

Board of Appeals

November 7, 2024

Members Present: Clay Dietrich, Justin Schoenberg and David Vig

Members Absent: Brian Berg, Kevin Bartram and Mark Lundberg

Others Present: Shawn Ouradnik, Dawn Stollenwerk, Kenton Chromey, Trevor Rysgaard, Joe Svir, Ryan Young, Brett Bergh, Matt Kramer, William Wischer, and Michelle Lemar

Chairperson Clay Dietrich called the meeting to order at 9:31am.

Justin Schoenberg made a motion to approve the minutes from October 3, 2024, seconded by David Vig. No one was in opposition and the motion was declared carried.

### **Unfinished Business**

- a) Code Review – IFC Chapters 4-80

### **2024 IFC Chapters 4-7 presented by Kenton Chromey**

#### **Chapter 4**

##### **Emergency Planning and Preparedness**

New subsection language added:

##### **403.10.6 Lithium-ion and lithium metal batteries – pg. 102**

Summary:

An approved fire safety and evacuation plan is needed for occupancies that involve activities for the research and development, testing, manufacturing, handling, or storage of lithium-ion batteries or lithium metal batteries, or the repair or servicing of vehicles powered by lithium-ion batteries or lithium metal batteries.

New subsection language added:

##### **403.10.6.1 Mitigation planning – pg. 102**

Summary:

The approved fire safety and evacuation plan shall include thermal runaway event mitigation measures.

New language added for clarification:

##### **407.1 General – pg. 106**

Summary:

Permit required for operating or closing a hazardous materials storage, use, or handling facilities.

#### **Chapter 5**

##### **Fire Service Features**

##### **503.4 Obstruction of fire apparatus access roads. – pg. 108**

Amended to read as follows:

Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Section 503.2.1 and 503.2.2 shall be maintained at all times. Enforcement of such prohibited parking may be accomplished in the same manner as regulations contained in Article 8-10 and in Section 9-0705 of the Fargo Municipal Code.

The FMC contains ordinances to deal with parking that are used as guidelines for enforcement.

**507.5.4 Obstruction – pg. 110**

Amended to read as follows:

Unobstructed access to fire hydrants shall be maintained at all times. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants. An Approved hydrant marker shall be installed immediately adjacent to the rear of the hydrant.

This is a new amendment to codify the city’s requirement to have a hydrant marker installed. The hydrant markers allow hydrants to be located in deep snow.

New language added for clarification:

**510.1 Emergency responder communications enhancement systems (ERCES) - pg. 112**

Summary:

When/where required, the ERCES shall be of a type determined by the fire code official and frequency license holder(s).

**Exceptions added:**

4. One-story buildings not exceeding 12,000 square feet (1115 m2) with no below-ground area(s).

New subsection language added:

**510.3 Permits – pg. 112**

Summary:

Emergency Responder Communications Enhancement Systems require a permit.

New subsection language added:

**510.3.2 Operational permit pg. 112**

Summary:

Type of permit required for Emergency Responder Communications Enhancement Systems.

New language added for clarification:

**510.4.1.1 Minimum signal strength into the building – pg. 112**

Summary:

Measuring the downlink using either narrowband analog, digital, or wideband LTE signals or equivalents.

New language added for clarification:

**510.4.1.2 Minimum signal strength out of the building – pg. 112**

Summary:

Measuring the uplink using either narrowband analog, digital, or wideband LTE signals or equivalents.

New language added for clarification of NFPA Reference change:

**510.4.2 System design – pg. 112**

Summary:

NFPA reference change from NFPA 1221 (2019 ed.) to NFPA 1225 (2022 ed.)

New language added for clarification:

**510.4.2.4 Signal booster requirements – pg. 113**

Summary:

Requirement number 5 indicates that the system shall be permitted to shut down in the event of uncorrectable oscillation with a supervisory signal being transmitted.

New language added for clarification:

**510.4.2.5 System monitoring – pg. 113**

Summary:

Monitoring needed for the low-battery capacity at 70 percent of the 12-hour operating capacity has been depleted.

New subsection language added:

**510.4.2.5.1 Single supervisory input – pg. 113**

Summary:

A supervisory signal shall be permitted where approved.

New language added for clarification:

**510.4.2.8 Near-far effect – pg. 113**

Summary:

Where a signal booster is required by the RF system designer, the dynamic range of the in-building emergency responder communications enhancement system shall be designed to minimize the effects of strong signal automatic gain control on weak signal uplink performance.

New subsection language added:

**510.4.2.9 Noise interference – pg. 113**

Summary:

Where a signal booster is used, signal booster type(s) and the uplink signal and noise levels shall be coordinated with and approved by all frequency license holder(s) that may be adversely impacted by any transmitted noise resulting from the in-building emergency responder communications enhancement system. Systems shall be in compliance with all frequency licensing authority requirements.

New language added for clarification of NFPA Reference change:

**510.5 Installation requirements – pg. 113**

Summary:

NFPA reference change from NFPA 1221 (2019 ed.) to NFPA 1225 (2022 ed.)

New subsection language added:

**510.5.2.1 Active RF-emitting devices – pg. 114**

Summary:

Active RF-emitting devices shall meet the following requirements in addition to any other requirements determined by the fire code official or the frequency license holder(s):

1. Active RF-emitting devices that have a transmitted power output sufficient to require certification of the frequency licensing authority shall have the certification of the radio frequency licensing authority prior to installation.
2. All active RF-emitting devices shall be simultaneously compatible for their intended use, as required by the frequency licensing authority, the frequency license holder(s), and the fire code official, at the time of installation.
3. Written authorization shall be obtained from the frequency license holder(s) prior to the initial activation of any RF-emitting devices required to be certified by the frequency licensing authority.

## **Chapter 6**

### **Building Services and Systems**

New subsection language added:

#### **603.4.2 Disconnect means marking – pg. 117**

Summary:

The disconnecting means for each service, feeder, or branch circuit originating on a switchboard or panel board shall be legibly and durably marked to indicate its purpose unless such purpose is clearly evident.

New subsection language added:

#### **603.4.3 Multiple supply connections marking – pg. 117**

Summary:

Where buildings or structures are supplied by more than one power source, markings shall be provided at each service equipment location and at all interconnected electric power production sources identifying all-electric power sources at the premises in accordance with NFPA 70.

New language added for clarification:

Exception removed:

#### **604.4 Emergency signs – pg. 118**

Summary:

Approved language for signage when elevators are out of service.

Exception removed:

#### **608.17 Electrical equipment – pg. 125**

Summary:

Exception #2 was removed and language was incorporated into section 608.18 to reference the International Mechanical Code.

Language refined:

#### **608.18 Group A2L and B2L refrigerant – pg. 125**

Summary:

Referencing of the International Mechanical Code, Sections 1106.4.1 through 1106.4.3.

New language added:

#### **608.18.1 Elevated temperatures – pg. 125**

Open flame-producing devices or continuously operating hot surfaces over 1,290°F (700°C) shall not be permanently installed in the room.

Language refined for clarification:

#### **608.18.2 – Refrigerant detector – pg. 125**

Summary:

Referencing the International Mechanical Code, Section 1105.3 and Table 608.18.2.

Table changed for Minimum Exhaust Rate to Refrigerant Detection:

**Table 608.18.2 Group A2L and B2L detector activation**

TABLE 608.18.2—GROUP A2L AND B2L DETECTOR ACTIVATION				
ACTIVATION LEVEL	MAXIMUM RESPONSE TIME (seconds)	ASHRAE 15 VENTILATION LEVEL	ALARM RESET	ALARM TYPE
Less than or equal to the OEL in Table 1103.1 of the <i>International Mechanical Code</i>	300	1	Automatic	Trouble
Less than or equal to the refrigerant concentration level in Table 1103.1 of the <i>International Mechanical Code</i>	15	2	Manual	Emergency

Language refined to reference standard:

**608.18.3 Mechanical ventilation – pg. 125**

Summary:

Mechanical ventilation referencing ASHRAE 15.

