Roof open.

(ii) S/M - Stairs, steps and landing missing.

(iii) F/E - Avoid fire escapes.

(iv) H/F - Holes in floor.

(5) Table 315.7.6(1) Separation Distance between Wood Pallet Stacks and Buildings. This table lists the different separation distances needed between wood pallets based on the wall construction and opening type of the building where the pallets are stored. This table has been modified to change the separation distances between wood pallets in several categories. The table has been modified to read: Table 315.7.6(1) Separation Distance between Wood Pallet Stacks and Buildings. The modified table contains 9 rows and 3 columns with the third column split into three subcolumns as described below:

(A) Row 1 contains the header for each column and subcolumn and is listed below:

(i) Row 1, column 1 is entitled "Wall Construction."

(ii) Row 1, column 2 is entitled "Opening Type."

(iii) Row 1, column 3 is entitled "Wood Pallet Separation Distance (feet)" and has three subcolumns as described below:

(I) Row 1, column 3, subcolumn 1 is entitled "Less than or Equal to 50 Pallets."

(II) Row 1, column 3, subcolumn 2 is entitled "51 to 200 Pallets."

(III) Row 1, column 3, subcolumn 3 is entitled "Greater than 200 Pallets."

(B) Row 2 has not been modified and contains the following:

(i) Row 2, column 1 contains the wall type "Masonry."

(ii) Row 2, column 2 contains the wall type "None."

(iii) Row 2, column 3, subcolumn 1 contains the wood pallet separation distance "2."

(iv) Row 2, column 3, subcolumn 2 contains the wood pallet separation distance "2."

(v) Row 2, column 3, subcolumn 3 contains the wood pallet separation distance "2."

(C) Row 3 has not been modified and contains the following:

(i) Row 3, column 1 contains the wall type "Masonry."

(ii) Row 3, column 2 contains the wall type "Fire-rated glazing with open sprinklers."

(iii) Row 3, column 3, subcolumn 1 contains the wood pallet separation distance "2."

(iv) Row 3, column 3, subcolumn 2 contains the wood pallet separation distance "5."

(v) Row 3, column 3, subcolumn 3 contains the wood pallet separation distance "20."

(D) Row 4 has been modified in column 3 subcolumns 1 and 2. The row, with the corrected information, is listed below:

(i) Row 4, column 1 contains the wall type "Masonry."

(ii) Row 4, column 2 contains the wall type "Fire-rated glazing."

(iii) Row 4, column 3, subcolumn 1 contains the wood pallet separation distance "5."

- (iv) Row 4, column 3, subcolumn 2 contains the wood pallet separation distance "10."
- (v) Row 4, column 3, subcolumn 3 contains the wood pallet separation distance "20."
- (E) Row 5 has been modified in column 3 subcolumns 1 and 2. The row, with the corrected information, is listed below:
 - (i) Row 5, column 1 contains the wall type "Masonry."
 - (ii) Row 5, column 2 contains the wall type "Plain glass with open sprinklers."
 - (iii) Row 5, column 3, subcolumn 1 contains the wood pallet separation distance "5."
 - (iv) Row 5, column 3, subcolumn 2 contains the wood pallet separation distance "10."
 - (v) Row 5, column 3, subcolumn 3 contains the wood pallet separation distance "20."
- (F) Row 6 has been modified in column 3 subcolumns 1 and 2. The row, with the corrected information, is listed below:
 - (i) Row 6, column 1 contains the wall type "Noncombustible."
 - (ii) Row 6, column 2 contains the wall type "None."
 - (iii) Row 6, column 3, subcolumn 1 contains the wood pallet separation distance "5."
 - (iv) Row 6, column 3, subcolumn 2 contains the wood pallet separation distance "10."
 - (v) Row 6, column 3, subcolumn 3 contains the wood pallet separation distance "20."
- (G) Row 7 has been modified in column 3 subcolumns 1 and 2. The row with the corrected information is listed below:
 - (i) Row 7, column 1 contains the wall type "Wood with open sprinklers."
 - (ii) Row 7, column 2 contains the wall type "dash."
 - (iii) Row 7, column 3, subcolumn 1 contains the wood pallet separation distance "5."
 - (iv) Row 7, column 3, subcolumn 2 contains the wood pallet separation distance "10."
 - (v) Row 7, column 3, subcolumn 3 contains the wood pallet separation distance "20."
- (H) Row 8 has not been modified and contains the following:
 - (i) Row 8, column 1 contains the wall type "Wood."
 - (ii) Row 8, column 2 contains the wall type "None."
 - (iii) Row 8, column 3, subcolumn 1 contains the wood pallet separation distance "15."
 - (iv) Row 8, column 3, subcolumn 2 contains the wood pallet separation distance "30."
 - (v) Row 8, column 3, subcolumn 3 contains the wood pallet separation distance "90."
- (I) Row 9 has not been modified and contains the following:
 - (i) Row 9, column 1 contains the wall type "Any."
 - (ii) Row 9, column 2 contains the wall type "Plain glass."
 - (iii) Row 9, column 3, subcolumn 1 contains the wood pallet separation distance "15."
 - (iv) Row 9, column 3, subcolumn 2 contains the wood pallet separation distance "30."
 - (v) Row 9, column 3, subcolumn 3 contains the wood pallet separation distance "90."
- (J) Below the table the following information is listed: "For SI: 1 foot equals 304.8 mm."
- (6) Section 320 Storm Shelters. This section header has been added to the code to signify the addition of a new section of code to address upkeep and maintenance of commercial storm shelters. This section header has been added to read: SECTION 320 STORM SHELTERS.
- (7) Section 320.1 Inspection and maintenance. This section has been added to require storm shelters with an occupant load of 50 or more to be inspected and maintained in accordance with this section and ICC 500®. This section has been added to read: 320.1 Inspection and maintenance. Storm shelters with an occupant load of 50 or more shall be inspected and maintained in accordance with this section and ICC 500®.
- (8) Section 320.1.1 Visual inspection. This section has been added to require quarterly visual inspections of the shelter envelope and the impact protective devices, such as doors and door

hardware to ensure there is no visible damage. This section has been added to read: 320.1.1 Visual inspection. Visual inspection of the shelter envelope and the impact protective devices, such as doors and door hardware, shall occur quarterly to ensure there is no visible damage to the shelter envelope or impact protective systems.

(9) Section 320.1.2 Functional inspection. This section has been added to require quarterly functional inspections of the impact protective devices, such as doors and door hardware to make sure the devices ensure proper door operation. This section has been added to read: 320.1.2 Functional inspection. Functional inspections of the impact protective devices, such as doors and door hardware, shall occur quarterly, to ensure these devices are maintained to ensure proper door operation.

(10) Section 320.1.3 Recordkeeping. This section has been added to require records to be kept of the quarterly inspections and any other tests, services and other operations and maintenance to be maintained on the premises or other approved location for not less than 3 years, or a different time period where specified in this code or referenced standards. It requires the records to be made available for inspection by the fire code official, if requested. This section authorizes the fire code official to prescribe the form and format of such recordkeeping and to require that certain required records be filed with the fire code official. This section has been added to read: 320.1.3 Recordkeeping. A record of the quarterly inspections, and any other tests, servicing and other operations and maintenance shall be maintained on the premises or other approved location for not less than 3 years, or a different period of time where specified in this code or referenced standards. Records shall be made available for inspection by the fire code official upon request, and a copy of the records shall be provided to the fire code official if requested. The fire code official is authorized to prescribe the form and format of such recordkeeping. The fire code official is authorized to require that certain required records be filed with the fire code official.

(11) Section 320.1.4 Supervision. This section has been added to require the maintenance and testing of the storm shelter to be under the supervision of a responsible person who shall ensure that such maintenance and testing are conducted at specified intervals in accordance with this code. This section has been added to read: 320.1.4 Supervision. Maintenance and testing shall be under the supervision of a responsible person who shall ensure that such maintenance and testing are conducted at specified intervals in accordance with this code.

(12) Section 320.2 Damage or missing components. This section has been added to require storm shelters to be maintained in accordance with ICC 500®, so the roof and walls are intact and undamaged. The section requires any damage to the storm shelter or its impact protective systems that impairs the functionality of the shelter to be repaired or replaced and that missing equipment and components are replaced. This section has been added to read: 320.2 Damage or missing components. Storm shelters shall be maintained in accordance with ICC 500® so that walls and roofs are intact and undamaged. Any damage to the storm shelter or its impact-protective systems that impair functionality shall be repaired or replaced in accordance with ICC 500®. Missing equipment and components shall be replaced.

(13) Section 320.3 Replacement components. This section has been added to require when necessary, the replacement of any impact protective systems, including certified doors, shutters windows or their frames, hardware and closing mechanisms, replacements shall comply with the applicable ICC 500® requirements. This section has been added to read: 320.3 Replacement components. Where it is necessary to replace impact protective systems,

including certified doors, shutters, windows or their frames, hardware and closing mechanisms, replacements shall comply with applicable ICC 500® requirements.

748:20-4-9. IFC® 2018 Chapter 4 Emergency Planning and Preparedness

Chapter 4 of the Oklahoma adopted IFC® 2018 is adopted with the following modification: Section 407.4 Training, has been modified to correct errata published by the ICC, which deletes the word "Material" from the last sentence in the paragraph. This section has been modified to read: 407.4 Training. Persons responsible for the operation of areas in which hazardous materials are stored, dispensed, handled or used shall be familiar with the chemical nature of the materials and the appropriate mitigating actions necessary in the event of a fire, leak or spill. Responsible persons shall be designated and trained to be liaison personnel for the fire department. These persons shall aid the fire department in preplanning emergency responses and identification of where hazardous materials are located, and shall have access to Safety Data Sheets and be knowledgeable in the site emergency response procedures.

748:20-4-10. IFC® 2018 Chapter 5 Fire Service Features

Chapter 5 of the Oklahoma adopted IFC® 2018 is adopted with the following modification: Section 508.1.3 Size, has been modified to include an exception to make the fire command center smaller when approved by the fire code official. This section has been modified to read: 508.1.3 Size. The fire command center shall be not less than 0.015 percent of the total building area of the facility served or 200 square feet (19 square meters) in area, whichever is greater, with a minimum dimension of 0.7 times the square root of the room area or 10 feet (3048 mm), whichever is greater. Exception: When approved by the fire code official the fire command center can be reduced in size to not less than a minimum of 96 square feet (9 square meters) with a minimum dimension of 8 feet (2438 mm).

748:20-4-11 IFC® 2018 Chapter 6 Building Services and Systems

Chapter 6 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications: (1) Section [M] 607.2 Where required. This section has been modified to allow a Type II hood equipped with a suppression system listed in accordance with UL 300A or meeting the requirements ICC-ES 1031, to be permitted in new construction or renovation of, when approved, adult day care facilities or child day care facilities having an occupant load of 16 or less, with a single domestic medium duty cooking appliance utilized for warming food only. This section has been modified to read: [M] 607.2 Where required. A Type I hood shall be installed at or above all commercial cooking appliances and domestic cooking appliances used for commercial purposes that produce grease vapors. Exceptions:

(A) Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1 of the International Mechanical Code®, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4, and 507.5 of the International Mechanical Code®.

(B) Factory built-commercial cooking recirculating systems that are listed and labeled in accordance with UL 710B, and installed in accordance with Section 304.1 of the International Mechanical Code®, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4, and 507.5 of the International Mechanical Code®. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1 of the International

Mechanical Code®. For the purpose of determining the floor area required to be ventilated, each individual appliance shall be considered as occupying not less than 100 square feet (9.3 square meters).

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

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

(E) Where required, a Type II hood equipped with a suppression system listed in accordance with UL 300A, or meeting the requirements of ICC-ES 1031, shall be permitted in new construction and renovation of adult day care facilities or child day care facilities having an occupant load of 16 or less, with a single domestic medium duty cooking appliance, utilized for warming food only.

(2) Section 608.1 General. This section has been modified to address errata published by the ICC, to correct section number references from "610.2 through 610.7" to "608.2 through 608.7." This section has been modified to read: 608.1 General. Storage of cooking oil (grease) in commercial cooking operations utilizing above-ground tanks with a capacity greater than 60 gal (227 L) installed within a building shall comply with Section 608.2 through 608.7 and NFPA 30. For purposes of this section, cooking oil shall be classified as a Class IIIB liquid unless otherwise determined by testing.

748:20-4-12. IFC® Chapter 7 [RESERVED]

748:20-4-13. IFC® Chapter 8 [RESERVED]

748:20-4-14. IFC® 2018 Chapter 9 Fire Protection Systems

Chapter 9 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 903.2.9 Group S-1. This section has been modified to add an exception to the fifth requirement in the list for when an automatic fire sprinkler system is required. This section has been modified to read: 903.2.9 Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

(A) A Group S-1 fire area exceeds 12,000 square feet (1115 square meters).

(B) A Group S-1 fire area is located more than three stories above grade plane.

(C) The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 square meters).

(D) A Group S-1 fire area used for the storage of commercial motor vehicles where the fire area exceeds 5,000 square feet (464 square meters).

(E) A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 square meters). Exception: Self-service storage facility where the fire area is less than 5,000 square feet (464 square meters).

(2) Table 903.2.11.6 Additional Required Fire Suppression Systems. This table has been modified to add a row for stationary and mobile energy storage systems. This table has been modified to read: Table 903.2.11.6 Additional Required Fire Suppression Systems. The table contains 62 rows with two columns per row and is described below:

- (A) Row 1 is the header row and has the following headers in the two columns:
- (i) Row 1, column 1 is entitled "Section"
 - (ii) Row 1, column 2 is entitled "Subject"
- (B) Row 2 has not been modified and contains the following information:
- (i) Row 2, column 1 contains the section number "914.2.1."
 - (ii) Row 2, column 2 contains the wording "Covered and open mall buildings."
- (C) Row has not been modified and contains the following information:
- (i) Row 3, column 1 contains the section number "914.3.1."
 - (ii) Row 3, column 2 contains the wording "High-rise buildings."
- (D) Row 4 has not been modified and contains the following information:
- (i) Row 4, column 1 contains the section number "914.4.1."
 - (ii) Row 4, column 2 contains the wording "Atriums."
- (E) Row 5 has not been modified and contains the following information:
- (i) Row 5, column 1 contains the section number "914.5.1."
 - (ii) Row 5, column 2 contains the wording "Underground structures."
- (F) Row 6 has not been modified and contains the following information:
- (i) Row 6, column 1 contains the section number "914.6.1."
 - (ii) Row 6, column 2 contains the wording "Stages."
- (G) Row 7 has not been modified and contains the following information:
- (i) Row 7, column 1 contains the section number "914.7.1."
 - (ii) Row 7, column 2 contains the wording "Special amusement buildings."
- (H) Row 8 has not been modified and contains the following information:
- (i) Row 8, column 1 contains the section number "914.8.2."
 - (ii) Row 8, column 2 contains the wording "Air traffic control towers."
- (I) Row 9 has not been modified and contains the following information:
- (i) Row 9, column 1 contains the section number "914.8.3, 914.8.6."
 - (ii) Row 9, column 2 contains the wording "Aircraft hangars."
- (J) Row 10 has not been modified and contains the following information:
- (i) Row 10, column 1 contains the section number "914.9."
 - (ii) Row 10, column 2 contains the wording "Flammable finishes."
- (K) Row 11 has not been modified and contains the following information:
- (i) Row 11, column 1 contains the section number "914.10."
 - (ii) Row 11, column 2 contains the wording "Drying rooms."
- (L) Row 12 has not been modified and contains the following information:
- (i) Row 12, column 1 contains the section number "914.11.1."
 - (ii) Row 12, column 2 contains the wording "Ambulatory care facilities."
- (M) Row 13 has not been modified and contains the following information:
- (i) Row 13, column 1 contains the section number "1029.6.2.3."
 - (ii) Row 13, column 2 contains the wording "Smoke-protected assembly seating."
- (N) Row 14 has not been modified and contains the following information:
- (i) Row 14, column 1 contains the section number "1103.5.1."
 - (ii) Row 14, column 2 contains the wording "Existing Group A occupancies."
- (O) Row 15 has not been modified and contains the following information:
- (i) Row 15, column 1 contains the section number "1103.5.2."
 - (ii) Row 15, column 2 contains the wording "Pyroxylin plastic storage in existing buildings."

- (P) Row 16 has not been modified and contains the following information:
- (i) Row 16, column 1 contains the section number "1103.5.3."
 - (ii) Row 16, column 2 contains the wording "Existing Group I-2 occupancies."
- (Q) Row 17 has not been modified and contains the following information:
- (i) Row 17, column 1 contains the section number "1103.5.4."
 - (ii) Row 17, column 2 contains the wording "Existing Group I-2, Condition 2 occupancies."
- (R) Row 18 has not been modified and contains the following information:
- (i) Row 18, column 1 contains the section number "1103.5.4."
 - (ii) Row 18, column 2 contains the wording "Pyroxylin plastics."
- (S) Row 19 has been modified and contains the following information:
- (i) Row 19, column 1 contains the section number "Table 1206.7, Table 1206.8, Table 1206.9, Table 1206.10."
 - (ii) Row 19, column 2 contains the wording "Stationary and mobile energy storage systems."
- (T) Row 20 has not been modified and contains the following information:
- (i) Row 20, column 1 contains the section number "2108.2."
 - (ii) Row 20, column 2 contains the wording "Dry cleaning plants."
- (U) Row 21 has not been modified and contains the following information:
- (i) Row 21, column 1 contains the section number "2108.3."
 - (ii) Row 21, column 2 contains the wording "Dry cleaning machines."
- (V) Row 22 has not been modified and contains the following information:
- (i) Row 22, column 1 contains the section number "2309.3.1.5.2."
 - (ii) Row 22, column 2 contains the wording "Hydrogen motor fuel-dispensing area canopies."
- (W) Row 23 has not been modified and contains the following information:
- (i) Row 23, column 1 contains the section number "2404.2."
 - (ii) Row 23, column 2 contains the wording "Spray finishing in Group A, E, I or R."
- (X) Row 24 has not been modified and contains the following information:
- (i) Row 24 column 1 contains the section number "2404.4."
 - (ii) Row 24, column 2 contains the wording "Spray booths and spray rooms."
- (Y) Row 25 has not been modified and contains the following information:
- (i) Row 25, column 1 contains the section number "2405.2."
 - (ii) Row 25, column 2 contains the wording "Dip-tank rooms in Group A, I or R."
- (Z) Row 26 has not been modified and contains the following information:
- (i) Row 26, column 1 contains the section number "2405.4.1."
 - (ii) Row 26, column 2 contains the wording "Dip tanks."
- (AA) Row 27 has not been modified and contains the following information:
- (i) Row 27, column 1 contains the section number "2405.9.4."
 - (ii) Row 27, column 2 contains the wording "Hardening and tempering tanks."
- (BB) Row 28 has not been modified and contains the following information:
- (i) Row 28, column 1 contains the section number "2703.10."
 - (ii) Row 28, column 2 contains the wording "HPM facilities."
- (CC) Row 29 has not been modified and contains the following information:
- (i) Row 29, column 1 contains the section number "2703.10.1.1."
 - (ii) Row 29, column 2 contains the wording "HPM work station exhaust."

- (DD) Row 30 has not been modified and contains the following information:
- (i) Row 30, column 1 contains the section number "2703.10.2."
 - (ii) Row 30, column 2 contains the wording "HPM gas cabinets and exhausted enclosures."
- (EE) Row 31 has not been modified and contains the following information:
- (i) Row 31, column 1 contains the section number "2703.10.3."
 - (ii) Row 31, column 2 contains the wording "HPM exit access corridor."
- (FF) Row 32 has not been modified and contains the following information:
- (i) Row 32, column 1 contains the section number "2703.10.4."
 - (ii) Row 32, column 2 contains the wording "HPM exhaust ducts."
- (GG) Row 33 has not been modified and contains the following information:
- (i) Row 33, column 1 contains the section number 2703.10.4.1."
 - (ii) Row 33, column 2 contains the wording "HPM noncombustible ducts."
- (HH) Row 34 has not been modified and contains the following information:
- (i) Row 34, column 1 contains the section number "2703.10.4.2."
 - (ii) Row 34, column 2 contains the wording "HPM combustible ducts."
- (II) Row 35 has not been modified and contains the following information:
- (i) Row 35, column 1 contains the section number "2807.3."
 - (ii) Row 35, column 2 contains the wording "Lumber production conveyor enclosures."
- (JJ) Row 36 has not been modified and contains the following information:
- (i) Row 36, column 1 contains the section number 2808.7."
 - (ii) Row 36, column 2 contains the wording "Recycling facility conveyor enclosures."
- (KK) Row 37 has not been modified and contains the following information:
- (i) Row 37, column 1 contains the section number "3006.1."
 - (ii) Row 37, column 2 contains the wording "Class A and B ovens."
- (LL) Row 38 has not been modified and contains the following information:
- (i) Row 38, column 1 contains the section number "3006.2."
 - (ii) Row 38, column 2 contains the wording "'Class C and D ovens."
- (MM) Row 39 has not been modified and contains the following information:
- (i) Row 39, column 1 contains the section number "Table 3206.2."
 - (ii) Row 39, column 2 contains the wording "Storage fire protection."
- (NN) Row 40 has not been modified and contains the following information:
- (i) Row 40, column 1 contains the section number "3206.4."
 - (ii) Row 40, column 2 contains the wording "Storage."
- (OO) Row 41 has not been modified and contains the following information:
- (i) Row 41, column 1 contains the section number "3704.5."
 - (ii) Row 41, column 2 contains the wording "Storage of more than 1,000 cubic feet of loose combustibile fibers."
- (PP) Row 42 has not been modified and contains the following information:
- (i) Row 42, column 1 contains the section number "5003.8.4.1."
 - (ii) Row 42, column 2 contains the wording "Gas rooms."
- (QQ) Row 43 has not been modified and contains the following information:
- (i) Row 43, column 1 contains the section number "5003.8.5.2."
 - (ii) Row 43, column 2 contains the wording "Exhausted enclosures."
- (RR) Row 44 has not been modified and contains the following information:

- (i) Row 44, column 1 contains the section number "5004.5."
 - (ii) Row 44, column 2 contains the wording "Indoor storage of hazardous materials"
- (SS) Row 45 has not been modified and contains the following information:
 - (i) Row 45, column 1 contains the section number "5005.1.8."
 - (ii) Row 45, column 2 contains the wording "Indoor dispensing of hazardous materials."
- (TT) Row 46 has not been modified and contains the following information:
 - (i) Row 46, column 1 contains the section number "5104.4.1."
 - (ii) Row 46, column 2 contains the wording "Aerosol product warehouses."
- (UU) Row 47 has not been modified and contains the following information:
 - (i) Row 47, column 1 contains the section number "5106.3.2."
 - (ii) Row 47, column 2 contains the wording "Aerosol display and merchandising areas."
- (VV) Row 48 has not been modified and contains the following information:
 - (i) Row 48, column 1 contains the section number "5306.2.1."
 - (ii) Row 48, column 2 contains the wording "Exterior medical gas storage room."
- (WW) Row 49 has not been modified and contains the following information:
 - (i) Row 49, column 1 contains the section number "5306.2.2."
 - (ii) Row 49, column 2 contains the wording "Interior medical gas storage room."
- (XX) Row 50 has not been modified and contains the following information:
 - (i) Row 50, column 1 contains the section number "5306.2.3."
 - (ii) Row 50, column 2 contains the wording "Medical gas storage cabinet."
- (YY) Row 51 has not been modified and contains the following information:
 - (i) Row 51, column 1 contains the section number "5606.5.2.1."
 - (ii) Row 51, column 2 contains the wording "Storage of smokeless propellant."
- (ZZ) Row 52 contains the following information for the two columns described in header row 1.
 - (i) Row 52, column 1 contains the section number "5606.5.2.3."
 - (ii) Row 52, column 2 contains the wording "Storage of small arms primers."
- (AAA) Row 53 has not been modified and contains the following information:
 - (i) Row 53, column 1 contains the section number "5704.3.7.5.1."
 - (ii) Row 53, column 2 contains the wording "Flammable and combustible liquid storage rooms."
- (BBB) Row 54 has not been modified and contains the following information:
 - (i) Row 54, column 1 contains the section number "5704.3.8.4."
 - (ii) Row 54, column 2 contains the wording "Flammable and combustible liquid storage warehouses."
- (CCC) Row 55 has not been modified and contains the following information:
 - (i) Row 55 column 1 contains the section number "5705.3.7.3."
 - (ii) Row 55, column 2 contains the wording "Flammable and combustible liquid Group H-2 or H-3 areas."
- (DDD) Row 56 has not been modified and contains the following information:
 - (i) Row 56, column 1 contains the section number "6004.1.2."
 - (ii) Row 56, column 2 contains the wording "Gas cabinets for highly toxic and toxic gas."
- (EEE) Row 57 has not been modified and contains the following information:

- (i) Row 57, column 1 contains the section number "6004.1.3."
- (ii) Row 57, column 2 contains the wording "Exhausted enclosures for highly toxic and toxic gas."
- (FFF) Row 58 has not been modified and contains the following information:
- (i) Row 58, column 1 contains the section number "6004.2.2.6"
- (ii) Row 58, column 2 contains the wording "Gas rooms for highly toxic and toxic gas."
- (GGG) Row 59 has not been modified and contains the following information:
- (i) Row 59, column 1 contains the section number "6004.3.3."
- (ii) Row 59, column 2 contains the wording "Outdoor storage for highly toxic and toxic gas."
- (HHH) Row 60 has not been modified and contains the following information:
- (i) Row 60, column 1 contains the section number "6504.1.1."
- (ii) Row 60, column 2 contains the wording "Pyroxylin plastic storage cabinets."
- (III) Row 61 has not been modified and contains the following information:
- (i) Row 61, column 1 contains the section number "6504.1.3."
- (ii) Row 61, column 2 contains the wording "Pyroxylin plastic storage vaults."
- (JJJ) Row 62 has not been modified and contains the following information:
- (i) Row 62, column 1 contains the section number "6504.2."
- (ii) Row 62, column 2 contains the wording "Pyroxylin plastic storage and manufacturing."
- (KKK) Below the table, the following information is listed: For SI: 1 cubic foot equals 0.023 cubic meters.
- (3) Section 907.2.6.1.1 Smoke alarms. This section has been modified to correct errata published by the ICC to change a section number reference from "907.2.11" to "907.2.10." This section has been modified to read: 907.2.6.1.1 Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.10.
- (4) Section 907.2.22 Energy storage systems. This section has been modified to change the header name from "Battery rooms" to "Energy storage systems" and by adding an option for a radiant-energy detection system to be installed in rooms, areas and walk-in units containing energy storage systems as required in Section 1206. This section has been modified to read: 907.2.22 Energy storage systems. An automatic smoke detection system or radiant-energy detection system shall be installed in rooms, areas, and walk-in units containing energy storage systems as required in Section 1206.
- (5) Section 907.2.23 Capacitor energy storage systems. This section has been stricken from the code.
- (6) Table 911.1 Explosion Control Requirements. This table has been modified to add electrochemical energy storage systems to the Special Uses section of the table and to add footnote "g" to the notes at the bottom of the table. This table has been modified to read: Table 911.1 Explosion Control Requirements. The title "Explosion Control Requirements" has a superscript "f" after the title indicating footnote "f" applies. The table contains 30 rows with four columns per row and is described below.
- (A) Row 1 is the header row and contains the headers for the four columns listed below:
- (i) Row 1, column1 header is entitled "MATERIAL."
- (ii) Row 1, column 2 header is entitled "CLASS."

- (iii) Row 1, column 3 header is entitled "Barricade construction (Explosion Control Method)."
- (iv) Row 1, column 4 header is entitled "Explosion (deflagration) venting or explosion (deflagration) prevention systems (Explosion Control Method)."
- (B) Row 2 has not been modified and contains the following:
- (i) Row 2, column 1 contains the wording "HAZARD CATEGORY."
- (ii) Row 2, column 2 is blank.
- (iii) Row 2, column 3 is blank.
- (iv) Row 2, column 4 is blank.
- (C) Row 3 has not been modified and contains the following:
- (i) Row 3, column 1 contains the wording "Combustible dusts" with a superscript "a" to indicate footnote "a" applies.
- (ii) Row 3, column 2 contains a hyphen with no words or numbers.
- (iii) Row 3, column 3 contains the wording "Not Required."
- (iv) Row 3, column 4 contains the wording "Required."
- (D) Row 4 has not been modified and contains the following:
- (i) Row 4, column 1 contains the wording "Cryogenic fluids."
- (ii) Row 4, column 2 contains the wording "Flammable."
- (iii) Row 4, column 3 contains the wording "Not Required."
- (iv) Row 4, column 4 contains the wording "Required."
- (E) Row 5 has not been modified and contains the following:
- (i) Row 5, column 1 contains the wording "Explosives."
- (ii) Row 5, column 2 contains the wording "Division 1.1."
- (iii) Row 5, column 3 contains the wording "Required."
- (iv) Row 5, column 4 contains the wording "Not Required."
- (F) Row 6 has not been modified and contains the following:
- (i) Row 6, column 1 contains the wording "Explosives."
- (ii) Row 6, column 2 contains the wording "Division 1.2."
- (iii) Row 6, column 3 contains the wording "Required."
- (iv) Row 6, column 4 contains the wording "Not Required."
- (G) Row 7 has not been modified and contains the following:
- (i) Row 7, column 1 contains the wording "Explosives."
- (ii) Row 7, column 2 contains the wording "Division 1.3."
- (iii) Row 7, column 3 contains the wording "Not Required."
- (iv) Row 7, column 4 contains the wording "Required."
- (H) Row 8 has not been modified and contains the following:
- (i) Row 8, column 1 contains the wording "Explosives."
- (ii) Row 8, column 2 contains the wording "Division 1.4."
- (iii) Row 8, column 3 contains the wording "Not Required."
- (iv) Row 8, column 4 contains the wording "Required."
- (I) Row 9 has not been modified and contains the following:
- (i) Row 9, column 1 contains the wording "Explosives."
- (ii) Row 9, column 2 contains the wording "Division 1.5."
- (iii) Row 9, column 3 contains the wording "Required."
- (iv) Row 9, column 4 contains the wording "Not Required."
- (J) Row 10 has not been modified and contains the following:

- (i) Row 10, column 1 contains the wording "Explosives."
 - (ii) Row 10, column 2 contains the wording "Division 1.6."
 - (iii) Row 10, column 3 contains the wording "Required."
 - (iv) Row 10, column 4 contains the wording "Not Required."
- (K) Row 11 has not been modified and contains the following:
 - (i) Row 11, column 1 contains the wording "Flammable gas."
 - (ii) Row 11, column 2 contains the wording "Gaseous."
 - (iii) Row 11, column 3 contains the wording "Not Required."
 - (iv) Row 11, column 4 contains the wording "Required."
- (L) Row 12 has not been modified and contains the following:
 - (i) Row 12, column 1 contains the wording "Flammable gas."
 - (ii) Row 12, column 2 contains the wording "Liquefied."
 - (iii) Row 12, column 3 contains the wording "Not Required."
 - (iv) Row 12, column 4 contains the wording "Required."
- (M) Row 13 has not been modified and contains the following:
 - (i) Row 13, column 1 contains the wording "Flammable liquids."
 - (ii) Row 13, column 2 contains the letters "IA" with a superscript "b" to indicated footnote "b" applies.
 - (iii) Row 13, column 3 contains the wording "Not Required."
 - (iv) Row 13, column 4 contains the wording "Required."
- (N) Row 14 has not been modified and contains the following:
 - (i) Row 14, column 1 contains the wording "Flammable liquids."
 - (ii) Row 14, column 2 contains the letters "IB" with a superscript "c" to indicate footnote "b" applies.
 - (iii) Row 14, column 3 contains the wording "Not Required."
 - (iv) Row 14, column 4 contains the wording "Required."
- (O) Row 15 has not been modified and contains the following:
 - (i) Row 15, column 1 contains the wording "Organic peroxides."
 - (ii) Row 15, column 2 contains the wording "Unclassified detonable."
 - (iii) Row 15, column 3 contains the wording "Required."
 - (iv) Row 15, column 4 contains the wording "Not Permitted."
- (P) Row 16 has not been modified and contains the following:
 - (i) Row 16, column 1 contains the wording "Organic peroxides."
 - (ii) Row 16, column 2 contains the letter "I."
 - (iii) Row 16, column 3 contains the wording "Required."
 - (iv) Row 16, column 4 contains the wording "Not Permitted."
- (Q) Row 17 has not been modified and contains the following:
 - (i) Row 17, column 1 contains the wording "Oxidizer liquids and solids."
 - (ii) Row 17, column 2 contains the number "4."
 - (iii) Row 17, column 3 contains the wording "Required."
 - (iv) Row 17, column 4 contains the wording "Not Permitted."
- (R) Row has not been modified and contains the following:
 - (i) Row 18, column 1 contains the wording "Pyrophoric."
 - (ii) Row 18, column 2 contains the wording "Gases."
 - (iii) Row 18, column 3 contains the wording "Not Required."
 - (iv) Row 18, column 4 contains the wording "Required."

- (S) Row 19 has not been modified and contains the following:
- (i) Row 19, column 1 contains the wording "Unstable (reactive)."
 - (ii) Row 19, column 2 contains the number "4."
 - (iii) Row 19, column 3 contains the wording "Required."
 - (iv) Row 19, column 4 contains the wording "Not Permitted."
- (T) Row 20 has not been modified and contains the following:
- (i) Row 20, column 1 contains the wording "Unstable (reactive)."
 - (ii) Row 20, column 2 contains the wording "3 Detonable."
 - (iii) Row 20, column 3 contains the wording "Required."
 - (iv) Row 20, column 4 contains the wording "Not Permitted."
- (U) Row 21 has not been modified and contains the following:
- (i) Row 21, column 1 contains the wording "Unstable (reactive)."
 - (ii) Row 21 column 2 contains the wording "3 Nondetonable".
 - (iii) Row 21, column 3 contains the wording "Not Required."
 - (iv) Row 21, column 4 contains the wording "Required."
- (V) Row 22 has not been modified and contains the following:
- (i) Row 22, column 1 contains the wording "Water-reactive liquids and solids."
 - (ii) Row 22, column 2 contains the number "3."
 - (iii) Row 22, column 3 contains the wording "Not Required."
 - (iv) Row 22, column 4 contains the wording "Required."
- (W) Row 23 has not been modified and contains the following:
- (i) Row 23 column 1 contains the wording "Water-reactive liquids and solids."
 - (ii) Row 23, column 2 contains the number "2" with a superscript "e" to indicate footnote "e" applies.
 - (iii) Row 23, column 3 contains the wording "Not Required."
 - (iv) Row 23, column 4 contains the wording "Required."
- (X) Row 24 has not been modified and contains the following:
- (i) Row 24 column 1 contains the wording "SPECIAL USES."
 - (ii) Row 24, column 2 is blank
 - (iii) Row 24, column 3 is blank.
 - (iv) Row 24, column 4 is blank.
- (Y) Row 25 has not been modified and contains the following:
- (i) Row 25 column 1 contains the wording "Acetylene generator rooms"
 - (ii) Row 25, column 2 contains a hyphen
 - (iii) Row 25, column 3 contains the wording "Not Required."
 - (iv) Row 25, column 4 contains the wording "Required."
- (Z) Row 26 has been added to the table and contains the following:
- (i) Row 26 column 1 contains the wording "Electrochemical energy storage systems" followed by a superscript "g."
 - (ii) Row 26, column 2 contains a hyphen.
 - (iii) Row 26, column 3 contains the wording "Not Required."
 - (iv) Row 26, column 4 contains the wording "Required."
- (AA) Row 27 has not been modified and contains the following:
- (i) Row 27 column 1 contains the wording "Grain processing."
 - (ii) Row 27, column 2 contains a hyphen.
 - (iii) Row 27, column 3 contains the wording "Not Required."

- (iv) Row 27, column 4 contains the wording "Required."
- (BB) Row 28 has not been modified and contains the following:
 - (i) Row 28 column 1 contains the wording "Liquefied petroleum gas-distribution facilities."
 - (ii) Row 28, column 2 contains a hyphen.
 - (iii) Row 28, column 3 contains the wording "Not Required."
 - (iv) Row 28, column 4 contains the wording "Required."
- (CC) Row 29 has not been modified and contains the following:
 - (i) Row 29 column 1 contains the wording "Where explosion hazards exist" followed by a superscript "d."
 - (ii) Row 29, column 2 contains the wording "Detonation."
 - (iii) Row 29, column 3 contains the wording "Required."
 - (iv) Row 29, column 4 contains the wording "Not Permitted."
- (DD) Row 30 has not been modified and contains the following:
 - (i) Row 30 column 1 contains the wording "Where explosion hazards exist" with a superscript "d" to indicate footnote "d" applies.
 - (ii) Row 30, column 2 contains the wording "Deflagration."
 - (iii) Row 30, column 3 contains the wording "Not Required."
 - (iv) Row 30, column 4 contains the wording "Required."
- (EE) Footnote "a" states: "Combustible dusts that are generated during manufacturing or processing. See definition of "Combustible dust" in Chapter 2."
- (FF)Footnote "b" states: "Storage or use."
- (GG) Footnote "c" states: "In open use or dispensing."
- (HH) Footnote "d" states: "Rooms containing dispensing and use of hazardous materials where an explosive environment can occur because of the characteristics or nature of the hazardous materials or as a result of the dispensing or use process."
- (II) Footnote "e" states: "A method of explosion control shall be provided where Class 2 water-reactive materials can form potentially explosive mixtures."
- (JJ) Footnote "f" states: "Explosion venting is not required for Group H-5 fabrication areas complying with Chapter 27 and the International Building Code®."
- (KK) Footnote "g" has been added and states: "Where explosion control is required in Section 1206.6."

748:20-4-15. IFC® 2018 Chapter 10 Means of Egress

Chapter 10 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 1003.4 Floor surface. This section has been modified to change the heading name from "Slip resistance surface" to "Floor surface" and to prohibit openings in the horizontal floor plane. This section has been modified to read: 1003.4 Floor surface. Circulation paths of the means of egress shall have a slip-resistant surface and be securely attached. Floor surfaces that are a part of a means of egress shall have a solid surface. A floor for this purpose is also defined as the space between a floor surface and a guard if it projects beyond the edge of a floor. Exceptions:

(A) Where approved by the Building Official, openings in floor surfaces shall be a size that does not permit the passage of 1/2-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.

(B) Where approved by the Building Official in Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in the floor surface shall not be prohibited provided a sphere with a diameter of 1 1/8 inches (29 mm) cannot pass through the opening.

(2) Section 1008.2.3 Exit discharge. This section has been modified to allow required exit discharge lighting to be provided by the building lighting or other site lighting such as street lighting and adds a second exception to the requirement, for buildings that comply for a single exit in accordance with Table 1006.2.1. This section has been modified to read: 1008.2.3 Exit discharge. Illumination shall be provided along the path of travel for the exit discharge from each exit to the public way. Illumination may be provided by the building or other site lighting such as street lighting. Exceptions:

(A) Illumination shall not be required where the path of exit discharge meets both of the following requirements:

(i) The path of exit discharge is illuminated from the exit to a safe dispersal area complying with Section 1028.5.

(ii) A dispersal area shall be illuminated to a level not less than 1 foot-candle (11 lux) at the walking surface.

(B) Buildings that comply for a single exit in accordance with Table 1006.2.1.

(3) Section 1010.1.10 Panic and fire exit hardware. This section has been modified to add a third paragraph to require personnel doors in rooms or spaces that contain electrical equipment rated 800 amperes or more that contain overcurrent devices, switching devices, or control devices where the personnel door intended for entrance to and egress from the working space is less than 25 feet from the nearest edge of the working space, to be equipped with panic hardware or fire exit hardware. This section has been modified to read: 1010.1.10 Panic and fire exit hardware. Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware. Exceptions:

(A) A main exit of a Group A occupancy shall be permitted to have locking hardware in accordance with Section 1010.1.9.4, Item 2.

(B) Doors provided with panic hardware or fire exit hardware and serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9 or 1010.1.9.10.

(4) Electrical rooms with equipment rated 1200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with exit or exit access doors, shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel.

(5) Where electrical equipment rated 800 amperes or more that contains overcurrent devices, switching devices, or control devices is installed and there is a personnel door(s) intended for entrance to and egress from the working space less than 25 feet (7.6 m) from the nearest edge of the working space, the personnel door shall be equipped with panic hardware or fire exit hardware. The door(s) shall open in the direction of egress.

(6) Section 1015.4 Opening limitations. This section has been modified to prohibit an opening in the horizontal plane of the floor walking surface. This section has been modified to read: 1015.4 Opening limitations. Required guards shall not have openings that allow passage of a sphere 4 inches (102 mm) in diameter from the walking surface to the required

guard height. The 4 inch sphere allowable opening permitted by this section only applies to openings in a vertical plane not openings in floors or similar horizontal surfaces. Exceptions:

(A) From a height of 36 inches (914 mm) to 42 inches (1067 mm), guards shall not have openings that allow passages of a sphere 4 3/8 inches (111 mm) in diameter.

(B) The triangular openings at the open sides of a stair, formed by the riser, tread and bottom rail shall not allow the passage of a sphere 6 inches (152 mm) in diameter.

(C) At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall not have openings that allow passage of a sphere 21 inches (533 mm) in diameter.

(D) In areas that are not open to the public within occupancies in Group I-3, F, H or S, and for alternating tread devices and ship's ladders, guards shall not have openings that allow passage of a sphere 21 inches (533 mm) in diameter.

(E) In assembly seating areas, guards required at the end of aisles in accordance with Section 1029.17.4 shall not have openings that allow passage of a sphere 4 inches (102 mm) in diameter up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, guards shall not have openings that allow passage of a sphere 8 inches (203 mm) in diameter.

(F) Within individual dwelling units and sleeping units in Group R-2 and R-3 occupancies, guards on open sides of stairs shall not have openings that allow passage of a sphere 4 3/8 inches (111 mm) in diameter.

(7) Section 1015.6 Mechanical equipment, systems and devices. This section has been modified to clarify the circumstances under which guards shall be provided and to modify the exception to allow the authority having jurisdiction to approve the use of a fall/restraint system instead of guards. This section has been modified to read: 1015.6 Mechanical equipment, systems and devices. Guards shall be provided where various components that require services are located on a roof or elevated structure and have a condition as set forth in Sections 1015.6.1 through 1015.6.3. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter. Exception: When approved by the authority having jurisdiction, guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.

(8) Section 1015.6.1 Roof edge. This section has been added to clarify the circumstances required to exist for the installation of guards at the roof edge when the components needing service are within a specific distance of the roof edge. This section has been added to read: 1015.6.1 Roof edge. Guards shall be provided when components are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface or elevated structure and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of the component that requires service.

(9) Section 1015.6.2 Skylights. This section has been added to clarify the circumstances for the installation of guards around components near skylights and to provide exceptions to the requirement. This section has been added to read: 1015.6.2 Skylights. Guards shall be

provided when a skylight is within 10 feet (3048 mm) of the component that requires service. The guard shall extend 30 inches (762 mm) beyond the edge of the skylight. Exceptions:

(A) Guards are not required when the skylight is located at least 42 inches (1067 mm) above the highest point of the walking surface adjacent to the skylight or component.

(B) Guards are not required if some other provision for skylight fall through protection is provided and approved by the authority having jurisdiction.

(10) Section 1015.6.3 Roof hatch. This section has been added to clarify the circumstances for the installation of guards around components installed within a specific distance from the roof hatch. This section has been added to read: 1015.6.3 Roof hatch. Guards shall be provided when a roof hatch is within 10 feet (3048 mm) of the component that requires service. The guard shall extend 30 inches (762 mm) beyond the edge of the roof hatch. If the component is within 10 feet (3048 mm) of the ladder access side of the roof hatch, the guard shall incorporate a self-closing, self-latching gate. The gate shall have a top edge of not less than 42 inches (1067 mm) above the elevated surface adjacent to the gate and shall not allow the passage of a 21 inch (533 mm) sphere.

(11) Section 1015.7 Roof access. This section has been modified to allow the authority having jurisdiction to approve the use of a fall-restraint system instead of a guard in the exception and provide criteria for installation of the fall-restraint system. This section has been modified to read: 1015.7 Roof access. Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter. Exception: When approved by the authority having jurisdiction, guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of the walking surfaces.

748:20-4-16. IFC® 2018 Chapter 11 Construction Requirements for Existing Buildings

Chapter 11 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 1103.4.2 Three to five stories. This section has been modified to add a fifth exception to provide relief from this section of the code when vertical openings comply with the requirements of Section 803.2.1 of the IEBC®. This section has been modified to read: 1103.4.2 Three to five stories. In other than Group I-2 and I-3 occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistant-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2. Exceptions:

(A) Vertical opening protection is not required for Group R-3 occupancies.

(B) Vertical opening protection is not required for open parking garages.

(C) Vertical opening protection for escalators shall be in accordance with Section 1103.4.5, 1103.4.6 or 1103.4.7.

(D) Exit access stairways and ramps shall be in accordance with Section 1103.4.8.

(E) Vertical openings that comply with the requirements of Section 802.2.1 of the IEBC®.

(2) Section 1103.7.6 Group R-2. This section has been modified to address errata published by the ICC. The correction is in the last exception and requires each dwelling unit to be provided with smoke alarms complying with the requirements of Section 907.2.10. This section has been modified to read: 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:

(A) Where each living unit is separated from other contiguous living units by fire barriers having a fire-resistance rating of not less than 3/4 hour, and where each living unit has either its own independent exit or its own independent stairway or ramp discharging at grade.

(B) 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.

(C) 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 doors 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.

(D) 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:

(i) Each dwelling unit is separated from other contiguous dwelling units by fire barriers having a fire-resistance rating of not less than 3/4 hour.

(ii) Each dwelling unit is provided with smoke alarms complying with the requirements of Section 907.2.10.

(3) Section 1104.25 Egress path markings. This section, including the exception, has been moved and renumbered into the newly created Appendix O, entitled "Egress Path Markings for Existing Buildings" and is not adopted as a minimum standard for residential or commercial fire prevention and fire protection systems within the State of Oklahoma. The section number 1104.25 itself, will stay as part of this code for numbering alignment but will not have any requirements attached to it.

748:20-4-17. IFC® 2018 Chapter 12 Energy Systems

Chapter 12 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 1201.1 Scope. This section has been modified to add repair, retrofitting, commissioning and decommissioning of energy systems to the list of provisions that the chapter applies to, in regards to energy systems used for generating or storing energy. This section has been modified to read: 1201.1 Scope. The provisions of this chapter shall apply to the installation, operation, maintenance, repair, retrofitting, testing, commissioning and decommissioning 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.

(2) Section 1201.3 Mixed system installation. This section has been modified to clarify where approved, aggregate nameplate kWh of all energy storage systems in a fire area shall not exceed the maximum quantity specified for any of the energy systems in the chapter. This section has been modified to read: 1201.3 Mixed system installation. Where approved, the aggregate nameplate kWh energy of all energy storage systems 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 interaction between various energy systems and technologies.

(3) Section 1202.1 Definitions. This section has been modified to delete "Lead acid battery," "CAPACITOR ARRAY," and "STATIONARY BATTERY ARRAY," from the list of terms defined in Chapter 2. The change modifies the term "ENERGY MANAGEMENT SYSTEMS" to "ENERGY STORAGE MANAGEMENT SYSTEMS," and adds "ENERGY STORAGE SYSTEM," "ENERGY STORAGE SYSTEM CABINET," "ENERGY STORAGE SYSTEM COMMISSIONING," "ENERGY STORAGE SYSTEM DECOMMISSIONING," "ENERGY STORAGE SYSTEM, ELECTROCHEMICAL," "ENERGY STORAGE SYSTEM, MOBILE," and "ENERGY STORAGE SYSTEM, WALK-IN UNIT" to the list of terms defined in Chapter 2. This section has been modified to read:

(A) BATTERY SYSTEM, STATIONARY STORAGE.

(B) BATTERY TYPES.

(C) CAPACITOR ENERGY STORAGE SYSTEM.

(D) CRITICAL CIRCUIT.

(E) EMERGENCY POWER SYSTEM.

(F) ENERGY STORAGE MANAGEMENT SYSTEM.

(G) ENERGY STORAGE SYSTEM.

(H) ENERGY STORAGE SYSTEM CABINET.

(I) ENERGY STORAGE SYSTEM COMMISSIONING.

(J) ENERGY STORAGE SYSTEM DECOMMISSIONING.

(K) ENERGY STORAGE SYSTEM, ELECTROCHEMICAL.

(L) ENERGY STORAGE SYSTEM, MOBILE.

(M) ENERGY STORAGE SYSTEM, WALK-IN UNIT.

(N) FUEL CELL POWER SYSTEM, STATIONARY.

(O) STANDBY POWER SYSTEM.

(4) Section 1203.2.3 Emergency responder radio coverage systems. This section has been modified to address errata published by the ICC. The correction requires the standby power to be capable of operating the emergency responder radio coverage system at 100 percent of the system operation for a duration of not less than 12 hours. This section has been modified to read: 1203.2.3 Emergency responder radio coverage systems. Standby power shall be provided for emergency responder radio coverage systems as required by Section 510.4.2.3. The standby power shall be capable of operating the emergency responder radio coverage system at 100 percent system operation for a duration of not less than 12 hours.

(5) Section 1203.2.5 Exhaust ventilation. This section has been added to require standby power to be provided for mechanical exhaust ventilation systems required by Section

1206.6.1.2.1; and require the system to be capable of powering the required load for a duration of not less than two hours. This section has been added to read: 1203.2.5 Exhaust ventilation. Standby power shall be provided for mechanical exhaust ventilation systems as required by 1206.6.1.2.1. The system shall be capable of powering the required load for a duration of not less than two hours.

(6) Section 1203.2.6 Exit signs. This section has been modified to change the section number from "1203.2.5" to "1203.2.6." This section has been modified to read: 1203.2.6. 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.