**Chapter 7**

**Fire and Smoke Protection Features**

New language added:

**701.6.1 Recording keeping – pg. 126**

Summary:

Referencing section 110.3 on requirements for recordkeeping.

New language added:

**705.2.7 Periodic inspection and testing of rolling steel fire doors – pg. 128**

Summary:

Inspection and testing as referenced in NFPA 80.

Clay Dietrich asked if communications testing is done annually. Dawn Stollenwerk said building owners are required to have 3<sup>rd</sup> party testing done annually and the fire department reviews those records. The fire department may do spot checks at any given time.

**2024 IFC Chapters 8-10 presented by Dawn Stollenwerk**

**Chapter 8**

**Interior Finish, Decorative Materials and Furnishings**

**806.1.1 Restricted occupancies – pg. 135**

Amended to read as follows:

**806.1.1 Restricted occupancies.** Natural cut tress shall be prohibited within ambulatory care facilities and Group A, E, I-1, I-2, I-3, I-4, R-1, R-2 and R-4 occupancies.

**Exceptions:**

3. For purposes of this provision, churches shall not be deemed public buildings and may utilize natural or resin bearing cut trees in the altar area of the church. No electric lighting is allowed on the tree.

This longstanding amendment allows churches to have trees as decoration. The natural cut trees are required to comply with section 806.

## Chapter 9

### Fire Protection and Life Safety Systems

New subsection added for Group B automatic sprinkler system requirements:

#### **903.2.2.2 Laboratories involving research and development or testing – pg. 143**

An *automatic sprinkler system* shall be installed throughout *fire areas* utilized for the research and development or testing of lithium-ion or lithium metal batteries.

New automatic sprinkler system requirements added for F-1 occupancies:

#### **903.2.4 (4 & 5) Group F-1. – pg. 143**

An *automatic sprinkler system* shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exist:

4. A Group F-1 occupancy is used to manufacture lithium-ion or lithium metal batteries.
5. A Group F-1 occupancy is used to manufacture vehicles, energy storage systems or equipment containing lithium-ion or lithium metal batteries where the batteries are installed as part of the manufacturing process.

New subsection in Group M automatic sprinkler requirements:

#### **903.2.7.3 Lithium-ion or lithium metal battery storage – pg. 144**

An *automatic sprinkler system* shall be provided in a room or space within a Group M occupancy where required for the storage of lithium-ion or lithium metal batteries by section 320 of Chapter 32.

New automatic sprinkler requirements for group S-1 occupancies:

**903.2.9 (5) 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:

5. A Group S-1 *fire area* used for the storage of lithium-ion or lithium metal powered vehicles where the fire area exceeds 500 square feet (46.4 m<sup>2</sup>).

New automatic sprinkler requirements for group S-1 Repair garage occupancies:

**903.2.9.1 (5) Repair garages.** An *automatic sprinkler system* shall be provided throughout all buildings used as repair garages in accordance with Section 406.8 of the *International Building Code*, as shown:

5. A Group S-1 *fire area* used for the storage of lithium-ion or lithium metal powered vehicles where the fire area exceeds 500 square feet (46.4 m<sup>2</sup>).

#### **903.3.1 Standards – pg. 148**

Amended to read as follows:

**903.3.1 Standards.** Automatic sprinkler systems shall be designed with a 5 psi safety margin and installed in accordance with Sections 903.3.1.1, 903.3.1.2 or 903.3.1.3 and other chapters of this code, as applicable.

This amendment is requested due to the fluctuation of water pressure at various times of the day and also day of the year.

##### **903.3.1.1.1 Exempt locations – pg. 148**

Amended to read as follows:

**903.3.1.1.1 Exempt locations:** Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an *approved* automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers

shall not be omitted from a room merely because it is damp, of *fire-resistance-rated* construction or contains electrical equipment.

6. Elevator machine room and machinery spaces. Where sprinklers are not installed in elevator machine rooms, shunt trip required in accordance with IBC 3005.5 shall not be installed.

This proposed amendment would allow elevator machine rooms to not be sprinklered and thereby remove the requirement for elevator shunt trips. This amendment would match the construction practice currently occurring in the state of MN.

New section regarding the design requirements of the fire sprinkler system when areas contain Lithium-ion and lithium metal batteries.

**903.3.1.1.3 Lithium-ion or lithium metal batteries – pg. 148**

Where *automatic sprinkler systems* are required by this code for areas containing lithium-ion or lithium metal batteries, the design of the system shall be based on a series of fire tests. Such test shall be conducted or witnessed and reported by an approved testing laboratory involving test scenarios that address the range of variable associated with the intended arrangement of the hazards to be protected.

**903.3.5 Water supplies – pg. 149**

Amended to read as follows:

**903.3.5 Water supplies.** Water supplies for automatic sprinkler systems shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the International Plumbing Code. For connections to public waterworks systems, the water supply test used for design of fire protection systems shall be adjusted to account for seasonal and daily pressure fluctuations based on information from the water supply authority and as approved by the fire code official. Underground water supply piping shall be constructed of a material allowed by Fargo Municipal Code Chapter 16 and Chapter 22 and shall be allowed to extend into the building through the slab or wall not more than 24 inches.

This proposed amendment would allow the use of PVC pipe for the fire main as it passes into the building.

New air-sampling-type or radiant-energy-sensing fire alarm requirement to the Group B occupancies:

**907.2.2.2 Laboratories involving research development and testing – pg. 161**

A *fire alarm system* activated by an air-sampling-type smoke detection system or a radiant-energy-sensing detection system shall be installed throughout the entire *fire area* utilized for the research and development or testing or lithium-ion or lithium metal batteries.

New fire alarm requirement to the Group F occupancies:

**907.2.4.1 Manufacturing involving lithium-ion or lithium metal batteries – pg. 162**

A *fire alarm system* activated by air-sampling-type smoke detection system or a radiant-energy-sensing detection system shall be installed throughout the entire *fire area* where lithium-ion or lithium metal batteries are manufactured; and where the manufacturer of vehicles, energy storage systems or equipment containing lithium-ion or lithium metal where the batteries are installed as part of the manufacturing process.

New fire alarm requirements for Group M occupancies:

**907.2.7.2 Storage of lithium-ion or lithium metal batteries – pg. 163**

A *fire alarm system* activated by air-sampling-type smoke detection system or a radiant-energy-sensing detection system shall be installed in a room or space within a Group M occupancy where required for the storage of lithium-ion or lithium metal batteries by **section 320**.

New fire alarm requirements for Group S occupancies:

**907.2.10.2 Storage of lithium-ion or lithium metal batteries – pg. 164**

A *fire alarm system* activated by air-sampling-type smoke detection system or a radiant-energy-sensing detection system shall be throughout the entire *fire area* where required for the storage of lithium-ion or lithium metal batteries by **section 320**.

**907.2.11.1 Group R-1 – pg. 164**

Amended to read as follows:

Single- or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:

4. In sleeping units where the ceiling height of a room open to the hallway serving the sleeping rooms exceeds that of the hallway by 24 inches or more, smoke alarms shall be installed in the hallway and in the adjacent room.

To align with the amendment to IBC.

**907.2.11.2 Groups R-2, R-3, R-4 and I-1 – pg. 164**

Amended to read as follows:

Single- or multiple station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of occupant load at all of the following locations:

\* \* \*

4. In dwelling units where the ceiling height of a room open to the hallway serving the sleeping room exceeds that of the hallway by 24 inches or more, smoke alarms shall be installed in the hallway and in the adjacent room.