(7) Section 1203.2.7 Gas detection systems. This section has been modified to change the section number from "1203.2.6" to "1203.2.7," change the section references for required for emergency power from "1203.2.9" to "1203.2.10" and "1203.2.16" to "1203.2.17" and add a reference to Section 1206.6.2.2.4 for standby power. This section has been modified to read: 1203.2.7. Gas detection systems. Emergency power shall be provided for gas detection systems where required by Sections 1203.2.10 and 1203.2.17. Standby power shall be provided for gas detection systems where required by Sections 916.5 and 1206.6.2.2.4.

(8) Section 1203.2.8 Group I-2 occupancies. This section has been modified to change the section number from "1203.2.7" to "1203.2.8." This section has been modified to read: 1203.2.8. Group I-2 occupancies. Essential electrical systems for Group I-2 occupancies shall be in accordance with Section 407.11 of the International Building Code®.

(9) Section 1203.2.9 Group I-3 occupancies. This section has been modified to change the section number from "1203.2.8" to "1203.2.9." This section has been modified to read: 1203.2.9 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:

(A) Emergency power is not required in facilities where the provisions for remote locking and unlocking of occupied rooms in Occupancy Condition 4 are not required as set forth in the International Building Code®.

(B) Emergency power is not required where remote mechanical operation releases are provided.

(10) Section 1203.2.10 Hazardous materials. This section has been modified to change the section number from "1203.2.9" to "1203.2.10." This section has been modified to read: 1203.2.10 Hazardous materials. Emergency and standby power shall be provided in occupancies with hazardous materials as required in the following sections:

(A) Sections 5004.7 and 5005.1.5 for hazardous materials.

(B) Sections 6004.2.2.8 and 6004.3.4.2 for highly toxic and toxic gases.

(C) Sections 6204.1.11 for organic peroxides.

(11) Section 1203.2.11 High-rise buildings. This section has been modified to change the section number from "1203.2.10" to "1203.2.11." This section has been modified to read: 1203.2.11 High-rise buildings. Standby power and emergency power shall be provided for high-rise buildings as required in Section 403 of the International Building Code®, and shall be in accordance with Section 1203.

(12) Section 1203.2.12 Special purpose horizontal sliding doors. This section has been modified to change the number from "1203.2.11" to "1203.2.12." This section has been modified to read: 1203.2.12 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.

(13) Section 1203.2.13 Hydrogen fuel gas room. This section has been modified to change the section number from "1203.2.12" to "1203.2.13." This section has been modified to read: 1203.2.13 Hydrogen fuel gas room. Standby power shall be provided for hydrogen fuel gas rooms as required by Section 5808.7.

(14) Section 1203.2.14 Laboratory suites. This section has been modified to change the section number from "1203.2.13" to "1203.2.14." This section has been modified to read: 1203.2.14 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.

(15) Section 1203.2.15 Means of egress illumination. This section has been modified to change the section number from "1203.2.14" to "1203.2.15." This section has been added to read: 1203.2.15 Means of egress illumination. Emergency power shall be provided for means of egress illumination in accordance with Sections 1008.3 and 1104.5.1.

(16) Section 1203.2.16 Membrane structures. This section has been modified to change the section number from "1203.2.15" to "1203.2.16." This section has been modified to read: 1203.2.16 Membrane structures. Standby power shall be provided for auxiliary inflation systems in permanent structures in accordance with Section 2702 of the International Building Code®. Auxiliary inflation systems shall be provided in temporary air-supported and air-inflated membrane structures in accordance with Section 3103.10.4.

(17) Section 1203.2.17 Semiconductor fabrication facilities. This section has been modified to change the section number from "1203.2.16" to "1203.2.17." This section has been modified to read: 1203.2.17 Semiconductor fabrication facilities. Emergency power shall be provided for semiconductor fabrication facilities as required in Section 2703.15.

(18) Section 1203.2.18 Smoke control systems. This section has been modified to change the section number from "1203.2.17" to "1203.2.18." This section has been modified to read: 1203.2.18 Smoke control systems. Standby power shall be provided for smoke control systems as required in Section 909.11.

(19) Section 1203.2.19 Underground buildings. This section has been modified to change the section number from "1203.2.18" to "1203.2.19." This section has been modified to read: 1203.2.19 Underground buildings. Emergency and standby power shall be provided in underground buildings as required by Section 405 of the International Building Code® and shall be in accordance with Section 1203.

(20) Section 1205.1 General. This section has been modified to add an exception for the temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked so long as it complies with Section 1205.14. This section has been modified to read: 1205.1 General. Stationary fuel cell power systems in new and existing occupancies shall comply with this section. Exception: The temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1205.14.

(21) Section 1205.5 Residential use. This section has been modified to add an exception for the temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked as long as it complies with Section 1205.14. This section has been modified to read: 1205.5 Residential use. Stationary fuel cell powered 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. Exception: The temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1205.14.

(22) Section 1205.14 Group R-3 and R-4 Fuel Cell Vehicle ESS Use. This section has been added to allow the temporary use of a dwelling unit owner or occupant's fuel cell powered electrical vehicle to power a Group R-3 or R-4 dwelling while parked in an attached or detached garage or outside as long as it complies with the vehicle manufacturer's installation instructions and NFPA 70®. This section has been added to read: 1205.14 Group R-3 and R-4 Fuel Cell Vehicle ESS Use. The temporary use of the dwelling unit owner or occupant's fuel cell powered electrical vehicle to power a Group R-3 or R-4 dwelling while parked in an attached or detached garage or outside shall comply with the vehicle manufacturer's installation instructions and NFPA 70®.

(23) Section 1206.1 General. This section has been modified to delete the existing language in the section, change the title of the section from "Scope" to "General," and add new language stating the provisions in the section are applicable to stationary and mobile electrical Energy Storage Systems (ESS) and provides an exception for ESS in Group R-3 and R-4 occupancies that comply with Section 1206.11. This section has been modified to read: 1206.1 General. The provisions in this section are applicable to stationary and mobile electrical Energy Storage Systems (ESS). Exception: ESS in Group R-3 and R-4 occupancies shall comply with Section 1206.11.

(24) Table 1206.1 Energy Storage System (ESS) Threshold Quantities. This section has been modified to change the table number from "1206.2" to "1206.1" and the section heading from "Battery Storage System Threshold Quantities" to "Energy Storage System (ESS) Threshold Quantities." The rows for the battery types "Lithium, all types" and "Sodium, all types" have been deleted and four new rows have been added. The footnotes at the end of the table have been modified. The table has been added to read: Table 1206.1 Energy Storage System (ESS) Threshold Quantities. The table now contains 9 rows with 2 columns in each row and is described below:

(A) Row 1 is the header row and contains the following headings in each of the two columns:

(i) Row 1, column 1 is entitled "Technology."

(ii) Row 1, column 2 is entitled "Energy Capacity" with a superscript "a" at the end of the heading title to indicate footnote "a" applies.

(B) Row 2 has been modified to add a measurement in Megajoules to the second column. The row has been modified to read:

(i) Row 2, column 1 lists the technology "Flow batteries" with a superscript "b" to indicate footnote "b" applies.

(ii) Row 2, column 2 lists the energy capacity "20 KWh (72 Megajoules)."

(C) Row 3 has been modified to add a measurement in Megajoules to the second column along with a superscript "c" to indicate footnote "c" applies. The row has been modified to read:

(i) Row 3, column 1 lists the technology "Lead acid batteries, all types."

(ii) Row 3, column 2 lists the energy capacity "70 Kwh (252 Megajoules" with a superscript "c" to indicate footnote "c" applies.

(D) Row 4 has been modified to delete the original text related to "Lithium, all types" and the line below related to "Nickel cadmium batteries" has been moved up. The line has

been modified to add a measurement in Megajoules in the second column and has been modified to read:

(i) Row 4, column 1 lists the technology "Nickel cadmium batteries (Ni-Cd)."

(ii) Row 4, column 2 lists the energy capacity "70 KWh (252 Megajoules)."

(E) Row 5 has been added and contains the following:

(i) Row 5, column 1 lists the technology "Lithium-ion batteries."

(ii) Row 5, column 2 lists the energy capacity "20 KWh (70 Megajoules)."

(F) Row 6 had been added and contains the following:

(i) Row 6, column 1 lists the technology "Capacitor ESS."

(ii) Row 6, column 2 lists the energy capacity "3 KWh (10.8 Megajoules)."

(G) Row 7 has been added and contains the following:

(i) Row 7, column 1 lists the technology "Nickel Metal Hydride (NI-MH)."

(ii) Row 7, column 2 lists the energy capacity "70 KWh (252 Megajoules)."

(H) Row 8 has been added and contains the following:

(i) Row 8, column 1 lists the technology "Other electrochemical ESS technologies."

(ii) Row 8, column 2 lists the energy capacity "3 KWh (10.8 Megajoules)."

(I) Row 9 has been modified to add a measurement in Megajoules in the second column and has been modified to read:

(i) Row 9, column 1 lists the technology "Other battery technologies."

(ii) Row 9, column 2 lists the energy capacity "10 KWh (36 Megajoules)."

(J) The wording "For SI: 1 kilowatt hour = 3.6 megajoules" has been stricken from under the table.

(K) Footnote "a" has been modified to read: "Energy capacity is the total energy capable of being stored (nameplate rating), not the usable energy rating. For units rated in amp-hours, kWh shall equal rated voltage times amp-hour rating divided by 1000."

(L) Footnote "b" states: "Shall include vanadium, zinc-bromide, polysulfide-bromide, and other flowing electrolyte type technologies."

(M) Footnote "c" has been modified to read: "50 gallons of lead acid battery electrolyte shall be considered equivalent to 70 kWh."

(25) Section 1206.1.1 Scope. This section has been added to require Energy Storage Systems (ESS) that have capacities exceeding the values shown in Table 1206.1 to comply with this section. This section has been added to read: 1206.1.1 Scope. ESS having capacities exceeding the values shown in Table 1206.1 shall comply with this section.

(26) 1206.1.2 Permits. This section has been modified to change the section number from "1206.2.1" to "1206.1.2," delete the requirement for permits to be obtained for the installation and operation of stationary battery storage systems in accordance with Section 105.7.2 and require permits to be obtained for electrical Energy Storage Systems under specific conditions. This section has been modified to read: 1206.1.2 Permits. Permits shall be obtained for ESS as follows:

(A) Construction permits shall be obtained for stationary ESS installations and for mobile ESS charging and storage installations covered by 1206.10.1. Permits shall be obtained in accordance with Section 105.7.2.

(B) Operational permits shall be obtained for stationary ESS installations and for mobile ESS deployment operations covered by Section 1206.10.3. Permits shall be obtained in accordance with Section 105.6.51.

(27) Section 1206.1.2.1 Communication utilities. This section has been added to clarify operational permits shall not be required for lead acid and nickel cadmium battery systems at facilities under the control of communications utilities that comply with NFPA 76® and operate at less than 50 VAC and 60 VDC. This section has been added to read: 1206.1.2.1 Communication utilities. Operational permits shall not be required for lead acid and nickel cadmium battery systems at facilities under the control of communications utilities that comply with NFPA 76® and operate at less than 50 VAC and 60 VDC.

(28) Section 1206.1.3 Construction documents. This section has been modified to change the section number from "1206.2.2" to "1206.1.3" and modify the list of criteria to be provided with the permit application for the electrical Energy Storage System (ESS). This section has been modified to read: 1206.1.3 Construction documents. The following information shall be provided with the permit application:

(A) Location and layout diagram of the room or area in which the ESS is to be installed.

(B) Details on the hourly fire-resistance ratings of assemblies enclosing the ESS.

(C) The quantities and types of ESS to be installed.

(D) Manufacturer's specifications, ratings and listings of each ESS.

(E) Description of the energy (battery) management system and their operation.

(F) Location and content of required signage.

(G) Details on fire suppression, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.

(H) Support arrangement associated with the installation, including any required seismic restraint.

(I) A commissioning plan complying with 1206.2.1.

(J) A decommissioning plan complying with 1206.2.3.

(29) Section 1206.1.4 Hazard mitigation analysis. This section has been modified to change the section number from "1206.2.3" to "1206.1.4" and modify the conditions under which a failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.7.2. This section has been modified to read: 1206.1.4 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:

(A) Where ESS technologies not specifically identified in Table 1206.1 are provided.

(B) More than one ESS technology is provided in a room or enclosed area where there is a potential for adverse interaction between technologies.

(C) Where allowed as a basis for increasing maximum allowable quantities. See Section 1206.5.2.

(30) Section 1206.1.4.1 Fault condition. This section has been modified to change the section number from "1206.2.3.1" to "1206.1.4.1." This section has been modified to read:

1206.1.4.1 Fault condition. The hazard mitigation analysis shall evaluate the consequences of the following failure mode. Only single failure modes shall be considered.

(A) A thermal runaway condition in a single ESS rack, module or unit.

(B) Failure of any battery (energy) management system.

(C) Failure of any required ventilation or exhaust system.

(D) Voltage surges on the primary electric supply.

(E) Short circuits on the load side of the ESS.

(F) Failure of the smoke detection, fire detection, fire suppression or gas detection system.

(G) Required spill neutralization not being provided or failure of a required secondary containment system.

(31) Section 1206.1.4.2 Analysis approval. This section has been modified to change the section number from "1206.2.3.2" to "1206.1.4.2" and modify the requirements for the fire code official to approve the hazardous mitigation analysis under certain conditions. This section has been modified to read: 1206.1.4.2 Analysis approval. The fire code official is authorized to approve the hazardous mitigation analysis provided the consequences of the hazard mitigation analysis demonstrates:

(A) Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance rated separations identified in Section 1206.7.4.

(B) Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.

(C) Toxic and highly toxic gases released during fires will not reach concentrations in excess of Immediately Dangerous to Life and Health (IDLH) level in the building or adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.

(D) Flammable gases released from ESS during charging, discharging and normal operation will not exceed 25 percent of their lower flammability level (LFL).

(E) Flammable gases released from ESS during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases preventing accumulation or by deflagration venting.

(32) Section 1206.1.4.3 Additional protection measures. This section has been modified to change the section reference number from "1206.2.3.3" to "1206.1.4.3," remove the wording "stationary storage battery," and replace it with "ESS" (Energy Storage Systems), and change a section reference number from "1206.2" to "1206." This section has been modified to read: 1206.1.4.3 Additional protection measures. Construction, equipment, and systems that are required for the ESS to comply with the hazardous mitigation analysis, including but not limited to those specifically described in Section 1206 shall be installed, maintained and tested in accordance with nationally recognized standards and design parameters.

(33) Section 1206.1.5 Large scale fire test. This section has been added to require large scale fire testing to be conducted on a representative Energy Storage System (ESS) in accordance with UL 9540A, when required elsewhere in Section 1206. The change requires the test to be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS, and where installed within buildings, enclosed areas and walk-in units will be contained within the room, enclosed area or walk-in unit for a duration equal to the fire resistant rating of the room separation specified in Section 1206.7.4. The change requires the test report to be submitted to fire code official for review and approval in accordance with Section 104.7.2. This section has been added to read: 1206.1.5 Large scale fire test. Where required elsewhere in Section 1206, large scale fire testing shall be conducted on a representative ESS in in accordance with UL 9540A. The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS, and where installed within buildings, enclosed areas, and walk-in units will be contained within the room, enclosed area or walk-in unit for a duration equal to the fire resistance rating of the

room separation specified in Section 1206.7.4. The test report shall be provided to the fire code official for review and approval in accordance with Section 104.7.2.

(34) Section 1206.1.6 Fire remediation. This section has been added to require specific actions for the system owner, agent or lessee to take, at their expense, to mitigate the hazard or remove damaged equipment from the premises to a safe location, when a fire or other event has damaged the Energy Storage System (ESS) and ignition or re-ignition of the ESS is possible. This section has been added to read: 1206.1.6 Fire remediation. Where a fire or other event has damaged ESS and ignition or re-ignition of the ESS is possible, the system owner, agent, or lessee shall take the following actions, at their expense, to mitigate the hazard or remove damaged equipment from the premises to a safe location.

(35) Section 1206.1.6.1 Fire mitigation personnel. This section has been added to require trained personnel to be on site to respond to a possible ignition or re-ignition of a damaged Energy Storage System (ESS) if, in the opinion of the fire code official, it is essential for public safety. The section requires the ESS system owner, agent or lessee to immediately dispatch one or more fire mitigation personnel to the premise, as required and approved, at their expense. The change requires the personnel to remain on duty continuously after the fire department leaves the premises until the damaged energy storage equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated. This section has been added to read: 1206.1.6.1 Fire mitigation personnel. Where, in the opinion of the fire code official, it is essential for public safety that trained personnel be on site to respond to possible ignition or re-ignition of a damaged ESS, the system owner, agent or lessee shall immediately dispatch one or more fire mitigation personnel to the premise, as required and approved, at their expense. These personnel shall remain on duty continuously after the fire department leaves the premise until the damaged energy storage equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated.

(36) Section 1206.1.6.2 Duties. This section has been added to list out four responsibilities of the on-duty fire mitigation personnel. This section has been added to read: 1206.1.6.2 Duties. On-duty fire mitigation personnel shall have the following responsibilities:

(A) Keep diligent watch for fires, obstructions to means of egress and other hazards.

(B) Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.

(C) Take prompt measures for remediation of hazards in accordance with the decommissioning plan in Section 1206.2.3.

(D) Take prompt measures to assist in the evacuation of the public from the structures.

(37) Section 1206.2 Commissioning, decommissioning, operation and maintenance. This section has been modified to delete the original heading and language for stationary storage battery systems and add language specifying commissioning, decommissioning, operation and maintenance shall be conducted in accordance with this section. This section has been modified to read: 1206.2 Commissioning, decommissioning operation and maintenance. Commissioning, decommissioning, operation and maintenance shall be conducted in accordance with this section.

(38) Section 1206.2.1 Commissioning. This section has been modified and the original section entitled "Permits" has been moved to Section 1206.1.2 and a new Section 1206.2.1 entitled "Commissioning" has been added. This section requires commissioning, of all newly installed Energy Storage Systems (ESS) and existing ESS that have been retrofitted, replaced

or previously decommissioned and are returning to service, to be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The section specifies what criteria the commissioning plan shall include and includes an exception for commissioning of lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76® and operate at less than 50 VAC and 60 VDC. The exception requires a decommissioning plan to be provided and maintained where required by the fire code official. This section has been modified to read: 1206.2.1 Commissioning.

Commissioning of newly installed ESS, and existing ESS that have been retrofitted, replaced or previously decommissioned and are returning to service shall be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The commissioning plan shall include the following:

(A) A narrative description of the activities that will be accomplished during each phase of commissioning including the personnel intended to accomplish each of the activities.

(B) A listing of the specific ESS and associated components, controls and safety related devices to be tested, a description of the tests to be performed and the functions to be tested.

(C) Conditions under which all testing will be performed, which are representative of the conditions during normal operation of the system.

(D) Documentation of the owner's project requirements and the basis of design necessary to understand the installation and operation of the ESS.

(E) Verification that required equipment and systems are installed in accordance with the approved plans and specifications.

(F) Integrated testing for all fire and safety systems.

(G) Testing for any required thermal management, ventilation or exhaust systems associated with the ESS installation.

(H) Preparation and delivery of operation and maintenance documentation.

(I) Training of facility operating and maintenance staff.

(J) Identification and documentation of the requirements for maintaining system performance to meet the original design intent during the operation phase.

(K) Identification and documentation of personnel who are qualified to service, maintain and decommission the ESS, and respond to incidents involving the ESS, including documentation that such service has been contracted for a decommissioning plan for removing the ESS from service, and from the facility in which it is located.

(L) The plan shall include details on providing a safe, orderly shutdown of energy storage and safety systems with notification to the code officials prior to the actual decommissioning of the system. The decommissioning plan shall include contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event.

(M) Exception: Commissioning shall not be required for lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76® and operate at less than 50 VAC and 60 VDC. However a decommissioning plan shall be provided and maintained where required by the fire code official.

(39) Section 1206.2.1.1 Initial acceptance testing. This section has been added to require an Energy Storage System (ESS) to be evaluated during the commission process, for proper

operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval. This section has been added to read: 1206.2.1.1 Initial acceptance testing. During the commissioning process an ESS shall be evaluated for proper operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval.

(40) Section 1206.2.1.2 Commissioning report. This section has been added to require a report describing the results of the system commissioning, including the results of the initial accepted testing required in Section 1206.2.1.1, to be provide to the code official prior to final inspection and approval and for the report to be maintained at an approved onsite location. This section has been added to read: 1206.2.1.2 Commissioning report. A report describing the results of the system commissioning and including the results of the initial acceptance testing required in Section 1206.2.1.1 shall be provided to the code official prior to final inspection and approval and maintained at an approved onsite location.

(41) Section 1206.2.2 Operation and maintenance. The original section 1206.2.2 entitled "Construction documents" has been moved to Section 1206.1.3 and a new section 1206.2.2 entitled "Operation and maintenance" has been added. This section requires an operation manual to be provided to both the Energy Storage System (ESS) owner or their authorized agent and the ESS operator before the ESS is put into operation. The section requires specific criteria to be listed in the manual and for the ESS to be operated and maintained in accordance with the manual. The section also requires a copy of the manual to be retained onsite at an approved location. This section has been modified to read: 1206.2.2. Operation and maintenance. An operation and maintenance manual shall be provided to both the ESS owner or their authorized agent and the ESS operator before the ESS is put into operation and shall include the following:

(A) Manufacturer's operation manuals and maintenance manuals for the entire ESS or for each component of the system requiring maintenance, that clearly identify the required routine maintenance actions.

(B) Name, address and phone number of a service agency that has been contracted to service the ESS and its associated safety systems.

(C) Maintenance and calibration information, including wiring diagrams, control drawings, schematics, system programming instructions and control sequence descriptions for all energy storage control systems.

(D) Desired or field-determined control set points that are permanently recorded on control drawings at control devices or, for field control systems, in system programing instructions.

(E) A schedule for inspecting and recalibrating all ESS controls.

(F) A service record log form that lists the schedule for all required servicing and maintenance actions and space for logging such actions that are completed over time and retained on site.

(42) The ESS shall be operated and maintained in accordance with the manual and a copy of the manual shall be retained at an approved onsite location.

(43) Section 1206.2.2.1 Ongoing inspection and testing. This section has been added to require systems that monitor and protect the Energy Storage System (ESS) installation to be inspected and tested in accordance with the manufacturer's installation instructions and the operating and maintenance manual. The section requires records for testing and inspection to be maintained in the operation and maintenance manual. This section has been added to read:

1206.2.2.1 Ongoing inspection and testing. Systems that monitor and protect the ESS installation shall be inspected and tested in accordance with the manufacturer's instructions and the operating and maintenance manual. Inspection and testing records shall be maintained in the operation and maintenance manual.

(44) Section 1206.2.3 Decommissioning. The original section 1206.2.3 entitled "Hazard mitigation analysis" was moved to Section 1206.1.4 and a new section 1206.2.3 entitled "Decommissioning" has been added. The new section requires the code official to be notified prior to the decommissioning of an Energy Storage System (ESS) and for the decommissioning to be performed in accordance the specific criteria included in the decommissioning plan. This section has been modified to read: 1206.2.3 Decommissioning. The code official shall be notified prior to decommissioning of an ESS. Decommissioning shall be performed in accordance with the decommissioning plan that includes the following:

(A) A narrative description of the activities to be accomplished for removing the ESS from service, and from the facility in which it is located.

(B) A listing of any contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by fire or other event.

(45) Section 1206.2.4 Seismic and structural design. This section has been modified and renumbered to Section 1206.4.4.

(46) Section 1206.2.5 Vehicle impact protection. This section has been modified and renumbered to Section 1206.4.5.

(47) Section 1206.2.6 Combustible storage. This section has been modified and renumbered to Section 1206.4.6.

(48) Section 1206.2.7 Testing, maintenance and repair. This section has been stricken from the code.

(49) Section 1206.2.8 Location and construction. This section has been stricken from the code.

(50) Section 1206.2.8.1 Location. This section with the listed exceptions has been stricken from the code.

(51) Section 1206.2.8.2 Separation. This section has been modified and renumbered to Section 1206.4.3.

(52) Section 1206.2.8.3 Stationary battery arrays. This section with the listed exceptions has been stricken from the code.

(53) Section 1206.2.8.4 Separate rooms. This section has been stricken from the code.

(54) Section 1206.2.8.5 Occupied work centers. This section has been modified and renumbered to Section 1206.4.10.

(55) Section 1206.2.8.5.1 Cabinets. This section has been stricken from the code.

(56) Section 1206.2.8.6 Signage. This section has been modified and renumbered to 1206.4.8.

(57) Section 1206.2.8.6.1 Electrical disconnects. This section has been modified and renumbered to 1206.4.1.

(58) Section 1206.2.8.6.2 Cabinet signage. This section has been stricken from the code.

(59) Section 1206.2.8.7 Outdoor installations. This section has been modified and renumbered to 1206.8.

(60) Section 1206.2.8.7.1. Separation. This section with the exception has been stricken from the code.

- (61) Section 1206.2.8.7.2 Means of egress. This section has been modified and renumbered to Section 1206.5.8.
- (62) Section 1206.2.8.7.3 Security of outdoor areas. This section has been stricken from the code.
- (63) Section 1206.2.8.7.4 Walk-in units. This section has been stricken from the code.
- (64) Section 1206.2.9 Maximum allowable quantities. This section has been modified and renumbered to Section 1206.5.2.
- (65) Table 1206.2.9 Maximum allowable battery quantities. This table and the listed footnotes have been stricken from the code.
- (66) Section 1206.2.9.1 Mixed battery systems. This section has been modified and renumbered to Section 1206.5.2.1.
- (67) Section 1206.2.10 Storage batteries and equipment. This section has been stricken from the code.
- (68) Section 1206.2.10.1 Listings. This section with the listed exception has been stricken from the code.
- (69) Section 1206.2.10.2 Prepacked and preengineered systems. This section has been stricken from the code.
- (70) Section 1206.2.10.3 Energy management system. This section has been modified and renumbered to Section 1206.3.4.
- (71) Section 1206.2.10.4 Battery chargers. This section has been stricken from the code.
- (72) Section 1206.2.10.5 Inverters. This section has been stricken from the code.
- (73) Section 1206.2.10.6 Safety caps. This section has been modified and renumbered to Section 1206.6.4.
- (74) Section 1206.2.10.7 Thermal runaway. This section has been modified and renumbered to Section 1206.6.5.
- (75) Section 1206.2.10.8 Toxic and highly toxic gas. This section has been modified and renumbered to Section 1206.4.7.
- (76) Section 1206.2.11 Fire extinguishing and detection systems. This section has been modified and renumbered to Section 1206.5.4.
- (77) Section 1206.2.11.1 Fire extinguishing systems. This section including the exception, has been modified and renumbered to Section 1206.5.5.
- (78) Section 1206.2.11.1.1 Alternative fire-extinguishing systems. This section has been modified and renumbered to Section 1206.5.5.1.
- (79) Section 1206.2.11.2 Smoke detection system. This section has been stricken from the code.
- (80) Section 1206.2.11.3 Ventilation. This section has been modified and renumbered to Section 1206.6.1.
- (81) Section 1206.2.11.3.1 Cabinet ventilation. This section has been stricken from the code.
- (82) Section 1206.2.11.3.2 Supervision. This section has been modified and renumbered to Section 1206.6.1.2.3.
- (83) Section 1206.2.11.4 Gas detection system. This section has been modified and renumbered to Section 1206.6.1.2.4.
- (84) Section 1206.2.11.4.1 System activation. This section including the exception, has been stricken from the code.
- (85) Section 1206.2.11.5 Spill control and neutralization. This section has been modified and renumbered to Section 1206.6.2.

- (86) Section 1206.2.12 Specific battery type requirements. This section has been stricken from the code.
- (87) Section 1206.2.12.1 Lead-acid storage batteries. This section has been stricken from the code.
- (88) Section 1206.2.12.2 Nickel-cadmium (Ni-Cd) storage batteries. This section has been stricken from the code.
- (89) Section 1206.2.12.3 Lithium-ion storage batteries. This section has been stricken from the code.
- (90) Section 1206.2.12.4 Sodium beta storage batteries. This section has been stricken from the code.
- (91) Section 1206.2.12.5 Flow storage batteries. This section has been stricken from the code.
- (92) Section 1206.2.12.6 Other battery technologies. This section has been stricken from the code.
- (93) Section 1206.3 Equipment. The original section 1206.3 entitled "Capacitor energy storage systems" has been stricken and a new section entitled "Equipment" has been added. The new language requires equipment for Energy Storage Systems (ESS) to be in accordance with Sections 1206.3.1 through 1206.3.9. This section has been modified to read: Equipment. ESS equipment shall be in accordance with Sections 1206.3.1 through 1206.3.9.
- (94) Section 1206.3.1 Energy storage system listings. The original section 1203.6.1 entitled "Permits" has been modified and moved to section 1206.1.2 and a new section 1206.3.1 entitled "Energy storage system listings" has been added to require Energy Storage Systems (ESS) to be listed in accordance with UL 9540 with an exception for lead-acid and nickel cadmium battery systems installed in facilities under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76®. This section has been modified to read: 1206.3.1 Energy storage system listings. ESS shall be listed in accordance with UL 9540. Exception: Lead-acid and nickel cadmium battery systems installed in facilities under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76® are not required to be listed.
- (95) Section 1206.3.2 Equipment listing. The original section 1206.3.2 entitled "Location and construction" has been stricken and a new section has been added to address equipment listing requirements for chargers, inverters, and energy storage management systems to be covered as part of the UL 9540 listing or be listed separately. This section has been added to read: 1206.3.2 Equipment listing. Chargers, inverters and energy storage management systems shall be covered as part of the UL 9540 listing or shall be listed separately.
- (96) Section 1206.3.2.1 Location. This section has been stricken from the code.
- (97) Section 1206.3.2.2 Separation. This section has been modified and renumbered to Section 1206.7.4.
- (98) Section 1206.32.3 Capacitor arrays. This section with the exception has been stricken from the code.
- (99) Section 1206.3.2.4 Signage. This section has been stricken from the code.
- (100) Section 1206.3.2.5 Electrical disconnects. This section has been stricken from the code.
- (101) Section 1206.3.2.6 Outdoor installation. This section with the exception has been modified and renumbered to Section 1206.8.

(102) Section 1206.3.2.6.1 Separation. This section with the exception has been modified and renumbered to Section 1206.8.3.

(103) Section 1206.3.2.6.3 Means of egress. This section with the exception has been stricken from the code.

(104) Section 1206.3.2.6.3 Security of outdoor areas. This section has been stricken from the code.

(105) Section 1206.3.2.6.4 Walk-in units. This section has been stricken from the code.

(106) Section 1206.3.3 Utility interactive systems. The original section 1206.3.3 entitled "Maximum allowable quantities" has been stricken and a new section entitled "Utility interactive systems" has been added to require inverters to be listed and labeled in accordance with UL 1741. The new section specifies 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. This section has been modified to read: 1206.3.3 Utility interactive systems. Inverters shall be listed and labeled in accordance with UL 1741. 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.

(107) Section 1206.3.4 Energy storage management system. The original section 1206.3.4 entitled "Capacitors and equipment" has been stricken and the previous section 1206.2.10.3 entitled "Energy management system" has been modified and moved to this section. The changes to the section include adding the word "storage" in the heading and specifying when required by the Energy Storage System (ESS) listing, an approved energy storage management system shall be provided that monitors and balances cell voltages, currents and temperatures within the manufacturer's specifications. The section requires the system to disconnect electrical connections to the ESS or otherwise place it in a safe condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected. This section has been modified to read: 1206.3.4 Energy storage management system. Where required by the ESS listing, an approved energy storage management system shall be provided that monitors and balances cell voltages, currents and temperatures within the manufacturer's specifications. The system shall disconnect electrical connections to the ESS or otherwise place it in a safe condition, if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.

(108) Section 1206.3.4.1 Listing. This section has been stricken from the code.

(109) Section 1206.3.4.2 Prepackaged and preengineered systems. This section has been stricken from the code.

(110) Section 1206.3.4.3 Energy management system. This section has been stricken from the code.

(111) Section 1206.3.4.4 Capacitor chargers. This section has been stricken from the code.

(112) Section 1206.3.4.5 Toxic and highly toxic gas. This section has been stricken from the code.

(113) Section 1206.3.5 Fire extinguishing and detection systems. This section has been stricken from the code.

(114) Section 1206.3.5.1 Fire extinguishing systems. This section has been stricken from the code.

(115) Section 1206.3.5.1.1. Alternative fire extinguishing systems. This section has been stricken from the code.

(116) Section 1206.3.5.2 Smoke detection system. This section has been stricken from the code.

(117) Section 1206.3.5.3 Ventilation. This section has been stricken from the code.

(118) Section 1206.3.5.3.1 Supervision. This section has been stricken from the code.

(119) Section 1206.3.5.4 Spill control and neutralization. This section has been stricken from the code.

(120) Section 1206.3.6 Repairs. The original section 1206.3.6 entitled "Testing, maintenance, and repairs" has been stricken and a new section entitled "Repairs" has been added in its place. The new language requires repairs to Energy Storage Systems (ESS) to be done by qualified personnel. The section requires repairs with other than identical parts to be considered retrofitting and comply with Section 1206.3.7 and be documented in the service records log. This section has been modified to read: 1206.3.6 Repairs. Repairs of ESS shall only be done by qualified personnel. Repairs with other than identical parts shall be considered retrofitting and comply with Section 1206.3.7. Repairs shall be documented in the service records log.

(121) Section 1206.3.7 Retrofits. This section has been added to address retrofitting of existing Energy Storage Systems (ESS) and requires compliance with specific criteria. This section has been added to read: 1206.3.7 Retrofits. Retrofitting of an existing ESS shall comply with the following:

(A) A construction permit shall be obtained in accordance with Section 105.7.2.

(B) New batteries, battery modules, capacitors and similar ESS components shall be listed.

(C) Battery management and other monitoring systems shall be connected and installed in accordance with the manufacturer's instructions.

(D) The overall installation shall continue to comply with UL 9540 listing requirements, where applicable.

(E) Systems that have been retrofitted shall be commissioned in accordance with Section 1206.2.1.

(F) Retrofits shall be documented in the service records log.

(122) Section 1206.3.7.1 Retrofitting lead acid and nickel cadmium. This section has been added to specify Section 1206.3.7 will not apply to retrofitting of lead acid and nickel cadmium batteries with other lead acid and nickel cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76® and operate at less than 50 VAC and 60 VDC. This section has been added to read: 1206.3.7.1 Retrofitting lead acid and nickel cadmium batteries. Section 1206.3.7 shall not apply to retrofitting of lead acid and nickel cadmium batteries with other lead acid and nickel cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76® and operate at less than 50 VAC and 60 VDC.

(123) Section 1206.3.8 Replacements. This section has been added to specify replacement of Energy Storage Systems (ESS) shall be considered new ESS installations and shall comply with the provisions of Section 1206 as applicable to new ESS. The section requires the ESS being replaced to be decommissioned in accordance with Section 1206.2.3. This section has been added to read: 1206.3.8 Replacements. Replacements of ESS shall be considered new

ESS installations and shall comply with the provisions of Section 1206 as applicable to new ESS. The ESS being replaced shall be decommissioned in accordance with Section 1206.2.3. (124) Section 1206.3.9 Reused and repurposed equipment. This section has been added to specify equipment and materials can only be reused or reinstalled as permitted in Section 104.7.1. The section prohibits the use of storage batteries previously used in other applications such as electric vehicle propulsion from being reused in applications regulated by Chapter 12, unless approved by the fire code official and the equipment is refurbished by a battery refurbishing company approved in accordance with UL 1974. This section has been added to read: 1206.3.9 Reused and repurposed equipment. Equipment and materials shall only be reused or reinstalled as permitted in Section 104.7.1. Storage batteries previously used in other applications, such as electric vehicle propulsion, shall not be reused in applications regulated by Chapter 12 unless (1) approved by the fire code official and (2) the equipment is refurbished by a battery refurbishing company approved in accordance with UL 1974.

(125) Section 1206.4 General installation requirements. This section has been added to require stationary and mobile Energy Storage Systems (ESS) to comply with the requirements of Sections 1206.4.1 through 1206.4.12. This section has been added to read: 1206.4 General installation requirements. Stationary and mobile ESS shall comply with the requirements of Sections 1206.4.1 through 1206.4.12.

(126) Section 1206.4.1 Electrical disconnects. This section has been added to contain the previously numbered Section 1206.2.8.6.1 entitled "Electrical disconnects." The section has been modified to require when the Energy Storage System (ESS) disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of the stationary storage battery system disconnecting means in accordance with NFPA 70®. An exception is provided for disconnects of lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC to be permitted to have electrical disconnect signage in accordance with NFPA 76®. This section has been added to read: 1206.4.1 Electrical disconnects. Where the ESS disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of the stationary storage battery system disconnecting means in accordance with NFPA 70®. Exception: Electrical disconnects for lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC shall be permitted to have electrical disconnect signage in accordance with NFPA 76®.

(127) Section 1206.4.2 Working clearances. This section has been added to require access and working space to be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with NFPA 70® and the manufacturer's instructions. This section has been added to read: 1206.4.2 Working clearances. Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with NFPA 70® and the manufacturer's instructions.

(128) Section 1206.4.3 Fire-resistance rated separations. This section has been added to contain the previously numbered Section 1206.2.8, entitled "Separation." The section has

been modified to expand the section header and require rooms or other indoor areas containing Energy Storage Systems (ESS) to be separated from other areas of the building in accordance with Section 1206.7.4 and permit the ESS to be in the same room as the equipment they support. This section has been added to read: 1206.4.3 Fire-resistance rated separations. Rooms and other indoors containing ESS shall be separated from other rooms or areas of the building in accordance with Section 1206.7.4. ESS shall be permitted to be in the same room with the equipment they support.

(129) Section 1206.4.4 Seismic and structural design. This section has been added to contain the previously numbered Section 1206.2.4 entitled "Seismic and structural design." The section has been modified to require Energy Storage Systems (ESS) to comply with the seismic design requirements of Chapter 16 of the International Building Code® and not exceed the floor-loading limitation of the building. This section has been added to read: 1206.4.4 Seismic and structural design. ESS shall comply with the seismic design requirements of Chapter 16 of the International Building Code® and not exceed the floor-loading limitation of the building.

(130) Section 1206.4.5 Vehicle impact protection. This section has been added to contain the previously numbered Section 1206.2.5 entitled "Vehicle impact protection." The section has been modified to require Energy Storage Systems (ESS) subject to impact by a motor vehicle, including fork lifts, to provide vehicle impact protection in accordance with Section 312. This section has been added to read: 1206.4.5 Vehicle impact protection. Where ESS are subject to impact by a motor vehicle, including fork lifts, vehicle impact protection shall be provided in accordance with Section 312.

(131) Section 1206.4.6 Combustible storage. This section has been added to contain the previously numbered Section 1206.2.6 entitled "Combustible storage." This section has been modified to prohibit combustible material from being stored in ESS rooms, areas and walk-in units. The section further specifies combustible materials in occupied work centers covered by Section 1206.4.10 shall be stored at least 3 feet (915 mm) from ESS cabinets. This section has been added to read: 1206.4.6 Combustible storage. Combustible materials shall not be stored in ESS rooms, areas, or walk-in units. Combustible materials in occupied work centers covered by Section 1206.4.10 shall be stored at least 3 feet (915 mm) from ESS cabinets.

(132) Section 1206.4.7 Toxic and highly toxic gases. This section has been added to contain the previously numbered Section 1206.2.10.8 entitled "Toxic and highly toxic gas." This section has been modified to require Energy Storage Systems (ESS) having the potential to release toxic and highly toxic gases during charging, discharging and normal use conditions to be provided with a hazardous exhaust system in accordance with Section 502.8 of the International Mechanical Code®. This section has been added to read: 1206.4.7 Toxic and highly toxic gases. ESS that have the potential to release toxic and highly toxic gases during charging, discharging, and normal use conditions shall be provided with a hazardous exhaust system in accordance with Section 502.8 of the International Mechanical Code®.

(133) Section 1206.4.8 Signage. This section has been added to contain the previously numbered Section 1206.2.8.6 entitled "Signage." This section has been modified to require approved signs to be provide on or adjacent to all entry doors for Energy Storage System (ESS) rooms, areas and on all enclosures of ESS cabinets and walk-in units located outdoors, on rooftops or in open parking garages. The section requires the signs designed to meet both the requirements of this section and NFPA 70®, specifies the signage shall include specific verbiage or equivalent, and provides an exception for electrochemical ESS to be permitted to

include the signage required at the time they were installed. This section has been added to read: 1206.4.8 Signage. Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or areas and on all enclosures of ESS cabinets and walk-in units located outdoors, on rooftops 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:

(A) "Energy Storage System", "Battery Storage System", "Capacitor Energy Storage System", or the equivalent.

(B) The room contains energized electrical circuits. The identification of the electrochemical ESS technology present.

(C) "Energized electrical circuits".

(D) If water reactive electrochemical ESS are present the sign shall include "APPLY NO WATER".

(E) Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 1206.1.6.1.

(134) Exception: Existing electrochemical ESS shall be permitted to include the signage required at the time they were installed.

(135) Section 1206.4.9 Security of installations. This section has been added to require rooms, areas, or walk-in units in which electrochemical Energy Storage Systems (ESS) are located to be secured against unauthorized entry and safeguarded in an approved manner. The section prohibits security barriers, fences, landscaping, and other enclosures from inhibiting the required air flow to or exhaust from the electrochemical ESS and its components. This section has been added to read: 1206.4.9 Security of installations. Rooms, areas, or walk-in units in which electrochemical ESS are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping, and other enclosures shall not inhibit the required air flow to or exhaust from the electrochemical ESS and its components.

(136) Section 1206.4.10 Occupied work centers. This section has been added to contain the previously numbered Section 1206.2.8.5 entitled "Occupied work centers." This section has been modified to require electrochemical Energy Storage Systems (ESS) located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the system to be housed in locked noncombustible cabinets or other enclosures to prevent unauthorized access, require electrochemical ESS contained in cabinets in the occupied work centers to be located within 10 feet of the equipment they support, and requires the cabinets to include signage complying with Section 1206.4.8. This section has been added to read: 1206.4.10 Occupied work centers. Electrochemical ESS located in rooms or areas occupied by personnel not directly involved in the maintenance, service and testing of the system shall comply with the following:

(A) Electrochemical ESS located in occupied work centers shall be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.

(B) Where electrochemical ESS are contained in cabinets in occupied work centers, the cabinets shall be located within 10 feet (30548 mm) of the equipment they support.

(C) Cabinets shall include signage complying with Section 1206.4.8.

(137) Section 1206.4.11 Open rack installation. This section has been added to clarify where electrochemical Energy Storage Systems (ESS) are installed in a separate equipment room and only authorized personnel have access to the room, they shall be permitted to be installed

on an open rack for ease of maintenance. This section has been added to read: 1206.4.11 Open rack installation. Where electrochemical ESS are installed in a separate equipment room and only authorized personnel have access to the room, they shall be permitted to be installed on an open rack for ease of maintenance.

(138) Section 1206.4.12 Walk-in units. This section has been added to specify walk-in units shall only be entered for inspection, maintenance and repair of Energy Storage System (ESS) units and ancillary equipment and shall not be occupied for other purposes. This section has been added to read: 1206.4.12 Walk-in units. Walk-in units shall only be entered for inspection, maintenance and repair of ESS units and ancillary equipment and shall not be occupied for other purposes.

(139) Section 1206.4.13 Egress. This section has been added to clarify personnel door(s) intended for entrance and egress from rooms designated as Energy Storage System (ESS) rooms shall open in the direction of egress and shall be equipped with listed panic hardware or listed fire exit hardware. This section has been added to read: 1206.4.13 Egress. A personnel door(s) intended for entrance to and egress from rooms designated as ESS shall open in the direction of egress and shall be equipped with listed panic hardware or listed fire exit hardware.

(140) Section 1206.5 Electrochemical ESS protection. This section has been added to specify protection of electrochemical Energy Storage Systems (ESS) shall be in accordance with Sections 1206.5.1 through 1206.5.8 where required by Section 1206.7 through 1206.10. This section has been added to read: 1206.5 Electrochemical ESS Protection. The protection of electrochemical ESS shall be in accordance with Sections 1206.5.1 through 1206.5.8 where required by Section 1206.7 through 1206.10.

(141) Section 1206.5.1 Size and separation. This section has been added to specify electrochemical Energy Storage Systems (ESS) shall be segregated into groups not exceeding 50 kWh (180 Megajoules). The section requires each group to be separated a minimum of 3 feet (914 mm) from other groups and from walls in the storage room area and requires the storage arrangements to comply with Chapter 10. Two exceptions are provided; one for lead acid and nickel cadmium battery systems under the exclusive control of communication facilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76®, and the other for the fire code official to approve larger capacities or smaller separation distances based on large scale testing complying with Section 1206.1.5. The section has been added to read: 1206.5.1 Size and separation. Electrochemical ESS shall be segregated into groups not exceeding 50 kWh (180 Megajoules). Each group shall be separated a minimum 3 feet (914 mm) from other groups and from walls in the storage area or room. The storage arrangements shall comply with Chapter 10. Exceptions:

(A) Lead acid and nickel cadmium battery systems in facilities under the exclusive control of communications facilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76®.

(B) The fire code official is authorized to approve larger capacities or smaller separation distances based on large scale fire testing complying with Section 1206.1.5.

(142) Table 1206.5 Maximum Allowable Quantities of Electrochemical ESS. This table has been added to specify the maximum allowable quantities for different types of technologies and the amount of kilo watts per hour (kWh). The table has been added to read: Table 1206.5 Maximum Allowable Quantities of Electrochemical ESS. The table contains 12 rows with 2 columns each and two footnotes and is described below:

- (A) Row 1 is the header row and has header information in each of the two columns described below:
- (i) Row 1, column 1 header is entitled "TECHNOLOGY".
 - (ii) Row 1, column 2 header is entitled "MAXIMUM ALLOWABLE QUANTITIES" with a superscript "a" to indicate footnote "a" applies.
- (B) Row 2 contains the following information in each of the columns describe in the header row:
- (i) Row 2, column 1 lists the technology type subgroup of "STORAGE BATTERIES".
 - (ii) Row 2, column 2 is blank.
- (C) Row 3 contains the following information in each of the columns described in the header row:
- (i) Row 3, column 1 lists the technology type of "Lead acid, all types".
 - (ii) Row 3, column 2 lists the maximum allowable quantity of "Unlimited."
- (D) Row 4 contains the following information in each of the columns described in the header row:
- (i) Row 4, column 1 lists the technology type of "Nickel cadmium (Ni-Cd)".
 - (ii) Row 4, column 2 lists the maximum allowable quantity of "Unlimited."
- (E) Row 5 contains the following information in each of the columns described in the header row:
- (i) Row 4, column 1 lists the technology type of "Nickel metal hydride (Ni-MH)."
 - (ii) Row 4, column 2 lists the maximum allowable quantity of "Unlimited."
- (F) Row 6 contains the following information in each of the columns described in the header row:
- (i) Row 6, column 1 lists the technology type of "Lithium-ion."
 - (ii) Row 6, column 2 lists the maximum allowable quantity of "600 kWh."
- (G) Row 7 contains the following information in each of the columns described in the header row:
- (i) Row 7, column 1 lists the technology type of "Flow batteries" with a superscript "b" to indicate footnote "b" applies.
 - (ii) Row 7, column 2 lists the maximum allowable quantity of "600 kWh."
- (H) Row 8 contains the following information in each of the columns described in the header row:
- (i) Row 8, column 1 lists the technology type of "Other battery technologies."
 - (ii) Row 8, column 2 lists the maximum allowable quantity of "200 kWh."
- (I) Row 9 contains the following information in each of the columns describe in the header row:
- (i) Row 9, column 1 lists the technology type subgroup of "CAPACITORS".
 - (ii) Row 9, column 2 is blank.
- (J) Row 10 contains the following information in each of the columns described in the header row:
- (i) Row 10, column 1 lists the technology type of "All types."
 - (ii) Row 10, column 2 lists the maximum allowable quantity of "20 kWh."
- (K) Row 11 contains the following information in each of the columns described in the header row:

(i) Row 11, column 1 lists the technology type subgroup of "OTHER ELECTROCHEMICAL ESS."

(ii) Row 11, column 2 is blank.

(L) Row 12 contains the following information in each of the columns described in the header row:

(i) Row 12, column 1 lists the technology type of "All types."

(ii) Row 12, column 2 lists the maximum allowable quantity of "20 kWh."

(M) Footnote "a" states: "For electrochemical ESS units rated in Amp-Hours, kWh shall equal rated voltage times the Amp-hour rating divided by 1000."

(N) Footnote "b" states: "Shall include vanadium, zinc-bromide, polysulfide-bromide, and other flowing electrolyte type technologies."

(143) Section 1206.5.2 Maximum allowable quantities. This section has been added to contain the previously numbered Section 1206.2.9 entitled "Maximum allowable quantities." This section has been modified to clarify fire areas within rooms, areas and walk-in units containing electrochemical Energy Storage Systems (ESS) shall not exceed the maximum allowable quantities in Table 1206.4. Three exceptions are provided to allow the fire code official to approve electrochemical ESS amounts that exceed the amounts listed in Table 1206.5 under specific criteria; for lead-acid and nickel cadmium battery systems under the exclusive control of communications utilities; and for dedicated use buildings in compliance with Section 1206.7.1. This section has been added to read: 1206.5.2 Maximum allowable quantities. Fire areas within rooms, areas and walk-in units containing electrochemical ESS shall not exceed the maximum allowable quantities in Table 1206.5. Exceptions:

(A) Where approved by the fire code official, rooms, areas and walk-in units containing electrochemical ESS that exceed the amounts in Table 1206.5 shall be permitted based on a hazardous mitigation analysis in accordance with Section 1206.1.4 and large scale fire testing complying with Section 1206.1.5.

(B) Lead-acid and nickel cadmium battery systems installed in facilities under the exclusive control of communications utilities, operating at less than 50 VAC and 60 VDC in accordance with NFPA 76®.