To align with the amendment to IBC.

**907.8.3 Smoke detector sensitivity – pg. 171**

Is hereby deleted in its entirety.

This section is adequately addressed through the maintenance requirements of NFPA 72.

New exception to carbon monoxide requirements:

**915.1 – pg. 188**

**Exception:** Carbon monoxide detection is not required in Group S, Group F and Group U occupancies that are not normally occupied.

Dawn shared that for a while here we are going to talk about some changes made to carbon monoxide detection. Going to quickly learn that the changes made throughout the code is that carbon monoxide detection is now required in every occupied space that contains a fuel burning appliance or any potential to produce carbon monoxide...attached garages and such. This is a pretty significant change moving forward.



New requirements for carbon monoxide detection:

**915.1.1 Where required – pg. 188**

Carbon monoxide detection shall be installed in the locations specified in **Section 915.2** where any of the following conditions exist:

1. In buildings that contain a *CO source*.
2. In buildings that contain or are supplied by a CO-producing forced-air furnace.
3. In buildings with attached private garages.
4. In buildings that have a CO-producing vehicle that is used within the building.

New requirement for carbon monoxide detection:

**915.3.2 Fire alarm system required – pg. 189**

New buildings that are required by **Section 907.2** to have a *fire alarm system* and by **915.2** to have carbon monoxide detectors shall be connected to the *fire alarm system* in accordance with **NFPA 72**.

New requirement for carbon monoxide detection:

**915.3.3 Fire alarm system not required – pg. 189**

In new buildings that are not required by **Section 907.2** to have a *fire alarm system*, carbon monoxide detection shall be provided by one of the following:

1. Carbon monoxide detectors connect to an *approved* carbon monoxide detection system in accordance with **NFPA 72**.
2. Carbon monoxide detectors connected to an *approved* combination system in accordance with **NFPA 72**.
3. Carbon monoxide detectors connected to an *approved fire alarm system* in accordance with **NFPA 72**.
4. Where *approved* by the fire code official, carbon monoxide alarms maintained in accordance with the manufacturer's instructions.

New carbon monoxide subsection:

**915.4.4 Interconnection – pg. 189**

Where more than one carbon monoxide alarm is required to be installed, carbon monoxide alarms shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms. Physical interconnection of carbon monoxide alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

New carbon monoxide subsection:

**915.5.4 Occupant notification – pg. 190**

Activation of a carbon monoxide detector shall annunciate at the control unit and shall initiate audible and visible alarm notification throughout the building.

**Exception:** Occupant notification is permitted to be limited to the area where the carbon monoxide signal originated and other signaling zones in accordance with the fire safety plan, provided that the alarm signal from an activated carbon monoxide detector is automatically transmitted to an *approved* on-site location or off-premises location.

New mass notification risk analysis requirement for new Group E occupancies with an occupant load of 500 or more:

**917.2 Group E occupancies – pg. 191**

Mass notification system to be installed depending on results of the risk analysis.

## Chapter 10

### Means of Egress

#### 1009.8.1 System requirements – pg. 205

Amended to read as follows:

**1009.8.1 System requirements.** Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location *approved* by the fire department. Where the central control point is not constantly attended, a two-way communication system shall have a timed automatic telephone dial-out capability that provides two-way communication with an *approved* supervising station ~~or emergency services~~. The two-way communication system shall include both audible and visible signals. Systems shall be listed in accordance with UL 2525 and installed in accordance with NFPA 72.

This amendment removes the possibility of having a system directly dial dispatch. Fire alarm codes restrict dialers from calling directly to dispatch centers in order to ensure the reliability of the center. This amendment will treat two-way communication systems similarly.

#### 1011.1 General – pg. 216

Amended exceptions to read as follows:

1. Within rooms or spaces used for assembly purposes, stepped *aisles* shall comply with Section 1030.
2. A stairway complying with section 1011 except where in a B, F, M, S or U that serves an area of 750 sf or less, and is not open to the public, that has a maximum riser height of 8 inches and a minimum tread depth of 9 inches, has a minimum width of 36 inches and has at least one handrail that terminates at the top and bottom riser and otherwise complies with section 1014.

To align with the amendment to IBC.

#### 1011.5.2 Riser height and tread depth – pg. 216

Amended exceptions to read as follows:

3. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be ~~7 ¾ inches (197 mm)~~ 8 inches; the minimum tread depth shall be ~~10 inches (254 mm)~~ 9 inches;
6. Stairways used only to attend equipment or private stairways serving an occupant load of 10 or fewer persons and which are not accessible to the public are permitted to have a maximum 8 inch riser height and minimum 9 tread depth.

To align with the amendments to IBC.

#### 1032.2.2.2 Examination – pg. 246

New section identifying examination and maintenance requirements for fire escapes.

David asked about 903.3.5 water supplies. Looks like adding this requirement so fire protection can't enter further than 24 inches into a building. What's driving that? Dawn clarified that the 24 inch requirement comes out of the NFPA 13 and 24. You can't have CPVC enter more than 24 inches and that was just carried over another standard. David shared that he could see that presenting some challenges

and he didn't recall seeing that 24 inches before. Dawn shared this is only if you are using CPVC. If you are still using ductile iron you can come up further but the 24 inches is limited to the CPVC.

## **2024 IFC Chapters 12-26 presented by Trevor Rysgaard**

### **Chapter 12**

#### **Energy Systems**

##### **1201.1 Scope – pg. 265**

Scope added that this chapter also applies to energy storage systems under the exclusive control of an electric utility or lawfully designated agency.

Added that Section 1207 shall comply with this chapter, as appropriate, and NFPA 855.

NFPA 855 is the Standard for the Installation of Stationary Energy Storage Systems and has been added to several sections of Chapter 12.

##### **1205.2 Access and pathways – pg. 268**

Access to pathways, Exception 3 added language to comply with UL 1341. This has also been added to several sections of Chapter 12.

UL 3741 was added and replaced "a national test standard developed to address Section 690.12(B)(2) of NFPA 70"

UL 3741 addresses safety processes and principles for evaluating and recognizing compliance for, rapid-shutdown photovoltaic arrays that protect firefighters from shock hazards on rooftops with solar panels. To achieve UL 3741 certification, products must pass a series of tests designed to simulate situations firefighters may encounter on a solar rooftop. The testing analyzes what happens when first responders fall on damaged solar panels while wearing typical protective gear.

##### **1205.2.3 Building-integrated photovoltaic (BIPV) systems – pg. 269**

Language added to existing markings requirements for areas to avoid ladder placement and requiring markings to be visible from beneath eaves.

##### **1207.1 General – pg. 272**

New section allowing exceptions for electrical energy storage systems for capacitors and capacitor equipment for electric utilities and industrial facilities.

##### **1207.1.2 Mobile ESS – pg. 272**

New section allowing mobile electrical energy storage systems at an electrical substation or generation facility for 90 days or less shall not be added to the threshold values stated in the following table.

##### **Table 1207.1.3 – Energy storage systems (ESS) threshold quantities – pg. 272**

Added the following battery technology to the table:

Nickel metal hydride (Ni-MH)

Nickel zinc (Ni-Zn) batteries

Nonelectrochemical ESS

Sodium nickel chloride batteries, removed nickel metal hydride

Zinc manganese dioxide batteries (Zn-MnO<sub>2</sub>)

### **1207.1.5 Construction Documents – pg. 273**

Added bullet point 11 requiring a fire safety and evacuation plan to be submitted with the permit application.