(C) Dedicated use buildings in compliance with Section 1206.7.1.

(144) Section 1206.5.2.1. Mixed electrochemical energy systems. This section has been added to contain the previously numbered Section 1206.2.9.1 entitled "Mix battery systems." The section has been modified to change the section header and require in rooms, areas, and walk-in units that contain different types of electrochemical energy technologies, the total aggregate quantities of the systems to be determined based on the sum of percentages of each technology type quantity divided by the maximum allowable quantity of each technology type. The section specifies the sum of the percentages shall not exceed 100 percent of the maximum allowable quantity. This section has been added to read: 1206.5.2.1 Mixed electrochemical energy systems. Where rooms, areas and walk-in units contain different types of electrochemical energy technologies, the total aggregate quantities of the systems shall be determined based on the sum of percentages of each technology type quantity divided by the maximum allowable quantity of each technology type. The sum of the percentages shall not exceed 100 percent of the maximum allowable quantity.

(145) Section 1206.5.3 Elevation. This section has been added to specify where electrochemical Energy Storage Systems (ESS) may not be located. Three exceptions are provided for lead acid and nickel cadmium battery systems under the exclusive control of

communications utilities; where approved installations shall be permitted in underground vaults complying with NFPA 70; and installations permitted on higher or lower floors, when approved by the fire code official. This section has been added to read: 1206.5.3

Electrochemical ESS shall not be located in the following areas:

(A) Where the floor is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, or

(B) Where the floor is located below the lowest level of exit discharge.

(C) Exceptions:

(i) Lead acid and Nickel cadmium battery systems less than 50 VAC and 60 VDC installed in facilities under the exclusive control of communications utilities in accordance with NFPA 76.

(ii) Where approved, installations shall be permitted in underground vaults complying with NFPA 70, Article 450, Part III.

(iii) Where approved by the fire code official, installations shall be permitted on higher and lower floors.

(146) Section 1206.5.4 Fire detection. This section has been added to contain the previously numbered Section 1206.2.11" entitled "Fire extinguishing and detection systems." The section has been modified to change the section heading name to "Fire detection," and require an approved automatic smoke detection system or radiant energy-sensing fire detection system complying with Section 907.2 to be installed in rooms, indoor areas, and walk-in units containing electrochemical ESS. The section requires an approved radiant energy-sensing fire detection system to be installed to protect open parking garage and rooftop installations, and requires alarm signals from detection systems to be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72®, or where approved to a constantly attended location This section has been added to read: 1206.5.4 Fire detection. An approved automatic smoke detection system or radiant energy-sensing fire detection system complying with Section 907.2 shall be installed in rooms, indoor areas, and walk-in units containing electrochemical ESS. An approved radiant energy-sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or where approved to a constantly attended location.

(147) Section 1206.5.4.1 System status. This section has been added to specify where required by the fire code official, visible annunciation shall be provided on cabinet exteriors or in other approved locations to indicate that potentially hazardous conditions associated with Energy Storage Systems (ESS) exists. This section has been added to read: 1206.5.4.1 System status. Where required by the fire code official, visible annunciation shall be provided on cabinet exteriors or in other approved locations to indicate that potentially hazardous conditions associated with the ESS exist.

(148) Section 1206.5.5 Fire suppression systems. This section has been added to contain the previously numbered Section 1206.2.11.1 entitled "Fire extinguishing systems." The section has been modified to require rooms and areas within buildings and walk-in units containing electrochemical Energy Storage Systems (ESS) to be protected by an automatic fire suppression system designed and installed in accordance with specific criteria and provides an exception for fire suppression systems for lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities that operate at less than

50 VAC and 60 VCD. This section has been added to read: 1206.5.5 Fire suppression systems. Rooms and areas within buildings and walk-in units containing electrochemical ESS shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following:

(A) An automatic sprinkler systems designed and installed in accordance with Section 903.3.1.1 with a minimum density of 0.3 gpm divided by square foot based on the fire area or 2,500 square foot design area, whichever is smaller.

(B) Where approved, an automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a sprinkler hazard classification based on large scale fire testing complying with Section 1206.1.5.

(C)The following alternate automatic fire extinguishing systems designed and installed in accordance with Section 904, provided the installation is approved by the fire code official based on large scale fire testing complying with Section 1206.1.5

(i) NFPA 12®, Standard on Carbon Dioxide Extinguishing Systems

(ii) NFPA 15®, Standard for Water Spray Fixed Systems for Fire Protection

(iii) NFPA 750®, Standard on Water Mist Fire Protection Systems

(iv) NFPA 2001®, Standard on Clean Agent Fire Extinguishing Systems

(v) NFPA 2010®, Standard for Fixed Aerosol Fire-Extinguishing Systems

(D) Exception: Fire suppression systems for lead acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities that operate at less than 50 VAC and 60 VDC shall be provided where required by NFPA 76®.

(149) Section 1206.5.5.1 Water reactive systems. This section has been added to contain the previously numbered Section 1206.2.11.1.1 entitled "Alternative fire-extinguishing systems." The section has been modified to require electrochemical Energy Storage Systems (ESS) that utilize water reactive materials to be protected by an approved alternative automatic fire-extinguishing system in accordance with Section 904, where the installation is approved by the fire code official based on large scale fire testing complying with Section 1206.1.5. This section has been added to read: 1206.5.5.1 Water reactive systems. Electrochemical ESS that utilize water reactive materials shall be protected by an approved alternative automatic fire-extinguishing system in accordance with Section 904, where the installation is approved by the fire code official based on large scale fire testing complying with Section 1206.1.5.

(150) Section 1206.5.6 Maximum enclosure size. This section has been added to clarify the size limitations on outdoor walk-in units housing Energy Storage Systems (ESS) not exceed 53 feet by 8 feet by 9.5 feet high, not including bolt-on HVAC and related equipment, as approved. The section requires outdoor walk-in units exceeding the size limitations to be considered indoor installations and comply with the requirements of Section 1206.7. This section has been added to read: 1206.5.6 Maximum enclosure size. Outdoor walk-in units housing ESS shall not exceed 53 feet by 8 feet by 9.5 feet high, not including bolt-on HVAC and related equipment, as approved. Outdoor walk-in units exceeding these limitations shall be considered indoor installations and comply with the requirements in Section 1206.7.

(151) Section 1206.5.7 Vegetation control. This section has been added to clarify areas within 10 feet (3 m) on each side of outdoor Energy Storage Systems (ESS) be cleared of combustible vegetation and other combustible growth. The section specifies single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground cover shall be permitted to be exempt provided that they do not form a means of readily transmitting fire. This section has been added to read: 1206.5.7 Vegetation

control. Areas within 10 feet (3 m) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted to be exempt provided that they do not form a means of readily transmitting fire.

(152) Section 1206.5.8 Means of egress separation. This section has been added to contain the previously numbered Section 1206.2.8.7.2 entitled "Means of egress." The section has been modified to require Energy Storage Systems (ESS) located outdoors and in open parking garages to 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 (3058 mm). The section provides an exception for the fire code official to authorize a reduced separation distance if large-scale fire testing complying with Section 1206.1.5 is provided that shows that a fire involving the ESS will not adversely impact occupant egress. This section has been added to read: 1206.5.8 Means of egress separation. ESS located outdoors and in open parking garages shall be separated from any means of egress as required by the fire code official to ensure safe egress under fire conditions, but in no case less than 10 feet (3048 mm). Exception: The fire code official is authorized to approve a reduced separation distance if large-scale fire testing complying with Section 1206.1.5 is provided that shows that a fire involving the ESS will not adversely impact occupant egress.

(153) Section 1206.6 Electrochemical ESS technology specific protection. This section has been added to require electrochemical Energy Storage Systems (ESS) to comply with the requirements of this section in accordance with the applicable requirements of Table 1206.6. This section has been added to read: 1206.6 Electrochemical ESS technology specific protection. Electrochemical ESS installations shall comply with the requirements of this section in accordance with the applicable requirements of Table 1206.6.

(154) Table 1206.6 Electrochemical ESS Technology Specific Requirements. This table has been added to provide guidance for different battery types and which sections of this code they are required to comply with. The table has been added to read: 1206.6 Electrochemical ESS Technology Specific Requirements. The table contains 6 rows and 7 columns and has five footnotes. The table and footnotes are described below:

(A) Row 1 is the header row and lists the seven column headings as described below:

(i) Row 1, column 1 lists the header "Compliance Required" with a superscript "b" to indicate footnote "b" applies.

(ii) Row 1, column 2 lists the header "Battery Technology Lead-Acid."

(iii) Row 1, column 3 lists the header "Battery Technology Ni-Cad and Ni-MH."

(iv) Row 1, column 4 lists the header "Battery Technology Lithium-ion."

(v) Row 1, column 5 lists the header "Battery Technology Flow."

(vi) Row 1, column 6 lists the header "Other ESS and Battery Technologies" with a superscript "b" to indicate footnote "b" applies.

(vii) Row 1, column 7 lists the header "Capacitor ESS" with a superscript "b" to indicate footnote "b" applies.

(B) Row 2 lists the following for the seven columns:

(i) Row 2, column 1 lists "1206.6.1 Exhaust ventilation."

(ii) Row 2, column 2 lists "Yes."

(iii) Row 2, column 3 lists "Yes."

(iv) Row 2, column 4 lists "No."

- (v) Row 2, column 5 lists "Yes."
- (vi) Row 2, column 6 lists "Yes."
- (vii) Row 2, column 7 "Yes."
- (C) Row 3 lists the following for the seven columns:
 - (i) Row 3, column 1 lists "1206.6.2 Spill control and neutralization."
 - (ii) Row 3, column 2 lists "Yes" with a superscript "c" to indicate footnote "c" applies.
 - (iii) Row 3, column 3 lists "Yes" with a superscript "c" to indicate footnote "c" applies.
 - (iv) Row 3, column 4 lists "No."
 - (v) Row 3, column 5 lists "Yes."
 - (vi) Row 3, column 6 lists "Yes."
 - (vii) Row 3, column 7 "Yes."
- (D) Row 4 lists the following for the seven columns:
 - (i) Row 4, column 1 lists "1206.6.3 Explosion control."
 - (ii) Row 4, column 2 lists "Yes" with a superscript "a" to indicate footnote "a" applies.
 - (iii) Row 4, column 3 lists "Yes" with a superscript "a" to indicate footnote "a" applies.
 - (iv) Row 4, column 4 lists "Yes."
 - (v) Row 4, column 5 lists "No."
 - (vi) Row 4, column 6 lists "Yes."
 - (vii) Row 4, column 7 "Yes."
- (E) Row 5 lists the following for the seven columns:
 - (i) Row 5, column 1 lists "1206.6.4 Safety caps."
 - (ii) Row 5, column 2 lists "Yes."
 - (iii) Row 5, column 3 lists "Yes."
 - (iv) Row 5, column 4 lists "No."
 - (v) Row 5, column 5 lists "No."
 - (vi) Row 5, column 6 lists "Yes."
 - (vii) Row 5, column 7 "Yes."
- (F) Row 6 lists the following for the seven columns:
 - (i) Row 6, column 1 lists "1206.6.5 Thermal runaway."
 - (ii) Row 6, column 2 lists "Yes" with a superscript "d" to indicate footnote "d" applies.
 - (iii) Row 6, column 3 lists "Yes."
 - (iv) Row 6, column 4 lists "Yes" with a superscript "e" to indicate footnote "e" applies.
 - (v) Row 6, column 5 lists "No."
 - (vi) Row 6, column 6 lists "Yes" with a superscript "e" to indicate footnote "e" applies.
 - (vii) Row 6, column 7 "Yes."
- (G) Footnote "a" states: "Not required for lead-acid and nickel cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76® and operate at less than 50 VAC and 60 VDC."

(H) Footnote "b" states: "Protection shall be provided unless documentation acceptable to the fire code official is provided in accordance with Section 104.7.2 that provides justification why the protection is not necessary based on the technology used."

(I) Footnote "c" states: "Applicable to vented (i.e. flooded) type nickel cadmium and lead acid batteries."

(J) Footnote "d" states: "Not required for vented (i.e. flooded) type lead acid batteries."

(K) Footnote "e" states: "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."

(155) Section 1206.6.1 Exhaust ventilation. This section has been modified to change the section number from "1206.2.11.5" to "1206.6.1," change the section heading from "Ventilation" to "Exhaust ventilation" and clarify where required by Table 1206.6 or elsewhere in this code, exhaust ventilation of rooms, areas, and walk-in units containing electrochemical Energy Storage Systems (ESS) shall be provided in accordance with the International Mechanical Code® and Section 1206.6.1.1 or 1206.1.2. This section has been added to read: 1206.6.1 Exhaust ventilation. Where required by Table 1206.6 or elsewhere in this code, exhaust ventilation of rooms, areas, and walk-in units containing electrochemical ESS shall be provided in accordance with the International Mechanical Code® and Section 1206.6.1.1 or 1206.6.1.2.

(156) Section 1206.6.1.1 Ventilation based on LFL. This section has been added to clarify the exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammable limit (LFL) of the total volume of the room, area, or walk-in unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards. This section has been added to read: 1206.6.1.1 Ventilation based on LFL. The exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammable limit (LFL) of the total volume of the room, area, or walk-in unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards.

(157) Section 1206.6.1.2 Ventilation based upon exhaust rate. This section has been added to clarify mechanical exhaust ventilation shall be provided at a rate of not less than 1 cubic foot divided by min divided by square feet (5.1 L divided by sec divided by square meter) of floor area of the room, area or walk-in unit. The section requires the ventilation to be either continuous or be activated by a gas detection system in accordance with Section 1206.1.2.4. This section has been added to read: 1206.6.1.2 Ventilation based upon exhaust rate. Mechanical exhaust ventilation shall be provided at a rate of not less than 1 cubic foot divided by min divided by square feet (5.1 L divided by sec divided by square meter) of floor area of the room, area or walk-in unit. The ventilation shall be either continuous or shall be activated by a gas detection system in accordance with Section 1206.1.2.4.

(158) Section 1206.6.1.2.1 Standby power. This section has been added to require mechanical exhaust ventilation to be provided with a minimum of two hours of standby power in accordance with Section 1203.2.5. This section has been added to read: 1206.1.2.1 Standby power. Mechanical exhaust ventilation shall be provided with a minimum of two hours of standby power in accordance with Section 1203.2.5.

(159) Section 1206.6.1.2.2 Installation instructions. This section has been added to require mechanical exhaust ventilation systems to be installed in accordance with the manufacturer's

installation instructions and the International Mechanical Code®. This section has been added to read: 1206.6.1.2.2 Installation instructions. Mechanical exhaust ventilation systems shall be installed in accordance with the manufacturer's installation instructions and the International Mechanical Code®.

(160) Section 1206.6.1.2.3 Supervision. This section has been added to contain the previously numbered Section 1206.2.11.3.2 entitled "Supervision." The section has been modified to clarify required mechanical exhaust ventilation systems to be supervised by an approved central location, proprietary or remote station service in accordance with NFPA 72®, or shall initiate an audible and visual signal at an approved constantly attended on-site location. This section has been added to read: 1206.6.2.3 Supervision. Required mechanical exhaust ventilation systems shall be supervised by an approved central station, proprietary or remote station service in accordance with NFPA 72®, or shall initiate an audible and visual signal at an approved constantly attended on-site location.

(161) Section 1206.6.1.2.4 Gas detection system. This section was added to contain the previously numbered Section 1206.2.11.4 entitled "Gas detection system." The section has been modified to clarify when required by Section 1206.6.1.2, rooms, areas and walk-in units containing Energy Storage Systems (ESS) shall be protected by an approved continuous gas detection system that complies with Section 916 and four additional criteria. This section has been added to read: 1206.6.1.2.4 Gas detection system. Where required by Section 1206.6.1.2, rooms, areas and walk-in units containing ESS shall be protected by an approved continuous gas detection system that complies with Section 916 and with the following:

(A) The gas detection system shall be designed to activate the mechanical ventilation system when the level of flammable gas in the room, area or walk-in unit exceeds 25 percent of the LFL.

(B) The mechanical ventilation system shall remain on until the flammable gas detected is less than 25 percent of the LFL.

(C) The gas detection system shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.6.

(D) Failure of the gas detection system shall annunciate a trouble signal at an approved central station, proprietary or remote station service in accordance with NFPA 72®, or shall initiate an audible and visual trouble signal at an approved constantly attended on-site location.

(162) Section 1206.6.2 Spill control and neutralization. This section has been added to contain the previously numbered Section 1206.2.11.5 entitled "Spill control and neutralization." The section clarifies, where required by Table 1206.6 or elsewhere in the code, areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with this section. This section has been added to read: 1206.6.2 Spill control and neutralization. Where required by Table 1206.6 or elsewhere in this code, areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with this section.

(163) Section 1206.6.2.1 Spill control. This section has been added to require spill control to prevent the flow of liquid electrolyte or hazardous materials to adjoining rooms or areas. The section requires the method to be capable of containing a spill from the largest battery or vessel. This section has been added to read: 1206.6.2.1 Spill control. Spill control shall be provided to prevent the flow of liquid electrolyte or hazardous materials to adjoining rooms

or areas. The method shall be capable of containing a spill from the single largest battery or vessel.

(164) Section 1206.6.2.2 Neutralization. This section has been added to specify an approved method to neutralize spilled liquid electrolyte shall be provided that is capable of neutralizing a spill from the largest battery or vessel to a pH between 5.0 and 9.0. This section has been added to read: 1206.6.2.2 Neutralization. An approved method to neutralize spilled liquid electrolyte shall be provided that is capable of neutralizing a spill from the largest battery or vessel to a pH between 5.0 and 9.0.

(165) Section 1206.6.2.3 Communication Utilities. This section has been added to specify the requirements of Section 1206.6.2 only apply where the aggregate capacity of multiple vessels exceeds 1,000 gallons (3785 L) for lead acid and nickel cadmium battery systems operating at less than 50 VAC and 60 VDC that are located at facilities under the exclusive control of communication utilities and those facilities comply with NFPA 76® in addition to applicable requirements of this code. This section has been added to read: 1206.6.2.3 Communication Utilities. The requirements of Section 1206.6.2 only apply where the aggregate capacity of multiple vessels exceeds 1,000 gallons (3785 L) for lead acid and nickel cadmium battery systems operating at less than 50 VAC and 60 VDC that are located at facilities under the exclusive control of communication utilities and those facilities comply with NFPA 76® in addition to applicable requirements of this code.

(166) Section 1206.6.3 Explosion control. This section has been added to clarify when required by Table 1206.6 or elsewhere in this code, explosion control complying with Section 911 shall be provided for rooms, areas or walk-in units containing electrochemical Energy Storage Systems (ESS). Two exceptions have been provided to allow the fire code official to waive the explosion control under two specific circumstances. This section has been added to read: 1206.6.3 Explosion control. Where required by Table 1206.6 or elsewhere in this code, explosion control complying with Section 911 shall be provided for rooms, areas or walk-in units containing electrochemical ESS. Exceptions:

(A) Where approved, explosion control is permitted to be waived by the fire code official based on large scale fire testing complying with Section 1206.1.5 which demonstrates that flammable gases are not liberated from electrochemical ESS cells or modules where tested in accordance with UL 9540A.

(B) Where approved, explosion control is permitted to be waived by the fire code official based on documentation provided in accordance with Section 104.7 that demonstrates that the electrochemical ESS technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area or walk-in unit or structure under thermal runaway or other fault conditions.

(167) Section 1206.6.4 Safety caps. This section has been added to contain the previously numbered Section 1206.2.10.6 entitled "Safety caps." The section has been modified to specify where required by Table 1206.6 or elsewhere in this code, vented batteries and other Energy Storage Systems (ESS) shall be provided with flame-arresting safety caps. This section has been added to read: 1206.6.4 Safety caps. Where required by Table 1206.6 or elsewhere in this code, vented batteries and other ESS shall be provided with flame-arresting safety caps.

(168) Section 1206.6.5 Thermal runaway. This section has been added to contain the previously numbered Section 1206.2.10.7. The section has been modified to specify where required by Table 1206.6 and elsewhere in this code, batteries and other Energy Storage

Systems (ESS) shall be provided with a listed device or other approved method to prevent, detect and minimize the impact of thermal runaway. This section has been added to read: 1206.6.5 Thermal runaway. Where required by Table 1206.6 or elsewhere in this code, batteries and other ESS shall be provided with a listed device or other approved method to prevent, detect and minimize the impact of thermal runaway.

(169) Section 1206.7 Indoor installations. This section has been added to require indoor Energy Storage Systems (ESS) installations to be in accordance with Sections 1206.7.1 through 1206.7.4. This section has been added to read: 1206.7 Indoor installations. Indoor ESS shall be in accordance with Sections 1206.7.1 through 1206.7.4.

(170) Section 1206.7.1 Dedicated use buildings. This section has been added to clarify for the purpose of Table 1206.7 dedicated use Energy Storage System (ESS) buildings shall be classified as Group F-1 occupancies and shall comply with specific criteria. This section has been added to read: 1206.7.1 Dedicated use buildings. For the purpose of Table 1206.7 dedicated use ESS buildings shall be classified as Group F-1 occupancies and comply with all of the following:

(A) The building shall only be used for ESS, electrical energy generation, and other electrical grid related operations.

(B) Occupants in the room and areas containing ESS are limited to personnel that operate, service, test and repair the ESS and other energy systems.

(C) No other occupancy types shall be permitted in the building.

(D) Administrative and support personnel shall be permitted in areas within the buildings that do not contain ESS provided:

(i) The areas do not occupy more than 10 percent of the building area of the story in which they are located.

(ii) A means of egress is provided from the incidental use areas to the public way that does not require the occupants to traverse through areas containing ESS or other energy system equipment.

(171) Section 1206.7.2 Non-dedicated use buildings. This section has been added to clarify for the purpose of Table 1206.7 non-dedicated use buildings include all use buildings that contain Energy Storage Systems (ESS) that contain ESS and do not comply with Section 1206.7.1 dedicated use building requirements. This section has been added to read: 1206.7.2 Non-dedicated use buildings. For the purpose of Table 1206.7, non-dedicated use buildings include all buildings that contain ESS and do not comply with Section 1206.7.1 dedicated use buildings.

(172) Table 1206.7 Indoor ESS Installations. This table has been added to clarify the compliance required for dedicated and non-dedicated use buildings under specific sections of this chapter. The table has been added to read: Table 1206.7 Indoor ESS Installations. The table contains 10 rows with 3 columns per row and has five footnotes and is described below:

(A) Row 1 is the header row and contains the three column headings described below:

(i) Row 1, column 1 is entitled "Compliance Required."

(ii) Row 1, column 2 is entitled "Dedicated Use Buildings" with a superscript "a" to indicate footnote "a" applies.

(iii) Row 1, column 3 is entitled "Non-Dedicated Use Buildings" with a superscript "b" indicate footnote "b" applies.

(B) Row 2 contains the following information in each of the three columns:

(i) Row 2, column 1 contains the wording "1206.4 General installation requirements."

- (ii) Row 2, column 2 contains the word "Yes."
 - (iii) Row 2, column 3 contains the word "Yes."
- (C) Row 3 contains the following information in each of the three columns:
 - (i) Row 3, column 1 contains the wording "1206.5.1 Size and separation."
 - (ii) Row 3, column 2 contains the word "Yes."
 - (iii) Row 3, column 3 contains the word "Yes."
- (D) Row 4 contains the following information in each of the three columns:
 - (i) Row 4, column 1 contains the wording "1206.5.2 Maximum allowable quantities."
 - (ii) Row 4, column 2 contains the word "No."
 - (iii) Row 4, column 3 contains the word "Yes."
- (E) Row 5 contains the following information in each of the three columns:
 - (i) Row 5, column 1 contains the wording "1206.5.3 Elevation."
 - (ii) Row 5, column 2 contains the word "Yes."
 - (iii) Row 5, column 3 contains the word "Yes."
- (F) Row 6 contains the following information in each of the three columns:
 - (i) Row 6, column 1 contains the wording "1206.5.4 Smoke and automatic fire detection" with a superscript "e" to indicate footnote "e" applies.
 - (ii) Row 6, column 2 contains the word "Yes" with a superscript "c" to indicate footnote "c" applies.
 - (iii) Row 6, column 3 contains the word "Yes."
- (G) Row 7 contains the following information in each of the three columns:
 - (i) Row 7, column 1 contains the wording "1206.5 Fire suppression systems."
 - (ii) Row 7, column 2 contains the word "Yes" with a superscript "d" to indicate footnote "d" applies.
 - (iii) Row 7, column 3 contains the word "Yes."
- (H) Row 8 contains the following information in each of the three columns:
 - (i) Row 8, column 1 contains the wording "1206.7.3 Dwelling units and sleeping units."
 - (ii) Row 8, column 2 contains the letters "NA."
 - (iii) Row 8, column 3 contains the word "Yes."
- (I) Row 9 contains the following information in each of the three columns:
 - (i) Row 9, column 1 contains the wording "1206.7.4 Fire-resistance rated separations."
 - (ii) Row 9, column 2 contains the word "Yes."
 - (iii) Row 9, column 3 contains the word "Yes."
- (J) Row 10 contains the following information in each of the three columns:
 - (i) Row 10, column 1 contains the wording "1206.6 Technology specific protection."
 - (ii) Row 10, column 2 contains the word "Yes."
 - (iii) Row 10, column 3 contains the word "Yes."
- (K) Following the table is the wording "NA equals Not allowed."
- (L) Footnote "a" states: "See Section 1206.7.1."
- (M) Footnote "b" states: "See Section 1206.7.2."
- (N) Footnote "c" states: "Where approved by the fire code official, alarm signals are not required to be transmitted to a central stations, proprietary or remote station service in accordance with NFPA 72®, or a constantly attended location where local fire alarm annunciation is provided and trained personnel are always present."

(O) Footnote "d" states: "Where approved by the fire code official, fire suppression systems are permitted to be omitted in dedicated use buildings located more than 100 feet (30.5 M) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high piled stock and other exposure hazards.

(P) Footnote "e" states: "Lead-acid and nickel cadmium battery systems installed in Group U buildings and structures less than 1500 square feet (140 square meters) under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76® are not required to have an approved automatic smoke or fire detection system.

(173) Section 1206.7.3 Dwelling units and sleeping units. This section has been added to prohibit Energy Storage Systems (ESS) from being installed in sleeping units or in habitable spaces of dwelling units. This section has been added to read: 1206.7.3 Dwelling units and sleeping units. ESS shall not be installed in sleeping units or in habitable spaces of dwelling units.

(174) Section 1206.7.4 Fire-resistance rated separations. This section has been added to contain the previously numbered Section 1206.3.2.2 entitled "Separation." The section has been modified to clarify the specifications for fire-resistance rated separations in both dedicated and non dedicated use buildings, rooms and areas containing Energy Storage Systems (ESS). The section requires separation to be provided by 2 hour rated fire barriers and 2 hour rated horizontal assemblies constructed in accordance with Sections 707 and 711 of the International Building Code®, as appropriate. This section has been added to read: 1206.7.4 Fire-resistance rated separations. Rooms and areas containing ESS shall include fire-resistance rated separations as follows:

(A) In dedicated use buildings, rooms and areas containing ESS shall be separated from areas in which administrative and support personnel are located.

(B) In non-dedicated use buildings, rooms and areas containing ESS shall be separated from other areas in the building

(175) Separation shall be provided by 2 hour rated fire barriers constructed in accordance with Section 707 of the International Building Code® and 2 hour rated horizontal assemblies constructed in accordance with 711 of the International Building Code®, as appropriate.

(176) Section 1206.8 Outdoor installations. This section has been added to combine and contain the previously numbered Sections "1206.2.8.7" and "1206.3.2.6" both entitled "Outdoor installations." This section has been modified to clarify outdoor installations shall be in accordance with Sections 1206.8.1 through 1206.8.3. The section requires exterior wall installations for individual Energy Storage Systems (ESS) not exceeding 20 kWh to be in accordance with Section 1206.8.4 and deletes the exception that existed in the previously numbered section 1206.2.8.7. This section has been added to read: 1206.8 Outdoor installations. Outdoor installations shall be in accordance with Sections 1206.8.1 through 1206.8.3. Exterior wall installations for individual ESS units not exceeding 20 kWh shall be in accordance with Section 1206.8.4.

(177) 1206.8.1 Remote outdoor installations. This section has been added to clarify for the purpose of Table 1206.8, remote outdoor installations include Energy Storage Systems (ESS) located more than 100 feet (30.5 M) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high piled stock and other exposure hazards. This section has been added to read: 1206.8.1 Remote outdoor installations. For the purpose of Table 1206.8, remote outdoor installations include ESS located more than 100 feet (30.5

M) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high piled stock and other exposure hazards.

(178) Section 1206.8.2 Installations near exposures. This section specifies the purposes of Table 1206.8, installations near exposures include all outdoor Energy Storage Systems (ESS) that do not comply with Section 1206.8.1 remote outdoor location requirements. This section has been added to read: 1206.8.2 Installations near exposures. For the purpose of Table 1206.8, installations near exposures include all outdoor ESS that do not comply with Section 1206.8.1 remote outdoor location requirements.

(179) Table 1206.8 Outdoor ESS Installations. This table has been added to clarify the compliance required for remote installations and installations near exposures under specific sections of this chapter. The table has been added to read: Table 1206.8 Outdoor ESS Installations with a superscript "a" to indicate footnote "a" applies to the entire table. The table contains 11 rows with 3 columns per row and 4 footnotes. The table and footnotes are described below:

(A) Row 1 is the header row and contains the three column headings described below:

(i) Row 1, column 1 is entitled "Compliance Required."

(ii) Row 1, column 2 is entitled "Remote installations" with a superscript "a" to indicate footnote "a" applies.

(iii) Row 1, column 3 is entitled "Installations near exposures" and has a superscript "b" to indicate footnote "b" applies.

(B) Row 2 contains the following information in each of the three columns:

(i) Row 2, column 1 contains the wording "1206.4 All ESS installations."

(ii) Row 2, column 2 contains the word "Yes."

(iii) Row 2, column 3 contains the word "Yes."

(C) Row 3 contains the following information in each of the three columns:

(i) Row 3, column 1 contains the wording "1206.5.1 Size and separation."

(ii) Row 3, column 2 contains the word "No."

(iii) Row 3, column 3 contains the word "Yes" with a superscript "c" to indicate footnote "c" applies.

(D) Row 4 contains the following information in each of the three columns:

(i) Row 4, column 1 contains the wording "1206.5.2 Maximum allowable quantities."

(ii) Row 4, column 2 contains the word "No."

(iii) Row 4, column 3 contains the word "Yes."

(E) Row 5 contains the following information in each of the three columns:

(i) Row 5, column 1 contains the wording "1206.5.4 Smoke and automatic fire detection."

(ii) Row 5, column 2 contains the word "Yes."

(iii) Row 5, column 3 contains the word "Yes."

(F) Row 6 contains the following information in each of the three columns:

(i) Row 6, column 1 contains the wording "1206.5 Fire suppression systems."

(ii) Row 6, column 2 contains the word "Yes" with a superscript "d" to indicate footnote "d" applies.

(iii) Row 6, column 3 contains the word "Yes."

(G) Row 7 contains the following information in each of the three columns:

(i) Row 7, column 1 contains the wording "1206.5.6 Maximum enclosure size."

(ii) Row 7, column 2 contains the letters "Yes."

- (iii) Row 7, column 3 contains the word "Yes."
- (H) Row 8 contains the following information in each of the three columns:
- (i) Row 8, column 1 contains the wording "1206.5.7 Vegetation Control."
 - (ii) Row 8, column 2 contains the word "Yes."
 - (iii) Row 8, column 3 contains the word "Yes."
- (I) Row 9 contains the following information in each of the three columns:
- (i) Row 9, column 1 contains the wording "1206.5.8 Means of egress separation."
 - (ii) Row 9, column 2 contains the word "Yes."
 - (iii) Row 9, column 3 contains the word "Yes."
- (J) Row 10 contains the following information in each of the three columns:
- (i) Row 10, column 1 contains the wording "1206.8.3 Clearance to exposures."
 - (ii) Row 10, column 2 contains the word "Yes."
 - (iii) Row 10, column 3 contains the word "Yes."
- (K) Row 11 contains the following information in each of the three columns:
- (i) Row 11, column 1 contains the wording "1206.6 Technology specific protection."
 - (ii) Row 11, column 2 contains the word "Yes."
 - (iii) Row 11, column 3 contains the word "Yes."
- (L) Footnote "a" states: "See Section 1206.8.1."
- (M) Footnote "b" states: "See Section 1206.8.2."
- (N) Footnote "c" states: "In outdoor walk-in units, spacing is not required between ESS units and the walls of the enclosure."
- (O) Footnote "d" states: "Where approved by the fire code official, fire suppression systems are permitted to be omitted."
- (180) Section 1206.8.3 Clearance to exposures. This section has been added to contain the previously numbered Section 1206.2.6.1, entitled "Separation" The section has been modified to clarify Energy Storage Systems (ESS) located outdoors are required to be separated by a minimum of 10 feet (3048 mm) from a list of specific exposures with three exceptions to allow the clearances to be reduced when certain criteria is met. This section has been added to read: 1206.8.3 Clearance to exposures. ESS located outdoors shall be separated by a minimum of ten feet (3048 mm) from the following exposures:
- (A) Lot lines
 - (B) Public ways
 - (C) Buildings
 - (D) Stored combustible materials
 - (E) Hazardous materials
 - (F) High-piled stock
 - (G) Other exposure hazards
- (181) Exceptions:
- (A) Clearances are permitted to be reduced to 3 feet (914mm) where a 1-hour free standing fire barrier, suitable for exterior use, and extending 5 feet (1524 mm) above and extending 5 feet (1524 mm) beyond the physical boundary of the ESS installations is provided to protect the exposure.
 - (B) Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where noncombustible exterior walls with no openings or combustible overhangs are provided on the wall adjacent to the ESS and the fire-resistance rating of the exterior wall is a minimum 2 hours.

(C) Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large scale fire testing comply with Section 1206.1.5.

(182) Section 1206.8.4 Exterior wall installations. This section has been added to clarify Energy Storage Systems (ESS) shall be permitted to be installed outdoors on exterior walls of buildings when specific criteria is met. The change provides one exception for smaller separation distances when approved based on large sale fire testing complying with Section 1206.1.5. This section has been added to read: 1206.6.8.4 Exterior wall installations. ESS shall be permitted to be installed outdoors on exterior walls of buildings when all of the following conditions are met:

(A) The maximum energy capacity of individual ESS units shall not exceed 20 kWh.

(B) The ESS shall comply with applicable requirements in Section 1206.

(C) The ESS shall be installed in accordance with the manufacturer's instructions and their listing.

(D) Individual ESS units shall be separated from each other by at least 3 feet (914 mm).

(E) The ESS shall be separated from doors, windows, operable openings into the buildings or HVAC inlets by at least 5 feet (1524 mm).

(183) Exception: Where approved, smaller separation distances in items 4 and 5 shall be permitted based on large scale fire testing complying with Section 1206.1.5.

(184) Section 1206.9 Special installations. This section has been added to clarify rooftop and open parking garage Energy Storage Systems (ESS) shall comply with Sections 1206.9.1 through 1206.9.6. This section has been added to read: 1206.9 Special installations. Rooftop and open parking garage ESS installations shall comply with Sections 1206.9.1 through 1206.9.6.

(185) Section 1206.9.1 Rooftop installations. This section has been added to clarify for the purpose of Table 1206.9, rooftop Energy Storage System (ESS) installations are those located on the roofs of buildings. This section has been added to read: 1206.9.1 Rooftop installations. For the purpose of Table 1206.9, rooftop ESS installations are those located on the roofs of buildings.

(186) Section 1206.9.2 Open parking garage installations. This section has been added to clarify for the purpose of Table 1206.9, open parking garage Energy Storage System (ESS) installations are those located in a structure or portion of a structure that complies with Section 406.5 of the International Building Code®. This section has been added to read: 1206.9.2 Open parking garage installations. For the purpose of Table 1206.9, open parking garage ESS installations are those located in a structure or portion of a structure that complies with Section 406.5 of the International Building Code®.

(187) Table 1206.9 Special ESS Installations. This table has been added to clarify the compliance required for special Energy Storage System (ESS) installations under specific sections of this chapter. The table has been added to read: Table 1206.9 Special ESS Installations. The table contains 12 rows with 3 columns per row and has two footnotes that follow the table. The table and footnotes are described below:

(A) Row 1 is the header row and contains the three column headings described below:

(i) Row 1, column 1 is entitled "Compliance Required."

- (ii) Row 1, column 2 is entitled "Rooftops" with a superscript "a" to indicate footnote "a" applies.
- (iii) Row 1, column 3 is entitled "Open Parking Garages" with a superscript "b" to indicate footnote "b" applies.
- (B) Row 2 contains the following information in each of the three columns:
- (i) Row 2, column 1 contains the wording "1206.4 All ESS installations."
- (ii) Row 2, column 2 contains the word "Yes."
- (iii) Row 2, column 3 contains the word "Yes."
- (C) Row 3 contains the following information in each of the three columns:
- (i) Row 3, column 1 contains the wording "1206.5.1 Size and separation."
- (ii) Row 3, column 2 contains the word "Yes."
- (iii) Row 3, column 3 contains the word "Yes."
- (D) Row 4 contains the following information in each of the three columns:
- (i) Row 4, column 1 contains the wording "1206.5.2 Maximum allowable quantities."
- (ii) Row 4, column 2 contains the word "Yes."
- (iii) Row 4, column 3 contains the word "Yes."
- (E) Row 5 contains the following information in each of the three columns:
- (i) Row 5, column 1 contains the wording "1206.5.4 Smoke and automatic fire detection."
- (ii) Row 5, column 2 contains the word "Yes."
- (iii) Row 5, column 3 contains the word "Yes."
- (F) Row 6 contains the following information in each of the three columns:
- (i) Row 6, column 1 contains the wording "1206.5 Maximum enclosure size."
- (ii) Row 6, column 2 contains the word "Yes."
- (iii) Row 6, column 3 contains the word "Yes."
- (G) Row 7 contains the following information in each of the three columns:
- (i) Row 7, column 1 contains the wording "1206.5.8 Means of egress separation."
- (ii) Row 7, column 2 contains the letters "Yes."
- (iii) Row 7, column 3 contains the word "Yes."
- (H) Row 8 contains the following information in each of the three columns:
- (i) Row 8, column 1 contains the wording "1206.9.3 Clearances to exposures."
- (ii) Row 8, column 2 contains the word "Yes."
- (iii) Row 8, column 3 contains the word "Yes."
- (I) Row 9 contains the following information in each of the three columns:
- (i) Row 9, column 1 contains the wording "1206.9.4 Fire suppression systems."
- (ii) Row 9, column 2 contains the word "Yes."
- (iii) Row 9, column 3 contains the word "Yes."
- (J) Row 10 contains the following information in each of the three columns:
- (i) Row 10, column 1 contains the wording "1206.9.5 Rooftop installations."
- (ii) Row 10, column 2 contains the word "Yes."
- (iii) Row 10, column 3 contains the word "No."
- (K) Row 11 contains the following information in each of the three columns:
- (i) Row 11, column 1 contains the wording "Open parking garage installations."
- (ii) Row 11, column 2 contains the word "No."
- (iii) Row 11, column 3 contains the word "Yes."
- (L) Row 12 contains the following information in each of the three columns:

(i) Row 12, column 1 contains the wording "1206.6 Technology specific protection."

(ii) Row 12, column 2 contains the word "Yes."

(iii) Row 12, column 3 contains the word "Yes."

(M) Footnote "a" states: "See Section 1206.9.1."

(N) Footnote "b" states: "See Section 1206.9.2."

(188) Section 1206.9.3 Clearances to exposures. This section has been added to clarify Energy Storage Systems (ESS) located on rooftops and in open parking garages shall be separated by a minimum of 10 feet (3048 mm) from a list of specific exposure criteria and provides two exceptions to allow clearances to be reduced when certain criteria is met. This section has been added to read: 1206.9.3 Clearances to exposures. ESS located on rooftops and in open parking garages shall be separated by a minimum ten feet (3048 mm) from the following exposures:

(A) Buildings, except the building on which the rooftop ESS is mounted.

(B) Any portion of the building on which a rooftop system is mounted that is elevated above the rooftop on which the system is installed.

(C) Lot lines

(D) Public ways

(189) Exceptions:

(A) Clearances are permitted to be reduced to 3 feet (914 mm) where a 1-hour free standing fire barrier, suitable for exterior use, and extending 5 feet (1524 mm) above and extending 5 feet (1524 mm) beyond the physical boundary of the ESS installation is provided to protect the exposure.

(B) Clearances are permitted to be reduced to 3 feet (914 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large scale fire testing complying with Section 1206.1.5.

(190) Section 1206.9.4 Fire suppression systems. This section has been added to require Energy Storage Systems (ESS) located in walk-in units on rooftops or in walk-in units in open parking garages to be provided with automatic fire suppression systems within the ESS enclosure in accordance with Section 1206.5.5 The section requires areas containing ESS other than walk-in units in open parking structures on levels not open above to the sky be provided with an automatic suppression system complying with Section 1206.5.5. An exception is provided for a fire suppression system installations located in open parking garages, if large scale fire testing complying with Section 1206.1.5 is provided that shows that a fire will not impact the exposures in Section 1206.9.3. This section has been added to read: 1206.9.4 Fire suppression systems. ESS located in walk-in units on rooftops or walk-in units in open parking garages shall be provided with automatic fire suppression systems within the ESS enclosure in accordance with Section 1206.5.5. Areas containing ESS other than walk-in units in open parking structures on levels not open to the sky shall be provided with an automatic fire suppression system complying with Section 1206.5.5. Exception: A fire suppression system is not required in open parking garages if large scale testing complying with Section 1206.1.5 is provided that shows that a fire will not impact the exposures in Section 1206.9.3.

(191) Section 1206.9.5 Rooftop installations. This section requires Energy Storage Systems (ESS) and associated equipment located on rooftops and not enclosed by building construction to comply with a list of specific criteria. This section has been added to read:

1206.9.5 Rooftop installations. ESS and associated equipment that are located on rooftops and not enclosed by building construction shall comply with the following:

(A) Stairway access to the roof for emergency response and fire department personnel shall be provided either through a bulkhead from the interior of the building or a stairway on the exterior of the building.

(B) Service walkways at least 5 feet (1524 mm) in width shall be provided for service and emergency personnel from the point of access to the roof to the system.

(C) ESS and associated equipment shall be located from the edge of the roof a distance equal to at least the height of the system, equipment or component but not less than 5 feet (1524 mm).

(D) The roofing materials under and within 5 feet (1524 mm) horizontally from an ESS or associated equipment shall be noncombustible or shall have a Class A rating when tested in accordance with ASTM E108 or UL 790.

(E) A Class I standpipe outlet shall be installed at an approved location on the roof level of the building or in the stairway bulkhead at the top level.

(F) The ESS shall be the minimum of 10 feet (3048 mm) from the fire service access point on the roof top.

(192) Section 1206.9.6 Open parking garages. This section has been added to clarify Energy Storage Systems (ESS) and associated equipment located in open parking garages to comply with all of the items in a list of specific criteria. This section has been added to read: 1206.9.6 Open parking garages. ESS and associated equipment that are located in open parking garages shall comply with all of the following:

(A) ESS shall not be located within 50 feet (15240 mm) of air inlets for building HVAC systems. Exception: The distance shall be permitted to be reduced to 25 feet (7620 mm) if the automatic fire alarm system monitoring the radiant-energy sensing detectors de-energizes the ventilation system connected to the air intakes upon detection of a fire.

(B) ESS shall not be located with 25 feet (7620 mm) of exits leading from the attached building where located on a covered level of the parking structure not directly open to the sky above.

(C) An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1024 mm) from the outer enclosure of the ESS.

(193) Section 1206.10 Mobile ESS equipment and operations. This section has been added to require mobile Energy Storage Systems (ESS) equipment and operations to comply with Sections 1206.10.1 through 1206.10.7.7. This section has been added to read: 1206.10 Mobile ESS equipment and operations. Mobile ESS equipment and operations shall comply with Sections 1206.10.1 through 1206.10.7.7.

(194) Section 1206.10.1 Charging and storage. This section has been added to clarify for the purpose of Section 1206.10, charging and storage covers the operation where mobile Energy Storage Systems (ESS) are charged and stored so they are ready for deployment to another site, and where they are charged and stored after deployment. This section has been added to read: 1206.10.1 Charging and storage. For the purpose of Section 1206.10, charging and storage covers the operation where mobile ESS are charged and stored so they are ready for deployment to another site, and where they are charged and stored after a deployment.

(195) Section 1206.10.2 Deployment. This section has been added to clarify for the purpose of Section 1206.10, deployment covers the operations where mobile Energy Storage Systems (ESS) are located at a site other than the charging and storage site and are being used to provide

power. This section has been added to read: 1206.10.2 Deployment. For the purpose of Section 1206.10, deployment covers the operations where mobile ESS are located at a site other than the charging and storage site and are being used to provide power.

(196) Section 1206.10.3 Permits. This section has been added to clarify construction and operational permits shall be provided for charging and storage of mobile Energy Storage Systems (ESS) and operational permits shall be provided for deployment of mobile ESS as required by Section 1206.1.2. This section has been added to read: 1206.10.3 Permits. Construction and operational permits shall be provided for charging and storage of mobile ESS and operational permits shall be provided for deployment of mobile ESS as required by Section 1206.1.2.

(197) Section 1206.10.4 Construction documents. This section has been added to require construction documents complying with Section 1206.1.3 to be provided with the construction permit application for mobile Energy Storage Systems (ESS) charging and storage locations. This section has been added to read: 1206.10.4 Construction documents. Construction documents complying with Section 1206.1.3 shall be provided with the construction permit application for mobile ESS charging and storage locations.

(198) 1206.10.4.1 Deployment documents. This section has been provided to clarify and list what information must be provided with the operation permit applications for mobile Energy Storage System (ESS) deployments. This section has been added to read; 1206.10.4.1 Deployment documents. The following information shall be provided with the operation permit applications for mobile ESS deployments:

(A) Relevant information for the mobile ESS equipment and protection measures in the construction documents as required by Section 1206.1.3.

(B) Location and layout diagram of the area in which the mobile ESS is to be deployed, including a scale diagram of all nearby exposures.

(C) Location and content of signage, including no smoking signs.

(D) Description of fencing to be provided around the ESS, including locking methods.

(E) Details on fire suppression, smoke and automatic fire detection, system monitoring, thermal management, exhaust ventilation, and explosion control, if provided.

(F) For deployment, the intended duration of operation, including anticipated connection and disconnection times and dates.

(G) Location and description of local staging stops during transit to the deployment site. See Section 1206.10.7.5.

(H) Description of the temporary wiring, including connection methods, conductor type and size, and circuit overcurrent protection to be provided.

(I) Description of how fire suppression system connections to water supplies or extinguishing agents are to be provided.

(J) Contact information for personnel who are responsible for maintaining and servicing the equipment, and responding to emergencies as required by Section 1206.1.6.1.

(199) Section 1206.10.5 Approved locations. This section has been added to restrict the locations where mobile Energy Storage Systems (ESS) are charged, stored, and deployed to those locations established on the construction and operational permits. This section has been added to read: 1206.10.5 Approved locations. Locations where mobile ESS are charged, stored and deployed shall be restricted to the locations established on the construction and operational permits.

(200) Section 1206.10.6 Charging and storage. This section has been added to clarify installations where mobile Energy Storage Systems (ESS) are charged and stored shall be treated as permanent ESS indoor or outdoor installations and shall comply with specific criteria. Two exceptions are provided, one for temporary wiring of electrical connections when complying with the manufacturer's instructions, the UL 9540 listing and NFPA 70®; and one for temporary connections to the water supply for fire suppression systems. This section has been added to read: 1206.10.6 Charging and storage. Installations where mobile ESS are charged and stored shall be treated as permanent ESS indoor or outdoor locations, and shall comply with the following sections, as applicable:

(A) Indoor charging and storage shall comply with Section 1206.7.

(B) Outdoor charging and storage shall comply with Section 1206.8.

(C) Charging and storage on rooftops and in open parking garages shall comply with Section 1206.9.

(201) Exceptions:

(A) Electrical connections shall be permitted to be made using temporary wiring

complying with the manufacturer's instructions, the UL 9540 listing, and NFPA 70®.

(B) Fire suppression system connections to the water supply shall be permitted to use approved temporary connections.

(202) Section 1206.10.7 Deployed mobile ESS requirements. This section has been added to clarify that deployed mobile Energy Storage Systems (ESS) equipment and operations shall comply with this section and Table 1206.10. This section has been added to read: 1206.10.7 Deployed mobile ESS requirements. Deployed mobile ESS equipment and operations shall comply with this section and Table 1206.10.

(203) Section 1206.10.7.1 Duration. This section has been added to clarify mobile Energy Storage Systems (ESS) deployment shall not exceed 30 days and provides two exceptions for mobile ESS deployments that provide power durations longer than 30 days that comply with Section 1206.10.7, and Mobile ESS deployments that exceed 180 days if additional operation permits are obtained. This section has been added to read: 1206.10.7.1 Duration. The duration of mobile ESS deployment shall not exceed 30 days. Exceptions:

(A) Mobile ESS deployments that provide power for durations longer than 30 days shall comply with Section 1206.10.7.

(B) Mobile ESS deployments shall not exceed 180 days unless additional operational permits are obtained.

(204) Section 1206.10.7.2 Restricted locations. This section has been added to clarify deployed mobile Energy Storage System (ESS) operations shall not be located indoors, in covered parking garages, on rooftops, below grade or under building overhangs. This section has been added to read: 1206.7.2 Restricted locations. Deployed mobile ESS operations shall not be located indoors, in covered parking garages, on rooftops, below grade, or under building overhangs.