#### **1207.1.5.1 Utilities applicability – pg. 273**

Section added requiring plans and specifications associated with ESS owned and operated by electric utilities as a component of the electric grid that are considered critical infrastructure documents, shall be made available to the fire code official for viewing.

#### **1207.1.6 Hazard mitigation analysis – pg. 372**

Added bullet point 4 allowing the fire code official to require a failure mode and effect analysis to address a potential hazard with an ESS installation that is not addressed by existing requirements.

#### **1207.1.8.1 Fire mitigation personnel – pg. 274**

Where a fire has damaged an ESS, the responsible party shall dispatch fire mitigation personnel within 15 minutes; prior code stated that the dispatch shall be immediate.

#### **1207.2.1 Commissioning – pg.274**

Added exceptions for commissioning newly installed and existing ESS. New exceptions include lead-acid and nickel-cadmium-battery systems in telecommunications facilities and for DC power for control of substations that are exclusively controlled by the electrical utility.

#### **1207.3.1 Energy storage system listings – pg. 275**

Exceptions to the UL 9540 listing requirements for energy storage systems apply to lead-acid and nickel-cadmium-battery systems in telecommunications facilities and for DC power for control of substations that are exclusively controlled by the electrical utility.

#### **1207.3.7.1 Retrofitting lead acid and nickel cadmium – pg. 276**

Changing out or retrofitting of lead-acid and nickel-cadmium batteries with other lead-acid and nickel-cadmium batteries shall be considered repairs if there is no increase in system size or energy capacity greater than 10% of the original design.

#### **Table 1207.5 Maximum allowable quantities of electrochemical ESS – pg. 277**

Added the following storage batteries: nickel-metal hydride, nickel-zinc, sodium nickel chloride, and zinc-manganese dioxide.

#### **1207.5.1 Size and separation – pg. 277**

Added two size and separation exceptions: Lead-acid battery systems used for DC power for substations controlled by electric utilities and are outside, and systems utilized for standby power that are UL 1778 compliant.

#### **1207.5.3 Elevation – pg. 278**

Added two elevation exceptions: Lead-acid battery systems used for DC power for substations controlled by electric utilities and are outside, and systems utilized for standby power that are UL 1778 compliant.

#### **1207.5.4 Fire Detection – pg. 278**

Fire detection exception for normally unoccupied, remote telecommunications structures less than 1500 square feet.

#### **1207.5.5 Fire suppression systems – pg. 278**

Suppression systems are not required for Lead-acid battery systems used for DC power for substations controlled by electric utilities and are outside, and systems utilized for standby power that are UL 1778 compliant.

#### **Table 1207.6 Electrochemical ESS technology-specific requirements – pg. 279**

Added zinc-manganese dioxide and sodium nickel chloride batteries.

#### **1207.6.3 Explosion control – pg. 280**

Four exceptions were added for Explosion Control in rooms or cabinets.

3. ESS cabinets that have no debris or shrapnel shall be permitted in lieu of explosion control complying with section 911.

4. No explosion control is required for less than 50 VAC in telecommunication facilities.

5. Explosion control is not required lead-acid battery systems are used for DC power for substations controlled by electric utilities and are outside.

6. Explosion control is not required lead-acid battery systems used in uninterruptable power supplies for standby power that are UL 1778 compliant.

#### **1207.10.1 Charging and storage – pg. 284**

Exception added for Charging and Storage pertaining to where on a site an ESS can be charged and stored.

Exception: Mobile ESS used to temporarily provide power to systems that are used for DC power for control of substations exclusively controlled by electric utility and outdoors.

#### **1207.10.2 Deployment – pg. 284**

Exception added for Deployment pertaining to where on a site an ESS can be located when not being charged and stored.

Exception: Mobile ESS used to temporarily provide power to systems that are used for DC power for control of substations exclusively controlled by electric utility and outdoors.

#### **1207.11 ESS in Group R-3 and R-4 occupancies – pg. 286**

Exception states that an ESS used in dwelling units must be listed and labeled in accordance with UL 9540 and marked "For use in residential dwelling units" and installed in accordance with NFPA 70 and manufacturer's instructions.

#### **1207.11.3 Location – pg. 286**

Added language requiring that the dwelling units and sleeping units be finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with not less than 5/8-inch Type X gypsum wallboard.

**1207.11.7.1 Garages – pg. 286**

Requirements to protect ESS systems from impact inside garages of R-3 and R-4 occupancies.

**Figure 1207.11.7.1 ESS vehicle impact protection – pg.287**

New Figure depicting acceptable ESS vehicle impact protection.

**1207.11.7.2 Other locations subject to vehicle impact – pg. 288**

New sections pertaining to impact protection in other locations susceptible to impact that are not in a garage.

**1207.11.7.3 Impact protection options – pg. 288**

New section explaining impact protection options and construction requirements.

**Chapters 13-19 Reserved for future use**

**Chapter 20**

**Aviation Facilities – pg. 290**

No changes.

**Chapter 21**

**Dry Cleaning – pg. 297**

No changes.

**Chapter 22**

**Combustible Dust-Producing Operations – pg. 301**

No changes.

**Chapter 23**

**Motor Fuel-Dispensing Facilities and Repair Garages**

**2303.1 Location of dispensing devices – pg. 306**

Amended to read as follows:

Subsection 7:

7. On new installations, dispensing devices used to fill portable containers with home heating fuels shall not be located on the same island where Class I liquids are dispensed.

**2306.1 General – pg. 309**

Amended to read as follows:

**2306.1 General – pg. 309**

Storage of flammable and combustible liquids shall be in accordance with Chapter 57 and Sections 2306.2 through 2306.6.3. See also Fargo Municipal Code, Section 9-0604.

FMC 9-0604 relates to the licensing of service stations and bulk oil dealers as per the auditor's office.

### **2309.6 Repairs, purging, defueling and discharge – pg. 318**

Repairs, purging, defueling and discharge section for hydrogen motor fuel dispensing added clarifying language to the exception and added defueled in accordance with section 2311.8.11.

## **Chapter 24**

### **Flammable Finishes**

#### **2404.2 Prohibited enclosures for spray application operations – pg. 325**

Inflatable or portable enclosures shall not be used for spray application of flammable finishes. An exception is spray applications in marinas or dry docking areas and comply with 2404.3 (Membrane structure must comply with NFPA 33)

#### **2404.5.4 Limited Finishing workstation – pg. 326**

New Section, limited finishing workstations shall comply with NFPA 33 and sections 2404.6 through 2404.10. According to NFPA 33 a limited finish workstation is not a spray booth or spray room, but a power-ventilated apparatus that is capable of confining vapors, mists, residues, etc., that are generated by a limited spray application process.

#### **2404.8.1.2.1 Interlocks – pg. 327**

For spray booth drying processes automatic shut off. Increased the maximum allowable discharge air temperature from 200° F to 221° F or the heater's listing.

## **Chapter 25**

### **Fruit and Crop Ripening – pg. 334**

No changes.

## **Chapter 26**

### **Fumigation and Insecticidal Fogging – pg. 335**

No changes.

Clay asked about garages, now 5/8 inch sheetrock, used to be 1/2 inch on the wall between the two spaces. Is that on all residential buildings? Where are we seeing that? Dawn asked Shawn to talk to that. Shawn responded that they haven't gone through the IRC yet but he does believe it to be in regards to storing lithium batteries. Have to follow up with that when we talk with IRC.

## **2024 IFC Chapters 27-35 presented by Joe Svir**

## **Chapter 27**

### **Semiconductor Fabrication Facilities**

#### **2704.2.2.1 Storage and use in fabrication areas – pg. 342**

Quantity Limits for Hazardous materials in a single fabrication area in Group H-5 have changed in Table 2704.2.2.1

## **Chapter 28**

### **Lumber Yards and Agro-Industrial, Solid Biomass and Woodworking Facilities – pg. 346**

No significant changes.

## **Chapter 29**

### **Manufacture of Organic Coatings p pg. 350**

No significant changes.

## **Chapter 30**

### **Industrial Ovens – pg. 353**

No significant changes.

## **Chapter 31**

### **Tents, Temporary Special Event Structures and Other Membrane Structures**

#### **3103.5 Construction Documents – pg. 355**

Water filled vessels used to anchor a tent or membrane structure shall be in accordance with Section 3103.8.1

#### **3103.8.1 – Water-filled vessels – pg. 356**

Water filled vessels shall be permitted to be used where approved and in accordance with the tent or membrane structure manufacturer's load specifications.

#### **3106 Inflatable Amusement Devices – pg. 359**

New Section 3106 – Inflatable amusement devices with applicable requirements including General, Combustible materials, electrical equipment, generators and fire extinguisher compliance.

#### **3107.2 General – pg. 359**

Is amended to read as follows:

**3107.2 General.** Outdoor assembly events with planned attendance exceeding 1,000 people shall be in accordance with this section and Section 403.11. Temporary structures erected for outdoor assembly events shall comply with this chapter.

This amendment will set the threshold where events shall be required to comply with the safety requirements from Section 3107.

#### **3108.4 Open or exposed flame – pg. 360**

Open or exposed flame shall not be permitted inside or located with 10 ~~20~~ feet.

Exception: Cooking devices shall comply with Section 3108.12

#### **3108.12 Heating and cooking equipment – pg. 360**

Temporary heating and cooking equipment shall be in accordance with **Chapter 41**. Permanent heating and cooking equipment shall be in accordance with **Chapter 6**.



## **Chapter 32**

### **High-Piled Combustible Storage**

#### **3208.3 Flue spaces – pg. 377**

Wording added for Flue space measurement.

**Table 3208.3 The space taken up by rack uprights that is not obstructed by commodities or solid shelving is allowed to be included in the transverse flue space measurement**

## **Chapter 33**

### **Fire Safety During Construction and Demolition**

#### **3303 Administrative Safety Controls – pg. 379**

wording changed from Owner's Responsibility for Fire Protection to **Administrative Safety Controls**

##### **3303.1 Program development and maintenance – pg. 379**

Is amended to read as follows:

**3303.1 Program development and maintenance.** The owner or owner's authorized agent shall be responsible for the development, implementation and maintenance of an approved, written site safety plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, repair, alteration or demolition work. When required by the fire code official, the plan shall be submitted and approved before a building permit is issued, . . . .

This amendment will require the site safety plan be submitted prior to building permit when required by the fire code official. This will allow smaller projects to obtain a permit without submitting the plan. However, the site will still be required to comply with section 3303.

##### **3303.1.1 Components of site safety plans – pg. 379**

New wording added to 11.

Provisions for site security and where required, for a fire watch.

##### **3303.3 Daily fire safety inspections – pg. 379**

Added to list is #11. Where a fire watch is required in accordance with Section 3303.5, fire watch records required by that section are up-to-date.

##### **3304 Protection of Combustible Materials – pg. 381**

Changed from Temporary Heating Equipment to Protection of Combustible Materials.

##### **3305 Ignition Source Controls – pg. 381**

Changed from Precautions against Fire to Ignition Source Controls

##### **3305.8 Portable Generators – pg. 381**

Changed from General to Portable Generators.

##### **3305.10 Safeguarding roofing operations – pg. 381**

Changed from General to Safeguarding roofing operations.

**3306 Fire Protection Systems and Devices – ph. 382**

Changed from Flammable and Combustible Liquids to Fire Protection Systems and Devices.

**3306.5 Automatic Sprinkler System – pg. 382**

Changed from Completion Before Occupancy to Automatic Sprinkler System.

**3306.6 Portable Fire Extinguishers – pg. 382**

Changed from Where Required to Portable Fire Extinguishers.

**3307 Fire Department Site Access and Water Supply – pg. 382**

Changed from Flammable Gases to Fire Department Site Access and Water Supply.

**3307.2 Water Supply for Fire Protections – pg. 382**

Changed from When Required to Water Supply for Fire Protections.

**3307.5 Standpipes – pg. 383**

Changed from Where Required to Standpipes.

**3308 Motorized Construction Equipment – pg. 383**

Changed from Explosive Materials to Motorized Construction Equipment.

**3309 Hazardous Materials – pg.383**

Changed from Portable Generators to Hazardous Materials.

**3310 Additional Safeguards for Occupied Buildings – pg. 384**

Changed from Fire Reporting to Additional Safeguards for Occupied Buildings.

**3311 Additional Safeguards for Types 1 and 2 Construction – pg. 384**

Changed from Access for Fire Fighting to Additional Safeguards for Types 1 and 2 Construction.

**3312 Additional Safeguards for Type 4 Construction – pg. 384**

Changed from Means of Egress to Additional Safeguards for Type 4 Construction.

**3312.1 Fire Safety Requirements for buildings of Types 4A, 4B and 4C Construction – pg. 384**

Exceptions: added an exception 2. Noncombustible material on the top of mass timber floor assemblies shall not be required before erecting additional floor levels.

**3313-3318 – pg. 384**

These sections have been removed.

**Chapter 34**

**Tire Rebuilding and Tire Storage – pg. 385**

No significant changes.

## **Chapter 35**

### **Welding and Other Hot Work**

#### **3501.3 Restricted Areas – pg. 387**

Added the word Automatic to Sprinkler System.

## **2024 IFC Chapters 36-49 presented by Ryan Young**

## **Chapter 36**

### **Marinas – pg. 391**

No significant changes.

## **Chapter 37**

### **Combustible Fibers – pg. 393**

No significant changes.

## **Chapter 38**

### **Higher Education Laboratories – pg. 395**

No Significant changes.

## **Chapter 39**

### **Processing and Extraction Facilities**

#### **3901.1 Scope – pg.399**

Section re-written to clean up and simplify language. The description of the process of extraction is removed.

**Scope.** Facilities where plant ~~Plant~~ processing and solvent-based extraction are conducted, including but not limited to cultivation and related activities, pre-extraction or post-extraction, facilities shall comply with this chapter and the *International Building Code*. ~~The extraction process includes the act of extraction of the oils and fats by use of a solvent, desolventizing of the raw material, production of the miscella, distillation of the solvent from the miscella and solvent recovery.~~ The use, storage, transfilling and handling of hazardous materials in these facilities shall comply with this chapter, other applicable provisions of this code and the *International Building Code*.

#### **3901.1 Scope – pg. 399**

New exception for greenhouses in compliance with Section 3112 that do not utilize carbon dioxide enrichment.

#### **3901.2 – Existing buildings or facilities – pg. 399**

Language changes. “Plant oils using solvents” replaced for “plants”, and “to include the use of solvents” to replace “or solvent”.

#### **3901.4 Lighting – pg. 399**

New section added requiring lighting systems to be listed and labeled in accordance with UL 8800 and installed in accordance with the listing, the manufacture’s installation instructions and NFPA 70.

**3901.5 Carbon dioxide generation – pg. 399**

New section requiring carbon dioxide-enriched atmospheres generated using methods to create carbon dioxide as a byproduct shall meet the requirements of Sections 5307.4.1 and 5307.4.7.

**3903.7 Means of egress – pg. 399**

New section requiring egress doors in areas used for extraction to swing in the direction of egress travel.

**3904.2 Systems and equipment – pg. 400**

The language “or processing” added to extraction systems and equipment.