(205) Section 1206.10.7.3 Clearance to exposures. This section has been added to clarify deployed mobile Energy Storage Systems shall be separated by a minimum of 10 feet (3048 mm) from a list of specific exposures and must be separated by a minimum of 50 (1.5 m) feet from public seating areas and from tents, canopies and membrane structures with an occupant load of 30 or more. This section has been added to read: 1206.10.7.3 Clearances to exposures. Deployed mobile ESS shall be separated by a minimum 10 feet (3048 mm) from the following exposures:

- (A) Public ways
- (B) Buildings
- (C) Stored combustible materials
- (D) Hazardous materials
- (E) High-piled stock
- (F) Other exposure hazards

(206) Deployed mobile ESS shall be separated by a minimum of 50 feet (15.3 M) from public seating areas and from tents, canopies and membrane structures with an occupant load of 30 or more.

(207) Section 1206.10.7.4. Electrical connections. This section has been added to clarify electrical connections are required to be made in accordance with the manufacturer's instructions and the UL 9540 listing. The section requires temporary wiring for electrical power connections to comply with NFPA 70® and clarifies fixed electrical wiring shall not be provided. This section has been added to read: 1206.10.7.4 Electrical connections. Electrical connections shall be made in accordance with the manufacturer's instructions and the UL 9540 listing. Temporary wiring for electrical power connections shall comply with NFPA 70. Fixed electrical wiring shall not be provided.

(208) Section 1206.10.7.5 Local staging. This section has been added to clarify mobile Energy Storage Systems (ESS) in transit from the charging and storage location to the deployment location and back shall not be parked within 100 feet (30,480 mm) of an occupied building for more than one hour during transit, unless specifically approved by the fire code official when the permit is issued. This section has been added to read: 1206.10.7.5 Local staging. Mobile ESS in transit from the charging and storage location to the deployment location and back shall not be parked within 100 feet (30,480 mm) of an occupied building for more than one hour during transit, unless specifically approved by the fire code official when the permit is issued.

(209) Section 1206.10.7.6 Fencing. This section has been added to clarify an approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1524 mm) from the outside enclosure of a deployed mobile Energy Storage System (ESS). This section has been added to read: 1206.10.7.6 Fencing. An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1524 mm) from the outer enclosure of a deployed mobile ESS.

(210) Section 1206.10.7.7. Smoking. This section has been added to prohibit smoking with 10 feet (3048 mm) of mobile Energy Storage Systems (ESS) and require signs to be posted in accordance with Section 310. This section has been added to read: 1206.10.7.7 Smoking. Smoking shall be prohibited within 10 feet (3048 mm) of mobile ESS. Signs shall be posted in accordance with Section 310.

(211) Table 1206.10 Mobile Energy Storage Systems (ESS). This table has been added to clarify which sections within this section are applicable during mobile Energy Storage System (ESS) deployment. The table has been added to read: Table 1206.10 Mobile Storage Energy Systems (ESS). The table contains 10 rows and two columns and has five footnotes at the end. The table is described below:

- (A) Row 1 contains the header rows. Each of the two column headings are listed below:
 - (i) Row 1, column 1 is entitled "Compliance Required."
 - (ii) Row 1, column 2 is entitled "Deployment" with a superscript "a" indicate footnote "a" applies.

- (B) Row 2 contains the following information in each of the two columns:
(i) Row 2, column 1 contains the wording "1206.4 All ESS installations."
(ii) Row 2, column 2 contains the wording "Yes" with a superscript "b" to indicate footnote "b" applies.
- (C) Row 3 contains the following information in each of the two columns:
(i) Row 3, column 1 contains the wording "1206.5.1 Size and separation."
(ii) Row 3, column 2 contains the wording "Yes" with a superscript "c" to indicate footnote "c" applies.
- (D) Row 4 contains the following information in each of the two columns:
(i) Row 4, column 1 contains the wording "1206.5.2 Maximum allowable quantities."
(ii) Row 4, column 2 contains the wording "Yes."
- (E) Row 5 contains the following information in each of the two columns:
(i) Row 5, column 1 contains the wording "1206.5.4 Smoke and automatic fire detection."
(ii) Row 5, column 2 contains the wording "Yes" with a superscript "e" to indicate footnote "e" applies.
- (F) Row 6 contains the following information in each of the two columns:
(i) Row 6, column 1 contains the wording "1206.5.5 Fire suppression systems."
(ii) Row 6, column 2 contains the wording "Yes" with a superscript "d" to indicate footnote "d" applies.
- (G) Row 7 contains the following information in each of the two columns:
(i) Row 7, column 1 contains the wording "1206.5.6 Maximum enclosure size."
(ii) Row 7, column 2 contains the wording "Yes."
- (H) Row 8 contains the following information in each of the two columns:
(i) Row 8, column 1 contains the wording "1206.5.7 Vegetation control."
(ii) Row 8, column 2 contains the wording "Yes."
- (I) Row 9 contains the following information in each of the two columns:
(i) Row 9, column 1 contains the wording "1206.5.8 Means of egress separation."
(ii) Row 9, column 2 contains the wording "Yes."
- (J) Row 10 contains the following information in each of the two columns:
(i) Row 10, column 1 contains the wording "1206.6 Technology specific protection."
(ii) Row 10, column 2 contains the wording "Yes."
- (K) Footnote "a" states: "See Section 1206.10.2."
- (L) Footnote "b" states: "Mobile operations on wheeled vehicle or trailers shall not be required to comply with Section 1206.4.4 seismic and structural load requirements."
- (M) Footnote "c" states: "In walk-in units, spacing is not required between ESS units and the walls of the enclosure."
- (N) Footnote "d" states: "Fire suppression system connections to the water supply shall be permitted to use approved temporary connections."
- (O) Footnote "e" states: "Alarm signals are not required to be transmitted to an approved location for mobile ESS deployed 30 days or less."
- (212) Section 1206.11 ESS in Group R-3 and R-4 Occupancies. This section has been added to clarify Energy Storage Systems (ESS) in Group R-3 and R-4 occupancies shall be installed and maintained in accordance with Sections 1206.11.1 through 1206.11.9 and the temporary use of an owner or occupant's electric powered vehicle as an ESS shall be in accordance with Section 1206.4.10. This section has been added to read: 1206.11 ESS in Group R-3 and R-4

Occupancies. ESS in Group R-3 and R-4 occupancies shall be installed and maintained in accordance with Sections 1206.11.1 through 1206.11.9. The temporary use of an owner or occupant's electric powered vehicle as an ESS shall be in accordance with Section 1206.4.10. (213) Section 1206.11.1 Equipment listings. This section has been added to clarify Energy Storage Systems (ESS) shall be listed and labeled in accordance with UL 9540. The section prohibits ESS listed and labeled solely for utility or commercial use to be used for residential applications and provides two exceptions to the section. This section has been added to read: 1206.11.1 Equipment listings. ESS shall be listed and labeled in accordance with UL 9540. ESS listed and labeled solely for utility or commercial use shall not be used for residential applications. Exceptions:

(A) Where approved, repurposed unlisted battery systems from electric vehicles are allowed to be installed outdoors or in detached dedicated cabinets located not less than 5 feet (1524 mm) from exterior walls, property lines and public ways.

(B) ESS less than 1 kWh (3.6 Megajoules).

(214) Section 1206.11.2 Installation. This section has been added to require installation of Energy Storage Systems (ESS) to be installed in accordance with the manufacturer's instructions and their listing. This section has been added to read: 1206.11.2 Installation. ESS shall be installed in accordance with the manufacturer's instructions and their listings.

(215) Section 1206.11.2.1 Spacing. This section has been added to clarify individual units shall be separated from each other by at least 3 feet (914 mm) of spacing unless smaller separation distances are documented to be adequate based on large scale fire testing complying with Section 1206.1.5. This section has been added to read: 1206.11.2.1 Spacing. Individual units shall be separated from each other by at least 3 feet (914 mm) of spacing unless smaller separation distances are documented to be adequate based on large scale fire testing complying with Section 1206.1.5.

(216) Section 1206.11.3 Location. This section has been added to provide a list of specific locations where the Energy Storage System (ESS) can be installed. This section has been added to read: 1206.11.3 Location. ESS shall only be installed in the following locations:

(A) Detached garages and detached accessory structures.

(B) Attached garages separated from the dwelling unit living space and sleeping units in accordance with Section 406.3.2 of the International Building Code®.

(C) Outdoors on exterior walls located a minimum 3 ft. from doors and windows.

(D) Utility closets and storage or utility spaces within dwelling units and sleeping units.

(217) Section 1206.11.4 Energy ratings. This section has been added to clarify individual Energy Storage Systems (ESS) shall have a maximum rating of 20 kWh and lists the aggregate rating structures that shall not be exceeded. This section has been added to read: 1206.11.4 Energy ratings. Individual ESS units shall have a maximum rating of 20 kWh. The aggregate rating structures shall not exceed:

(A) 40 kWh within utility closets and storage utility spaces.

(B) 80 kWh in attached or detached garages and detached accessory structures.

(C) 80 kWh on exterior walls.

(D) 80 kWh outdoors on the ground.

(218) Section 1206.11.5 Electrical installation. This section has been added to require Energy Storage Systems (ESS) to be installed in accordance with NFPA 70® and require inverters to be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. The section requires systems connected to the utility grid to use inverters listed for utility

interaction. This section has been added to read: 1206.11.5 Electrical installation. ESS 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.

(219) Section 1206.11.6 Fire detection. This section has been added to require rooms and areas within dwelling units, sleeping units and attached garages in which Energy Storage Systems (ESS) are installed to be protected by smoke alarms in accordance with Section 907.2.10. The section requires a heat detector listed and interconnected to the smoke alarms to be installed in locations within the dwelling units, sleeping units and attached garages where smoke alarms cannot be installed based on their listing. This section has been added to read: 1206.11.6 Fire detection. Rooms and areas within dwelling units, sleeping units and attached garages in which ESS 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 cannot be installed based on their listings.

(220) Section 1206.11.7 Protection from impact. This section has been added to require energy storage systems (ESS) installed in a location subject to vehicle damage to be protected by approved barriers. The change requires appliances installed in garages to be installed in accordance with Section 304.3 of the International Mechanical Code®. This section has been added to read: 1206.11.7 Protection from impact. ESS installed in a location subject to 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®.

(221) Section 1206.11.8 Ventilation. This section has been added to require indoor installations of Energy Storage Systems (ESS) that include batteries that produce hydrogen or other flammable gases during charging to be provided with exhaust ventilation in accordance with Section 1206.6.1. This section has been added to read: 1206.11.8 Ventilation. Indoor installations of ESS that include batteries that produce hydrogen or other flammable gases during charging shall be provided with exhaust ventilation in accordance with Section 1206.6.1.

(222) Section 1206.11.9 Toxic and highly toxic gas. This section has been added to prohibit Energy Storage Systems (ESS) that have the potential to release toxic or highly toxic gas during charging, discharging and normal use conditions from being installed within Group R-3 and R-4 occupancies. This section has been added to read: 1206.11.9 Toxic and highly toxic gas. ESS 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.

(223) Section 1206.11.10 Electric vehicle use. This section has been added to require the temporary use of an owner or occupant's electric powered vehicle to power a dwelling unit or sleeping unit while parked in an attached or detached garage or outside to comply with the vehicle manufacturer's instructions and NFPA 70®. This section has been added to read: 1206.11.10 Electric vehicle use. The temporary use of an owner or occupant's electric powered vehicle to power a dwelling unit or sleeping unit while parked in an attached or detached garage or outside shall comply with the vehicle manufacturer's instructions and NFPA 70®.

748:20-4-18. IFC® Chapter 13 [RESERVED]

748:20-4-19. IFC® Chapter 14 [RESERVED]

748:20-4-20. IFC® Chapter 15 [RESERVED]

748:20-4-21. IFC® Chapter 16 [RESERVED]

748:20-4-22. IFC® Chapter 17 [RESERVED]

748:20-4-23. IFC® Chapter 18 [RESERVED]

748:20-4-24. IFC® Chapter 19 [RESERVED]

748:20-4-25. IFC® Chapter 20 [RESERVED]

748:20-4-26. IFC® Chapter 21 [RESERVED]

748:20-4-27. IFC® Chapter 22 [RESERVED]

748:20-4-28. IFC® 2018 Chapter 23 Motor Fuel-Dispensing Facilities and Repair Garages

Chapter 23 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 2301.7 Liquid natural gas (LNG) motor fuel-dispensing facilities. This section has been added to clarify that motor fuel-dispensing facilities for LNG shall comply with the requirements of Section 2303 and Chapter 55. This section has been added to read: 2301.7 Liquid natural gas motor fuel-dispensing facilities. Motor fuel-dispensing facilities utilizing liquid natural gas (LNG) fuel shall comply with the requirements of Section 2303 and Chapter 55.

(2) Section 2302 Definitions. This section has been modified to add to the terms "Main Railroad Track" and "Dispensing Area" to the list of terms defined in Chapter 2. This section has been modified to read: 2302.1 Definitions. The following terms are defined in Chapter 2:

(A) AIRCRAFT MOTOR-VEHICLE FUEL-DISPENSING FACILITY.

(B) ALCOHOL-BLENDED FUELS.

(C) AUTOMOTIVE MOTOR FUEL-DISPENSING FACILITY.

(D) DISPENSING AREA.

(E) DISPENSING DEVICE, OVERHEAD TYPE.

(F) FLEET VEHICLE MOTOR FUEL-DISPENSING FACILITY.

(G) LIQUEFIED NATURAL GAS (LNG).

(H) MAIN RAILROAD TRACK.

(I) MARINE MOTOR FUEL-DISPENSING FACILITY.

(J) REPAIR GARAGE.

(K) SELF-SERVICE MOTOR FUEL-DISPENSING FACILITY.

(3) Section 2303.1 Location of dispensing devices. This section has been modified to provide a sixth requirement when different types of fuel-dispensing devices for different fuels are located under the same canopy to prevent the accumulation or entrapment of ignitable vapors or all the electrical equipment located under the canopy must be suitable for Class I, Division

2 hazardous (classified) location. This section has been modified to read: 2303.1 Location of dispensing devices. Dispensing devices shall be located as follows:

(A) Ten feet (3048 mm) or more from lot lines.

(B) Ten feet (3048 mm) or more from buildings having combustile exterior wall surfaces or buildings having noncombustible exterior wall surfaces that are not part of a 1-hour-fire-resistance-rated assembly or buildings having combustile overhangs.

Exception: Canopies constructed in accordance with the International Building Code® providing weather protection for the fuel islands.

(C) Such that all portions of the vehicle being fueled will be on the premises of the motor fuel-dispensing facility.

(D) Such that the nozzle, when the hose is fully extended, will not reach within 5 feet (1524 mm) of building openings.

(E) Twenty feet (6096 mm) or more from fixed sources of ignition.

(F) Where compressed natural gas (CNG), LNG, or Hydrogen motor fuel-dispensing devices are installed beneath a canopy or within an enclosure, either the canopy or enclosure shall be designed to prevent the accumulation or entrapment of ignitable vapors, including provisions for natural or mechanical ventilation means, or all electrical equipment installed beneath the canopy or within the enclosure shall be suitable for Class I, Division 2 hazardous (classified) locations. Tank vents that are installed within or attached to the canopy or enclosure shall extend a minimum of 5 feet (1524 mm) above the highest projection of the canopy. Compression and storage equipment located on top of the motor fuel-dispensing facility canopies shall be in accordance with current State of Oklahoma adopted International Fire Code®, Section 2309 and International Building Code®, Section 406.

(4) Section 2303.2.2 Local emergency disconnect switches. This section has been added to clarify when local emergency disconnect switches are required and when those switches are required to be interlocked with other local emergency disconnect switches. This section has been added to read: 2303.2.2 Local emergency disconnect switches. A local emergency disconnect switch, provided within 20 feet (6096 mm) of any dispensing unit shall be interlocked with all other dispensing units of the same fuel type and all other dispensing devices located within 20 feet (6096 mm) of the local emergency disconnect switch.

(5) Section 2303.2.3 Emergency disconnect switch lighting. This section has been added to clarify the requirements for providing illumination for emergency disconnect switch lighting. This section has been added to read: 2303.2.3 Emergency disconnect switch lighting. Permanent lighting shall be provided during hours of operation in times of darkness at all dispensing devices, required signage, emergency disconnects and emergency shutdown controls. The lighting shall be designed to provide illumination such that all dispensing devices, required signage, emergency disconnect switches and emergency shutdown controls are visible to the operator.

(6) Section 2304.3.7 Quantity limits. This section has been modified to include an exception to the requirement that dispensing devices at unsupervised locations be programmed or set to limit uninterrupted fuel delivery to 25 gallons and require manual action to resume delivery. This section has been modified to read: 2304.3.7 Quantity limits. Dispensing equipment used at unsupervised locations shall comply with one of the following:

(A) Dispensing devices shall be programmed or set to limit uninterrupted fuel delivery to 25 gallons (95 L) and require a manual action to resume delivery. Exception: Dispensing

devices that are equipped with a listed breakaway device or equal approved by the Authority Having Jurisdiction. Such emergency breakaway device shall be installed, maintained and replaced in accordance with the manufacturer's instructions.

(B) The amount of fuel being dispensed shall be limited in quantity by a preprogrammed card as approved.

(7) Section 2307.3 Attendants. This section has been modified to add an exception to the requirement for an attendant when the dispensing equipment meets the guidelines of NFPA® 58 for a "Low emission transfer." This section has been modified to read: 2307.3 Attendants. Motor fuel-dispensing operations for LP-gas shall be conducted by qualified attendants or in accordance with Section 2307.7 by persons trained in the proper handling of LP-gas.

Exception: When the dispensing equipment meets the guidelines of NFPA® 58 for "Low emission transfer" an attendant is not required.

(8) Section 2307.4.1 Low emission transfer. This section has been added to clarify when the dispensing equipment meets the guidelines of NFPA® 58, Section 6.30.5 for "Low emission transfer" then the transfer distance shall be reduced by one-half. This section has been added to read: 2307.4.1 Low emission transfer. When the dispensing equipment is installed in accordance with Section 6.30.5 of NFPA® 58 for "Low emission transfer," the transfer distance requirements in Table 6.7.2.1 and Section 6.27.4.3 of NFPA® 58 shall be reduced by one-half.

(9) Section 2307.7 Public fueling of motor vehicles. This section has been modified to provide an exception to the owner's requirement to train users when the dispensing equipment meets the guidelines of NFPA® 58 for a "Low emission transfer." This section has been modified to read: 2307.7 Public fueling of motor vehicles.

(A) Self-service LP-gas dispensing systems, including key, code and card lock dispensing systems, shall be limited to the filling of permanently mounted containers providing fuel to the LP-gas powered vehicle.

(B) The requirements for self-service LP-gas dispensing systems shall be in accordance with the following:

(i) The arrangement and operation of the transfer of product into a vehicle shall be in accordance with this section and Chapter 61.

(ii) The system shall be provided with an emergency shut-off switch located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from dispensers.

(iii) The owner of the LP-gas motor fuel-dispensing facility or the owner's designee shall provide for the safe operation of the system and the training of users. Exception: If the LP-gas motor fuel-dispensing facility meets the requirements of a low emission transfer station per NFPA® 58, then training of the users is not the responsibility of the facility.

(iv) The dispenser and hose-end valve shall release not more than 1/8 fluid ounce (4 cc) of liquid to the atmosphere upon breaking the connection with the fill valve on the vehicle.

(v) Portable fire extinguishers shall be provided in accordance with Section 2305.5.

(vi) Warning signs shall be provided in accordance with Section 2305.6.

(vii) The area around the dispenser shall be maintained in accordance with Section 2305.7.

(10) Section 2308.3.2 Warning signs. This section has been added to require warning signs to be posted on Compressed Natural Gas (CNG) dispensing devices. This section has been

added to read: 2308.3.2 Warning signs. Warning signs complying with Section 310 shall be posted as follows:

(A) Warning sign(s) shall be conspicuously posted within sight of each dispenser in the fuel dispensing area and shall state the following:

(i) No smoking

(ii) Shut off motor

(iii) Flammable Gas

(iv) Natural gas vehicle fuel cylinders shall be inspected at intervals not exceeding 3 years or 36,000 miles to ensure safe operation of the vehicle

(v) Natural gas fuel cylinders past their end-of-life date shall not be refueled and shall be removed from service.

(B) A warning sign with the words "No smoking, flammable gas" shall be posted in all compressor and storage areas.

(C) The lettering on the sign shall be legible and large enough to be visible from each point of transfer.

(D) The service pressure of each dispenser shall be posted in view of the operator.

(11) Section 2308.4 Private fueling of motor vehicles. This section has been modified to allow for the industry practice of utilizing CNG trailers that are not permanently attached to CNG powered vehicles and delete the requirement for the owner to ensure the user of a CNG powered vehicle to be properly trained on the vehicle's filling procedures. This section has been modified to read: 2308.4 Private fueling of motor vehicles.

(A) Self-service CNG dispensing systems, including key, code and card lock dispensing systems, shall be limited to the filling of approved, permanently mounted fuel containers.

(B) In addition to the requirements in Section 2305, the owner of a self-service CNG motor fuel-dispensing facility shall ensure the safe operation of the system.

(12) Section 2308.7 Emergency shutdown control. This section has been modified to change the word "control" to "devices" in the section heading, clarify the requirements of the emergency manual shutdown device and provide an exception to those requirements for time-fill applications. This section has been modified to read: 2308.7 Emergency shutdown devices. A remote and local emergency manual shutdown device shall be provided. Upon activation, the emergency shutdown system shall automatically close valves between the main gas supply and the compressor and between the storage containers and dispensers, and automatically shut off the power supply to the compressor and the following associated devices: dispensing enclosures; remote pumps; power, control, and signal circuits; and electrical equipment in the hazardous (classified) locations surrounding the fuel dispensing enclosures. All labeled emergency shutdown devices shall be interconnected, whether required or not. Resetting from an emergency shutoff condition shall require manual intervention and the manner of resetting shall be approved by the Authority Having Jurisdiction. Exception: In time-fill applications, in lieu of a defined remote and local emergency manual shutdown device, an emergency manual shutdown device shall be provided within 50 feet (15 240 mm) of each fixed point of dispensing hose attachment and located inside and outside the compressor area within 10 feet (3048 mm) of the main access to the compressor area.

(13) Section 2308.7.1 Remote emergency shutdown device. This section has been added to clarify the distance requirements for remote emergency manual shutdown device placement and provide for an exception to the maximum distance required when located within line of

sight of the dispensing enclosures and approved by the Authority Having Jurisdiction. This section has been added to read: 2308.7.1 Remote emergency shutdown device. A remote emergency manual shutdown device shall be located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from all dispensing enclosures and shall be provided inside and outside the compressor area within 10 feet (3048 mm) of the main access to the compressor area. Exception: A remote emergency shutdown device may be located greater than 100 feet (30 480 mm) from one or more dispensing enclosures when within line of sight of the dispensing enclosures and approved by the Authority Having Jurisdiction.

(14) Section 2308.7.2 Local emergency shutdown device. This section has been added to require a local emergency manual shutdown device be provided within 15 feet (4572 mm) of each dispensing enclosure. This section has been added to read: 2308.7.2 Local emergency shutdown device. A local emergency manual shutdown device shall be located within 15 feet (4572 mm) of each dispensing enclosure.

(15) Section 2311.4.3 Ventilation. This section has been modified to clarify the point at which the mechanical ventilation should be exhausted in a basement or pit. This section has been modified to read: 2311.4.3. Ventilation. Where class I liquids or LP-gas are stored or used within a building having a basement or pit wherein flammable vapors could accumulate, the basement or pit shall be provided with mechanical ventilation in accordance with the International Mechanical Code®, at a minimum rate of 1 1/2 cubic feet per minute per square foot (cfm divided by square foot) [0.0008 cubic meters per (second meter squared)] taken from a point within 12 inches (305 mm) of the floor to prevent the accumulation of flammable vapors.

(16) Section 2311.8.1 Preparation of vehicles for repair. This section has been modified to clarify Liquefied Natural Gas vehicles comply with Section 2311.8.1.1 as applicable. This section has been modified to read: 2311.8.1 Preparation of vehicles for repair.

(A) For vehicles powered by gaseous fuels, the fuel shutoff valves shall be closed prior to repairing any portion of the vehicle fuel system.

(B) Vehicles powered by gaseous fuels in which the fuel system has been damaged shall be inspected and evaluated for fuel system integrity prior to being brought into the repair garage. The inspection shall include testing of the entire fuel delivery system for leakage. Liquefied Natural Gas (LNG) vehicles shall comply with Section 2311.8.1.1 as applicable.

(17) Section 2311.8.1.1. Liquefied Natural Gas (LNG) This section has been added to clarify the process needed to measure and record the pressure of the LNG vehicle fuel system prior to and on every third day while in the repair facility to ensure the fuel pressure does not exceed the maximum allowable fuel pressure. This section has been added to read: 2311.8.1.1. Liquefied Natural Gas. Liquefied Natural Gas (LNG) vehicle fuel system pressure shall be measured and recorded prior to entering the repair facility and at least every third day the vehicle remains in the building. Records shall be posted on the windshield of the vehicle. The maximum allowable system pressure shall be no more than 170 psig. Pressure above 170 psig shall be reduced by operating the vehicle, or limited venting outdoors as required.