**3905.3 Ventilation – pg. 401**

New section requiring continuous mechanical exhaust ventilation be provided in accordance with section 3905.3.1 through 3905.4 and Chapter 4 of the IMC.

**3905.3.1 Extraction processes using flammable or combustible liquids or gasses – pg. 401**

New sub-section stating the requirements for extraction processes using flammable or combustible liquids or gases. An exception is included allowing the minimum required rate of exhaust to be reduced when a registered design professional can demonstrate an engineered mechanical exhaust will prevent the maximum concentration of contaminants from exceeding 25% of the LEL.

**3905.3.2 Extraction processes using compressed asphyxiznt or inert gases – pg. 401**

New sub-section requiring continuous mechanical exhaust ventilation where extraction processes use compressed asphyxiant or inert gases.

**3905.3.3 Post-extraction processes using flammable or combustible liquids or gases – pg. 401**

New sub-section requiring continuous mechanical exhaust in accordance with 5004.3 when flammable liquids, combustible liquids heated above their flashpoint, or flammable gases are used in post-extraction processing.

**3905.3.4 Interlocks – pg. 401**

New sub-section requiring interlocks on electrical equipment and appliances are used in processes that generate flammable vapors or gases. Equipment shall be interlocked so that equipment cannot be operated unless ventilation fans are in operation.

**Chapter 40**

**Storage of Distilled Spirits and Wine**

**4005.1 Palletized storage of distilled spirits in wooden barrels.**

Section title changed from “Automatic sprinkler system” to Palletized storage of distilled spirits in wooden barrels. Language expanded to require the palletized storage of distilled spirits in wooden barrels to be protected by an automatic sprinkler system in accordance with Section 903.3.1.1. The palletized storage of metal containers of distilled spirits shall be protected by an automatic sprinkler system in accordance with Chapter 57.

**4005.1.1 Storage height – pg. 403**

New sub-section requiring palletized storage arrays of barrels stored on end to be limited to a maximum of 7 pallets high.

**4005.1.2 Flue spaces – pg. 403**

New sub-section requiring a minimum 6” flue space maintained between adjacent pallets.

**4005.1.3 Loading aisles – pg. 403**

New sub-section defining the 3 allowed options for defined loading aisles between pallet storage areas.

**4005.1.3.1 Draft curtains – pg. 403**

New sub-section stating requirements for draft curtains used in loading areas for palletized storage of distilled spirits and wines.

**4005.1.3.1.1 Construction – pg. 403**

Sub-section stating the requirements for the construction of draft curtains.

**4005.1.3.1.2 Location – pg. 403**

New sub-section stating the draft curtains shall be located along loading aisles serving storage areas.

**4005.1.3.1.3 Depth – pg. 403**

New sub-section stating draft curtains shall extend downward from the ceiling for a minimum distance of 20% of the ceiling height, and with a minimum depth of 6’.

**4005.1.4 Automatic sprinkler system design – pg. 403**

New section stating sprinkler system design be in accordance with table 4005.1.4 and sections 4005.1.4.1 through 4005.1.4.6.

TABLE 4005.1.4—PALLETIZED STORAGE OF DISTILLED SPIRITS WITH UP TO 75 PERCENT ALCOHOL BY VOLUME IN WOODEN BARRELS						
PROTECTION AREA	SPRINKLER SYSTEM TYPE	MAXIMUM CEILING HEIGHT (feet)	MAXIMUM STORAGE HEIGHT	CEILING SPRINKLER PROTECTION		
				Response/Nominal Temperature Rating/Orientation	K-Factor (gpm/psi <sup>1/2</sup> )	Design <sup>a</sup> , # of Sprinklers @ Pressure (psi)
Barrel storage	Wet-pipe	30	24 feet or 7 barrels	QR/165°F/Pendent	14.0	12 @ 18
	Dry-pipe			SR/286°F/Upright	16.8	24 @ 13
	Wet-pipe	30	1 barrel	Any/165°F/Any	11.2	30 @ 7
	Dry-pipe			SR/286°F/Upright	11.2	50 @ 7
	Wet-pipe	30	2 barrels	SR/286°F/Any	11.2	50 @ 29
Loading aisle w/ draft curtain	Wet-pipe or Dry-pipe	30	NA	SR/286°F/Any	5.6	100 @ 13
					> 8.0	100 @ 7
Loading aisle w/ trench drains or banded barrels or no permanent loading aisle	Provide the barrel storage design across the entire roof area (i.e., storage area and loading aisle).					

**4005.1.4.1 Protected products – pg. 404**

New sub-section stating sprinkler requirements in table 4005.1.4 apply to alcohol-water mixtures greater than 20% and up to 75% alcohol by volume in wooden barrels not exceeding 130 gallons.

**4005.1.4.2 Hose stream allowance – pg. 404**

New sub-section requiring 500 gpm hose stream allowance.

**4005.1.4.3 Water supply duration – pg. 404**

New sub-section stating a minimum 1 hour water supply duration for automatic sprinkler system design.

**4005.1.4.4 Automatic sprinkler system balancing – pg. 404**

New sub-section stating Where a permanent loading aisle is provided with a separate *automatic sprinkler system* on the ceiling, the barrel storage automatic sprinkler design and the loading aisle automatic sprinkler design are not required to be balanced at the point of connection.

**4005.1.4.5 Dry pipe sprinkler systems – pg. 404**

New sub-section stating where dry pipe sprinklers are installed, water delivery time shall be within 40 seconds to the 4 most remote heads.

**4005.1.4.6 Small distilled spirits facilities – pg. 404**

New sub-section requiring palletized storage of distilled spirits in facilities not greater than 7,500 ft<sup>2</sup> be in accordance with Sections 4005.1.4.6.1 through 4005.1.4.6.3.

**4005.1.4.6.1 Ceiling clearance – pg. 404**

New sub-section requiring 18” of clearance between storage and sprinklers, and a maximum storage height of 10’.

**4005.1.4.6.2 Automatic sprinkler coverage area – pg. 404**

New sub-section required sprinkler coverage area not exceed 80 ft<sup>2</sup>.

**4005.1.4.6.3 Fire protection scheme – pg. 404**

New sub-section stating storage arrangements and automatic sprinkler system design be in accordance with Table 4005.1.4.6.3.

TABLE 4005.1.4.6.3—PALLETIZED STORAGE OF DISTILLED SPIRITS IN WOODEN BARRELS IN SMALL DISTILLED SPIRITS FACILITIES							
PROTECTION AREA	SPRINKLER SYSTEM TYPE	MAXIMUM CEILING HEIGHT (feet)	MAXIMUM STORAGE HEIGHT (feet)	CEILING SPRINKLER PROTECTION			
				Response/Temperature Rating/Orientation	K-Factor (gpm/psi <sup>1/2</sup> )	Sprinkler Density (gpm/ft <sup>2</sup> )	Area (square feet)
Barrel storage	Wet-pipe	24	12	SR/286°F/Any	≥ 11.2	0.35	4,000
				SR/165°F/Any	≥ 11.2	0.35	7,500

For SI: 1 foot = 304.8 mm, 1 pound per square inch (psi) = 6.895 kPa, K-factor of 1 gpm/psi<sup>1/2</sup> = 14.395 L/min/bar<sup>1/2</sup>, °C = (°F - 32)/1.8, 1 gallon per minute per square foot = 40.75 L/min/m<sup>2</sup>.  
SR = Standard Response.

**4005.2 Rack storage in wooden barrels – pg. 404**

New section stating the rack storage of distilled spirits and wine greater than 20 percent alcohol shall be protected by an *approved automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 and Sections 4005.2.1 through 4005.2.3.6.

**4005.2.1 Flue spaces for on-side wooden barrels – pg. 404**

New sub-section stating rack storage for on-side wooden barrels be provided with a minimum width of 8" between adjacent rows of barrels.

**4005.2.1.1 Elevated walkways - pg. 404**

New sub-section stating the construction requirements for elevated walk-ways between barrels.

**4005.2.2 Flue spaces for on-end wooden barrels – pg. 404**

New sub-section requiring transverse and longitudinal flue spaces with a minimum of 6".

**4005.2.3 Fire protection for rack storage – pg. 404**

New section requiring rack storage of alcohol-water mixtures up to 75% alcohol in wooden barrels with sizes not exceeding 130 gallons to be protected in accordance with Sections 4005.2.3.1 through 4005.2.3.6.

**4005.2.3.1 Hose stream allowance – pg. 405**

New sub-section requiring 500 gpm hose stream allowance.

**4005.2.3.2 Water supply duration – pg. 405**

New sub-section requiring a minimum of 1-hour water supply duration, including hose stream demand.

**4005.2.3.3 Dry-pipe automatic sprinkler system – pg. 405**

New sub-section requiring dry pipe sprinkler systems meet a 40-second water delivery time to the 4 most remote heads.

**4005.2.3.4 Ceiling automatic sprinkler systems – pg. 405**

New sub-section requiring a minimum density of 0.2 gpm/ft<sup>2</sup> with an operating area of 2,000 ft<sup>2</sup>.

**4005.2.3.5 Automatic sprinkler system balancing – pg. 405**

New sub-section requiring the sprinkler system at the ceiling and the in-rack system be balanced at the point of connection.

**4005.2.3.6 Automatic sprinkler system design – pg. 405**

New sub-section requiring automatic sprinkler systems and in rack systems be in accordance with Table 4005.2.3.6.

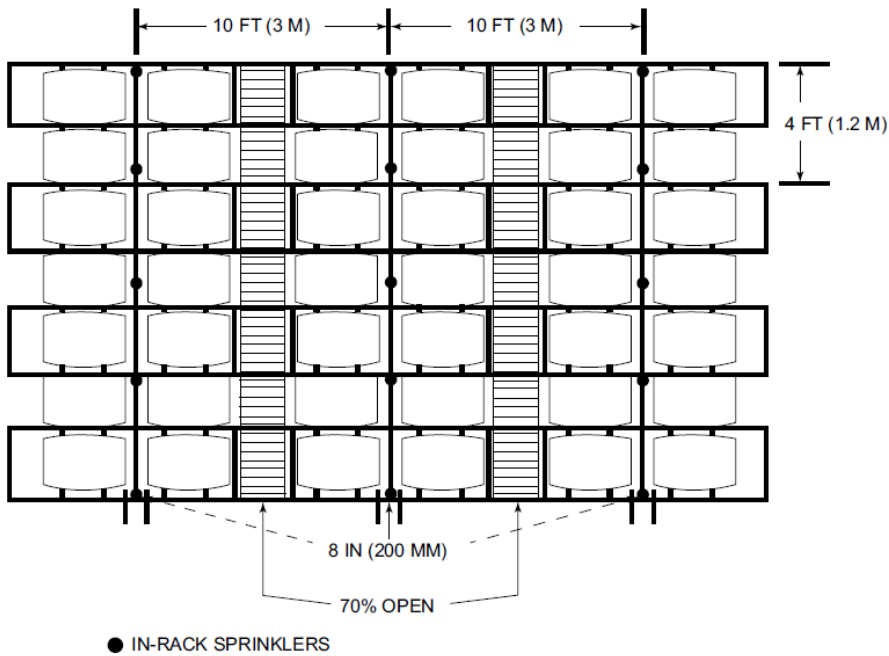
TABLE 4005.2.3.6  
RACK STORAGE OF DISTILLED SPIRITS IN WOODEN BARRELS

BARREL ARRANGEMENT	SPRINKLER SYSTEM TYPE	MAXIMUM CEILING HEIGHT (feet)	MAXIMUM STORAGE HEIGHT (feet)	MINIMUM AISLE WIDTH (feet)	CEILING SPRINKLER PROTECTION			IN-RACK SPRINKLER PROTECTION			
					Response / Nominal Temperature Rating / Orientation	K-Factor (gpm/psi <sup>1/2</sup> )	Design, # of Sprinklers @ Pressure (psi)	Layout	Response / Nominal Temperature Rating / Orientation	K-Factor (gpm/psi <sup>1/2</sup> )	Design <sup>a</sup> , # of Sprinklers @ Pressure (psi)
On-side	Wet	40	33 feet / 9 barrels	NA	QR / 165°F / Pendent	14.0	12 @ 37	None			
					SR / 286°F / Any	≥ 11.2	20 @ 7	Figures 4005.2.3.6(1) and 4005.2.3.6(2)	QR / 165°F / Any	8.0	6 @ 45 (one level of in-racks) or 12 @ 45 (more than one level of in racks)
	Dry	40	33 feet / 9 barrels	NA	SR / 286°F / Upright	16.8	24 @ 25	None			
					SR / 286°F / Upright	≥ 11.2	20 @ 7	Figures 4005.2.3.6(1) and 4005.2.3.6(2)	QR / 165°F / Upright	8.0	6 @ 45 (one level of in-racks) or 12 @ 45 (more than one level of in racks)
On-end	Wet	30	25 feet / 5 barrels	8	SR / 286°F / Any	≥ 11.2	50 @ 7	Figures 4005.2.3.6(3), 4005.2.3.6(4) and 4005.2.3.6(5)	QR / 165°F / Any	≥ 8.0	6 @ 25 (one level) or 12 @ 25 (more than one level)

For SI: 1 foot = 304.8 mm; 1 square foot = 0.0929 m<sup>2</sup>; 1 pound per square inch (psi) = 6.895 kPa; K-factor of 1 gpm/psi<sup>1/2</sup> = 14.395 L/min/bar<sup>1/2</sup>; °C = (°F - 32)/1.8.  
QR = Quick Response; SR = Standard Response; NA = Not Applicable.  
a. Sprinklers shall have a maximum coverage area of 100 square feet.

**4005.2.3.6(1) Figure In-rack sprinkler payout for wooden barrels on their sides – pg. 407**

New figure for the storage of wooden barrels on their sides. (Plan view)