748:20-4-29. IFC® Chapter 24 [RESERVED]

748:20-4-30. IFC® Chapter 25 [RESERVED]

748:20-4-31. IFC® Chapter 26 [RESERVED]

748:20-4-32. IFC® Chapter 27 [RESERVED]

748:20-4-33. IFC® Chapter 28 [RESERVED]

748:20-4-34. IFC® Chapter 29 [RESERVED]

748:20-4-35. IFC® Chapter 30 [RESERVED]

748:20-4-36. IFC® Chapter 31 [RESERVED]

748:20-4-37. IFC® Chapter 32 [RESERVED]

748:20-4-38. IFC® Chapter 33 [RESERVED]

748:20-4-39. IFC® Chapter 34 [RESERVED]

748:20-4-40. IFC® Chapter 35 [RESERVED]

748:20-4-41. IFC® Chapter 36 [RESERVED]

748:20-4-42. IFC® Chapter 37 [RESERVED]

748:20-4-43. IFC® Chapter 38 [RESERVED]

748:20-4-44. IFC® 2018 Chapter 39 Processing and Extraction Facilities

Chapter 39 of the Oklahoma adopted IFC® has been with the following modifications:

(1) Section 3903.2 Prohibited occupancies. This section has been modified to clarify the section is applicable to both extraction equipment and extraction processes utilizing materials classified as physical hazards in accordance with Section 307 of the International Building Code® and other provisions of this code and shall not be located in any building containing a Group A, E, I or R occupancy. This section has been modified to read: 3903.2 Prohibited occupancies. Extraction equipment and extraction processes utilizing materials classified as physical hazards in accordance with Section 307 of the International Building Code® and other provisions of this code shall not be located in any building containing a Group A, E, I or R occupancy.

(2) Section 3903.3 Location. This section has been modified to clarify extraction equipment and extraction processes utilizing materials classified as physical hazards in accordance with Section 307 of the International Building Code® and other provisions of this code shall be located in a room dedicated to extraction and prohibits the room from being used for any other purpose. The section prohibits the storage of solvents in the extraction room. This section has been modified to read: 3903.3 Location. The extraction equipment and extraction processes utilizing materials classified as physical hazards in accordance with Section 307 of

the International Building Code® and other provisions of this code as solvents shall be located in a room dedicated to extraction and the room shall not be used for any other purpose. There shall be no storage of solvents in the extraction room.

(3) Section 3903.4 Post-process purification and winterization. This section has been modified to clarify post processing and winterization includes heating, cooling or pressurizing of the miscella to other than normal pressure or temperature to be approved and performed in an appliance listed for such use and requires compliance with Sections 3903.4.1 or 3903.4.2. The section prohibits the use of domestic or commercial cooking appliances.

This section has been modified to read: 3903.4 Post-process purification and winterization. Post-processing and winterization involving the heating, cooling or pressurizing of the miscella to other than normal pressure or temperature shall be approved and performed in an appliance listed for such use and shall comply with Sections 3903.4.1 through 3903.4.3. Domestic or commercial cooking appliances and cooling appliances shall not be used.

(4) Section 3903.4.2 Refrigerators, freezers and other cooling equipment. This section has been added to require refrigerators, freezers and other cooling equipment used to store or cool flammable liquids to be listed for the storage of flammable and/or combustible liquids or shall be listed for Class I Division I locations in accordance with NFPA 70®. This section has been added to read: 3903.4.2 Refrigerators, freezers and other cooling equipment.

Refrigerators, freezers and other cooling equipment used to store or cool flammable liquids shall be listed for the storage of flammable and/or combustible liquids or shall be listed for Class I, Division I locations in accordance with NFPA 70®.

(5) Section 3903.4.3. Post-processing. This section has been added to require post-processing operations, including dispensing of flammable liquids between containers, to be performed within a hazardous exhaust fume hood rated for exhausting flammable vapors and listed to UL 1805. The section requires the electrical equipment utilized within the hazardous exhaust fume hood to be rated for use in flammable atmospheres and provides an exception for the exhaust fume hood when an approved exhaust system is installed in accordance with NFPA 91®. This section has been added to read: 3903.4.3 Post-processing. Post-processing operations, including dispensing of flammable liquids between containers, shall be performed within a hazardous exhaust fume hood rated for exhausting flammable vapors and listed in accordance with UL 1805. Electrical equipment used within the hazardous exhaust fume hood shall be rated for use in flammable atmospheres. Exception: A hazardous exhaust fume hood is not required where an approved exhaust system is installed in accordance with NFPA 91®.

(6) Section 3903.5 Use of flammable and combustible liquids. This section has been modified to specify the use of flammable and combustible liquids for liquid extraction processes, including the dispensing of flammable liquids between containers, where the liquid is boiled, distilled, or evaporated, to be located within a hazardous exhaust fume hood, rated for exhausting flammable vapors and listed in accordance with UL 1805. The section requires all electrical equipment used within the hazardous exhaust fume hood to be rated for use in flammable atmospheres and prohibits the heating of flammable or combustible liquids over an open flame, and provides exceptions when certain conditions are met. This section has been modified to read: 3903.5 Use of flammable and combustible liquids. The use of flammable and combustible liquids for liquid extraction processes, including dispensing of flammable liquids between containers, where the liquid is boiled, distilled, or evaporated shall be located within a hazardous exhaust fume hood, rated for exhausting flammable

vapors and listed in accordance with UL 1805. Electrical equipment used within the hazardous exhaust fume hood shall be rated for use in flammable atmospheres. Heating of flammable or combustible liquids over an open flame is prohibited. Exceptions:

(A) The use of a heating element not rated for flammable atmospheres, where documentation from the manufacturer, or approved testing laboratory indicates the element is rated for heating of flammable liquids.

(B) Unheated processes at atmospheric pressure using less than 16 oz. (473 ml) of flammable liquids are not required to be located within a hazardous exhaust fume hood.

(C) A hazardous exhaust fume hood is not required where an approved exhaust system is installed in accordance with NFPA 91®. Electrical equipment used within this room shall be rated for use in flammable atmosphere.

(7) Section 3903.6 Liquefied petroleum gas. This section has been modified to require plant processing and extraction utilizing liquefied petroleum gas to comply with Sections 3903.6.1 through 3903.6.4 and other applicable provisions of this code. This section has been modified to read: 3903.6 Liquefied petroleum gas. Plant processing and extraction utilizing liquefied petroleum gas shall comply with Section 3903.6.1 through 3903.6.4 and other applicable provisions of this code.

(8) Section 3903.6.1 Release of gas. This section has been added to prohibit liquefied petroleum gases to be released to the atmosphere except when released in accordance with Section 7.3 of NFPA 58®. This section has been added to read: 3903.6 Release of gas. Liquefied petroleum gases shall not be released to the atmosphere except where released in accordance with Section 7.3 of NFPA 58®.

(9) Section 3903.6.2 Exhaust. This section has been added to require any plant processing and extraction utilizing liquefied petroleum gas including processes for off-gassing spent plant material and oil retrieval to be located under a chemical fume hood and listed in accordance with UL 1805. The section provides an exception where an approved exhaust system is installed in accordance with NFPA 91® This section has been added to read: 3903.6.2 Exhaust. Plant processing and extraction utilizing liquefied petroleum gas, including processes for off-gassing spent plant material and oil retrieval, shall be located under a chemical fume hood, and listed in accordance with UL1805. Exception: A chemical fume hood is not required where an approved exhaust system is installed in accordance with NFPA 91®.

(10) Section 3903.6.3 Electrical. This section has been added to require the extraction room where liquefied petroleum gas is used as a solvent to be classified as Class I, Division I hazardous location in accordance with NFPA 70®. The section requires all conductive equipment and conductive objects within the extraction room to be bonded and grounded with a resistance of less than 1.0 times 10 to the sixth power ohms in accordance with NFPA 70®. This section has been added to read: 3903.6.3 Electrical. The extraction room where liquefied petroleum gas is used as a solvent shall be classified as Class I, Division I hazardous location in accordance with NFPA 70®. All conductive equipment and conductive objects within the extraction room shall be bonded and grounded with a resistance of less than 1.0 times 10 to the sixth power ohms in accordance with NFPA 70®.

(11) Section 3903.6.4 Automatic fire-extinguishing system. This section has been added to require chemical fume hoods and enclosures, including ductwork required by Section 3903.6.2 to be provided with an automatic fire-extinguishing system complying with Section 903.3.1.1, 904.6, 904.8 or 904.10. This section has been added to read: 3903.6.4 Automatic

fire-extinguishing system. Chemical fume hoods and enclosures, including ductwork required by Section 3903.6.2 shall be provided with an automatic fire-extinguishing system complying with Section 903.3.1.1, 904.6, 904.8 or 904.10.

(12) Section 3903.7 Carbon dioxide extraction. This section has been added to require plant processing and extraction facilities utilizing carbon dioxide solvents to comply with Sections 3903.7.1 through 3903.7.3, Section 5307 and other applicable provisions of the code. This section has been added to read: 3903.7 Carbon dioxide extraction. Plant processing and extraction facilities utilizing carbon dioxide solvents shall comply with Sections 3903.7.1 through 3903.7.3, Section 5307 and other applicable provisions of this code.

(13) Section 3903.7.1 Storage and handling. This section has been added to require all carbon dioxide compressed gas cylinders to be secured to a fixed object to prevent falling. This section has been added to read: 3903.7.1 Storage and handling. All carbon dioxide compressed gas cylinders shall be secured to a fixed object to prevent falling.

(14) Section 3903.7.2 Gas detection system. This section has been added to require a gas detection system complying with Sections 916 and 5307.4.3 to be provided in a room where carbon dioxide solvents are used in the extraction process. This section has been added to read: 3903.7.2 Gas detection system. A gas detection system complying with Sections 916 and 5307.4.3 shall be provided in a room where carbon dioxide solvents are used in the extraction process.

(15) Section 3903.7.3 Carbon dioxide discharge. This section has been added to require the carbon dioxide equipment pressure relief device and blow-off valves to be piped to the exterior of the building. This section has been added to read: 3903.7.3 Carbon dioxide discharge. The carbon dioxide extraction equipment pressure relief device and blow-off valves shall be piped to the exterior of the building.

(16) Section 3905.3 Emergency power system. This section has been added to require the extraction room lighting and extraction room ventilation system to be provided with emergency power for extraction processes utilizing hydrocarbon gases or liquids as solvents, in accordance with Section 2702 of the International Building Code®. This section has been added to read: 3905.3 Emergency power system. For extraction processes utilizing hydrocarbon gases or liquids as solvents, the extraction room lighting and extraction room ventilation system shall be provided with emergency power in accordance with Section 2702 of the International Building Code®.

748:20-4-45. IFC® Chapter 40 [RESERVED]

748:20-4-46. IFC® Chapter 41 [RESERVED]

748:20-4-47. IFC® Chapter 42 [RESERVED]

748:20-4-48. IFC® Chapter 43 [RESERVED]

748:20-4-49. IFC® Chapter 44 [RESERVED]

748:20-4-50. IFC® Chapter 45 [RESERVED]

748:20-4-51. IFC® Chapter 46 [RESERVED]

748:20-4-52. IFC® Chapter 47 [RESERVED]

748:20-4-53. IFC® Chapter 48 [RESERVED]

748:20-4-54. IFC® Chapter 49 [RESERVED]

748:20-4-55. IFC® Chapter 50 [RESERVED]

748:20-4-56. IFC® Chapter 51 [RESERVED]

748:20-4-57. IFC® Chapter 52 [RESERVED]

748:20-4-58. IFC® 2018 Chapter 53 Compressed Gases

Chapter 53 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 5301.1 Scope has been modified to correct errata published by the ICC. The errata modifies the first exception to change a section reference from Section "606" to "605." This section has been modified to read: 5301.1 Scope. Storage, use and handling of compressed gasses in compressed gas containers, cylinders, tanks, and systems shall comply with this chapter and NFPA® 55, including those gases regulated elsewhere in this code. Partially full compressed gas containers, cylinders or tanks containing residual gases shall be considered as full for the purposes of the controls required.

(2) Liquefied natural gas for use as a vehicular fuel shall also comply with NFPA® 52 and NFPA® 59A.

(3) Compressed gases classified as hazardous materials shall also comply with Chapter 50 for general requirements and chapters addressing specific hazards, including Chapters 58 (Flammable Gases), 60 (Highly Toxic and Toxic Materials), 63 (Oxidizers, Oxidizing Gases and Oxidizing Cryogenic Fluids) and 64 (Pyrophoric Materials).

(4) Compressed hydrogen (CH₂) shall also comply with the applicable portions of Chapters 23 and 58 of this code, the International Fuel Gas Code® and NFPA® 2.

(5) Cutting and welding gases shall also comply with Chapter 35.

(6) Exceptions:

(A) Gases used as refrigerants in refrigeration systems (see Section 605).

(B) Compressed natural gas (CNG) for use as a vehicular fuel shall comply with Chapter 23, NFPA® 52 and the International Fuel Gas Code®.

(C) Cryogenic fluids shall comply with Chapter 55.

(D) LP-gas shall comply with Chapter 61 and the International Fuel Gas Code®.

(7) Section 5302.1 Definitions. This section has been modified to clarify the definition for a "CARBON DIOXIDE ENRICHMENT SYSTEM" has been added to the list of definitions defined in Chapter 2. This section has been modified to read: 5302.1 Definitions. The following terms are defined in Chapter 2:

(A) CARBON DIOXIDE ENRICHMENT SYSTEM.

(B) COMPRESSED GAS.

(C) COMPRESSED GAS CONTAINER.

(D) COMPRESSED GAS SYSTEM.

(E) NESTING.

(F) TUBE TRAILER.

(8) Section 5306.2.2 One-hour interior room. This section has been modified to correct errata published by the ICC. The modification requires in rooms where an exterior wall cannot be provided, a 1-hour interior room to be provided and requires the room to be a room or enclosure separated from the remainder of the building by fire barriers constructed in accordance with section 707 of the International Building Code® or horizontal assemblies constructed in accordance with Section 711 of the International Building Code® or both, with a fire-resistance rating of to less than 1 hour. This section has been modified to read: 5306.2.3 One-hour interior room. Where an exterior wall cannot be provided for the room, a 1-hour interior room shall be provided and shall be a room or enclosure separated from the remainder of the building by fire barriers constructed in accordance with Section 707 of the International Building Code® or horizontal assemblies constructed in accordance with Section 711 of the International Building Code®, or both, with a fire-resistance rating of not less than 1 hour. Openings between the room or enclosure and interior spaces shall be self-closing, smoke- and draft-control assemblies having a fire protection rating of not less than 1-hour. An automatic sprinkler system shall be installed within the room. The room shall be exhausted through a duct to the exterior. Supply and exhaust ducts shall be enclosed in a 1-hour rated shaft enclosure from the room to the exterior. Approved mechanical ventilation shall comply with the International Mechanical Code® and be provided at a minimum rate of 1 cfm per square foot [0.00508 cubic meters divided by (s times square meters)] of the area of the room.

748:20-4-59 IFC® Chapter 54 [RESERVED]

748:20-4-60. IFC® 2018 Chapter 55 Cryogenic Fluids

Chapter 55 of the Oklahoma adopted IFC® 2018 is adopted with the following modification: Section 5501.1 Scope. This section has been modified to add a third exception for liquefied natural gas (LNG) facilities for LNG vehicular applications to comply with Chapter 23 and NFPA® 52. This section has been modified to read: 5501.1 Scope.

(1) Storage, use and handling of cryogenic fluids shall comply with this chapter and NFPA® 55. Cryogenic fluids classified as hazardous materials shall also comply with the general requirements of Chapter 50. Partially full containers containing residual cryogenic fluids shall be considered as full for the purposes of the controls required. Exceptions:

(A) Fluids used as refrigerants in refrigeration systems (see Section 605).

(B) Liquefied natural gas (LNG), which shall comply with NFPA® 59 A.

(C) LNG facilities for LNG vehicular applications, which shall comply with Chapter 23 and NFPA® 52.

(2) Oxidizing cryogenic fluids, including oxygen, shall comply with Chapter 63, as applicable.

(3) Flammable cryogenic fluids, including hydrogen, methane, and carbon monoxide, shall comply with Chapters 23 and 58, as applicable.

(4) Inert cryogenic fluids, including argon, helium and nitrogen, shall comply with ANSI/CGA P-18.

748:20-4-61. IFC® Chapter 56 [RESERVED]

748:20-4-62. IFC® 2018 Chapter 57 Flammable and Combustible Liquids

Chapter 57 of the Oklahoma adopted IFC® 2018 is adopted with the following modification: Section 5705.5 Alcohol-based hand rubs classified as Class I or II. This section has been modified to require guards or shields on alcohol-based hand rub dispensers when installed over a carpeted area. This section has been modified to read: 5705.5 Alcohol-based hand rubs classified as Class I or II liquids. The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or II liquids shall be in accordance with all of the following:

(1) The maximum capacity of each dispenser shall be 68 ounces (2 L).

(2) The minimum separation between dispensers shall be 48 inches (1219 mm)

(3) The dispensers shall not be installed above, below, or closer than 1 inch (25 mm) to an electrical receptacle, switch, appliance, device or other ignition source. The wall space between the dispenser and the floor or intervening counter top shall be free of electrical receptacles, switches, appliances, devices or other ignition sources.

(4) Dispensers shall be mounted so that the bottom of the dispenser is not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) above the finished floor.

(5) Dispensers shall not release their contents except when the dispenser is manually activated. Facilities shall be permitted to install and use automatically activated "touch free" alcohol-based hand-rub dispensing devices with the following requirements:

(A) The facility or persons responsible for the dispensers shall test the dispensers each time a new refill is installed in accordance with the manufacturer's care and use instructions.

(B) Dispensers shall be designed and must operate in a manner that ensures accidental or malicious activations of the dispensing devices are minimized. At a minimum, all devices subject to or used in accordance with this section shall have the following safety features:

(i) Any activations of the dispenser shall only occur when an object is placed within 4 inches (98 mm) of the sensing device.

(ii) The dispenser shall not dispense more than the amount required for hand hygiene consistent with label instructions as regulated by the United States Food and Drug Administration (USFDA).

(iii) An object placed within the activation zone and left in place will cause only one activation.

(6) Storage and use of alcohol-based hand rubs shall be in accordance with the applicable provisions of Sections 5704 and 5705.

(7) Dispensers when installed over a carpeted area shall have a guard or shield to prevent alcohol-based hand rub product from dispensing onto the floor.

748:20-4-63. IFC® Chapter 58 [RESERVED]

748:20-4-64. IFC® Chapter 59 [RESERVED]

748:20-4-65. IFC® Chapter 60 [RESERVED]

748:20-4-66. IFC® 2018 Chapter 61 Liquefied Petroleum Gases

Chapter 61 of the Oklahoma adopted IFC® 2018 is adopted with the following modifications:

(1) Section 6106.1 Attendants. This section has been modified to provide an exception to the requirement for a qualified attendant if the motor fuel-dispensing equipment meets the guidelines of NFPA® 58 for a "Low emission transfer." This section has been modified to read: 6106.1 Attendants. Dispensing of LP-gas shall be performed by a qualified attendant. Exception: When the dispensing equipment meets the guidelines of NFPA® 58 for "Low emission transfer" an attendant is not required.

(2) Section 6106.2 Overfilling. This section has been modified to include an overfilling prevention device on the container as one of the ways to measure the volume in the container. This section has been modified to read: 6106.2 Overfilling. LP-gas containers shall not be filled or maintained with LP-gas in excess of either the volume determined using the fixed liquid-level gauge installed in accordance with the manufacturer's specifications and in accordance with Section 5.9.5 of NFPA® 58, the volume determined by the overfilling prevention device installed on the container, or the weight determined by the required percentage of water capacity marked on the container. Portable LP-gas containers shall not be refilled unless equipped with an overfilling prevention device (OPD) where required by Section 5.9.3 of NFPA® 58.

748:20-4-67. IFC® Chapter 62 [RESERVED]

748:20-4-68. IFC® Chapter 63 [RESERVED]

748:20-4-69. IFC® Chapter 64 [RESERVED]

748:20-4-70. IFC® Chapter 65 [RESERVED]

748:20-4-71. IFC® Chapter 66 [RESERVED]

748:20-4-72. IFC® Chapter 67 [RESERVED]

748:20-4-73. IFC® Chapter 68 [RESERVED]

748:20-4-74. IFC® Chapter 69 [RESERVED]

748:20-4-75. IFC® Chapter 70 [RESERVED]

748:20-4-76. IFC® Chapter 71 [RESERVED]

748:20-4-77. IFC® Chapter 72 [RESERVED]

748:20-4-78. IFC® Chapter 73 [RESERVED]

748:20-4-79. IFC® Chapter 74 [RESERVED]

748:20-4-80. IFC® Chapter 75 [RESERVED]

748:20-4-81. IFC® Chapter 76 [RESERVED]

748:20-4-82. IFC® Chapter 77 [RESERVED]

748:20-4-83. IFC® Chapter 78 [RESERVED]

748:20-4-84. IFC® Chapter 79 [RESERVED]

748:20-4-85. IFC® 2018 Chapter 80 Referenced Standards

Chapter 80 of the Oklahoma adopted IFC®2018 is adopted with the following modifications:

(1) The reference standard ICC 500® 2014 ICC/NSSA Standard for the Design and Construction of Storm Shelters has been added to the list of referenced standards. The referenced standard has been added to read: ICC 500® 2014 ICC/NSSA Standard for the Design and Construction of Storm Shelters. Code section references: 320.1, 320.2, 320.3

(2) The reference to the International Building Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IBC®-18 International Building Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(3) The reference to the International Existing Building Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the

OUBCC." This section has been modified to read: IEBC®-18 International Existing Building Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(4) The reference to the International Fuel Gas Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IFGC®-18 International Fuel Gas Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(5) The reference to the International Mechanical Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IMC®-18 International Mechanical Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(6) The reference to the International Plumbing Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through OUBCC." This section has been modified to read: IPC®-18 International Plumbing Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(7) The reference to the International Residential Code® has been modified to change the edition year to 2015 and include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: IRC®-15 International Residential Code® as adopted and modified by the State of Oklahoma through the OUBCC

(8) The referenced standard for NFPA® 70® National Electrical Code® has been modified to include after the title the words "as adopted and modified by the State of Oklahoma through the OUBCC." This section has been modified to read: 70-17 National Electrical Code® as adopted and modified by the State of Oklahoma through the OUBCC.

(9) The referenced standard NFPA® 76 Standard for the Fire Protection of Telecommunications Facilities, 2016 edition has been added to the code to reference sections in Chapter 12. This standard has been added to read: 76-16 Standard for the Fire Protection of Telecommunication Facilities, with the following section references: 1206.1.2.1, 1206.2.1, 1206.3.1, 1206.3.7.1, 1206.4.1, 1206.5.1, 1206.5.2, 1206.5.3, 1206.5.5, Table 1206.6, 1206.6.2.3, and Table 1206.7.

(10) The referenced standard for NFPA® 260 Methods of Tests and Classification Systems for Cigarette Ignition Resistance of Components of Upholstered Furniture has been modified to address errata published by the ICC and changes the edition year from 2018 to 2013. This section has been modified to read: 260-13 Methods of Tests and Classification Systems for Cigarette Ignition Resistance of Components of Upholstered Furniture.

(11) The referenced standard for NFPA® 289 Standard Method of Fire Test for Individual Fuel Packages has been modified to address errata published by the ICC and changes the edition year from 2018 to 2013. This section has been modified to read: 289-13 Standard Method of Fire Test for Individual Fuel Packages.

(12) The referenced standard UL 1974-18 Evaluation for Repurposing Batteries has been added to the code. This referenced standard has been added to read: 1974-18 Evaluation for repurposing Batteries, referenced in code section number: 1206.3.9.

(13) The referenced standard UL 9540A-18 Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, has been added to the code. This reference as has been added to read: 9540A-18 Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, Referenced in code section number: 1206.1.5, 1206.6.3

748:20-4-86. Appendix O, Egress Path Markings for Existing Buildings

This appendix has been newly created and entitled "Appendix O, Egress Path Markings for Existing Buildings." The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

(1) Section O101 General. This section has been added to clarify scope and intent for this appendix. This section has been added to read: O101 General.

(A) Section O101.1 Scope. This section has been added to specify the provisions of the appendix and shall apply to existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies. This section has been added to read: O101.1 Scope. The provisions of this appendix shall apply to existing high-rise buildings of Group A, B, E, I, M, and R-1 occupancies in addition to the requirements of Chapter 11.

(B) Section O101.2 Intent. This section has been added to specify the intent of this appendix is to provide an additional degree of life-safety to persons occupying existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies. This section has been added to read: O101.2 Intent. The intent of this appendix is to provide an additional degree of life-safety to persons occupying existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies where such buildings do not contain luminous egress path markings.

(2) Section O102. Egress path markings. This section, formerly numbered Section 1104.25 has been moved into Appendix O entitled "Egress Path Markings for Existing Buildings." The section has been added to read: O102. Egress path markings. Existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies shall be provided with luminous egress path markings in accordance with Section 1025. Exception: Open, unenclosed stairwells in historic buildings designated as historic under a state or local historic preservation program.