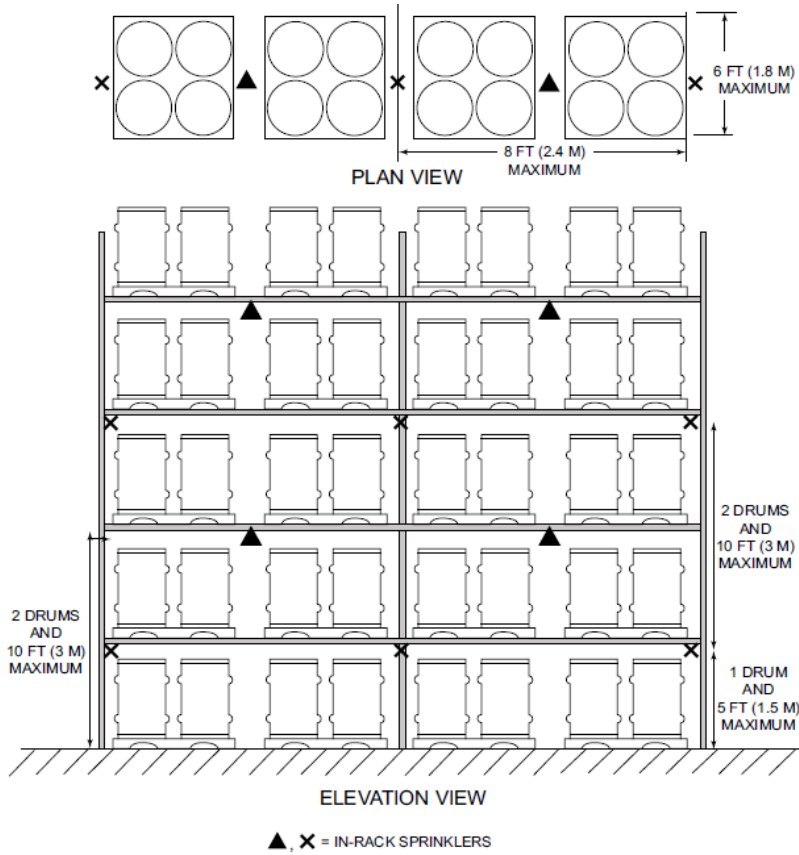




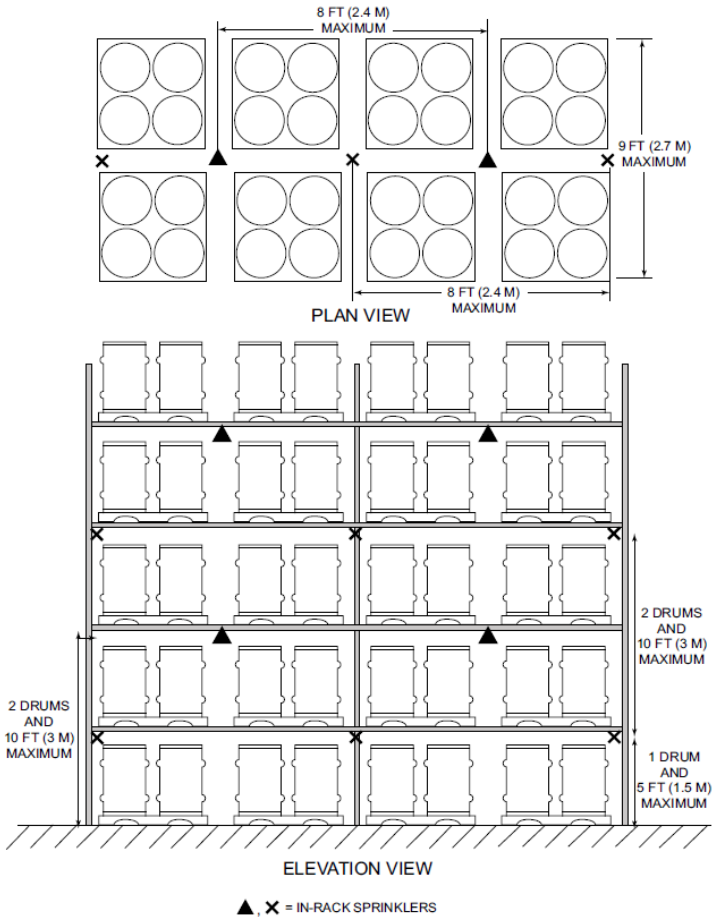
**4005.2.3.6(2) Figure In-rack sprinkler layout for wooden barrels on their sides – pg. 407**  
New figure for the storage of wooden barrels on their sides. (Elevation view)



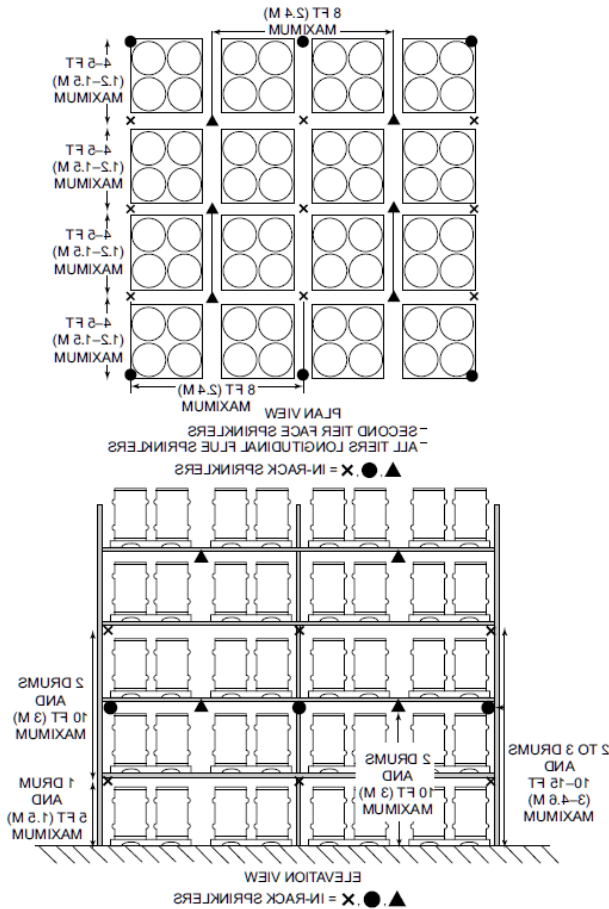
**4005.2.3.6(3) Figure In-rack sprinkler layout for single-row rack on on-end wooden barrels – pg. 407**  
New figure for single row rack storage.



**4005.2.3.6(4) Figure In-rack sprinkler layout for double-row rack of on-end wooden barrels – pg. 407**  
New figure for double row rack storage.



**4005.2.3.6(5) Figure In-rack sprinkler layout for multiple row rack of on end wooden barrels –pg. 410**  
 New figure for multiple row rack storage.



**4005.3 Wine with 20% or less alcohol content – pg. 410**

New Section stating wine with 20% or less alcohol content be protected by an approved automatic sprinkler system.

**4005.4 Portable fire extinguishers – pg. 410**

New Section stating wine with 20% or less alcohol content be protected by an approved automatic sprinkler system.

**Chapter 41**

**Temporary Heating and Cooking Operations – pg. 411**

New chapter addressing temporary heating and cooking operations. Many of these requirements were previously contained in chapters 3, 6, and 31.

**4101.1 General – pg. 411**

New section stating the provisions of the chapter.

**4101.2 Permits – pg. 411**

New section stating referencing the Section 105.5 for required operational permits.

**4101.3 Listed Equipment – pg. 411**

New section requiring mobile and portable equipment and devices used for temporary heating and cooking to be listed and labeled. Installation and maintenance to be in accordance with the listing and manufacturers instruction.

**4101.4 Operation and Maintenance – pg. 411**

New section requiring building or equipment owner or operators to maintain equipment in accordance with manufacturer's instruction and this section.

**4101.4.1 Wildfire risk area – pg. 411**

New subsection requiring temporary heating and cooking operations to be in accordance with applicable local wildfire risk regulations.

**4101.4.2 Attendance – pg. 411**

New subsection requiring mobile and portable heating and cooking equipment to be constantly attended while in use until it had cooled to a safe temperature.

**4101.4.3 Fire extinguishers – pg. 411**

New subsection requiring not fewer than one portable fire extinguisher complying with Section 906 with a minimum 4-A rating.

**4101.6 LP-gas – pg. 411**

Section moved from 3107.13 in the 2021 IFC. Section referenced changed to 4101.6.1 and 4101.6.3.

**4101.6.4 Refueling – pg. 411**

New subsection requiring the exchanging of LP containers shall be conducted in accordance with Chapter 61. Liquid transfer of LP gas shall be in accordance with Chapter 7 of NFPA 58.

**4101.7 Oil-fired heaters – pg. 411**

New section requiring oil fired cooking and heating equipment to comply with Section 605 and this chapter.

**4101.8 Refueling of flammable and combustible liquid-fueled equipment – pg. 411**

New section requiring refueling operations for liquid-fueled equipment or devices to be conducted in accordance with Section 5705 and the following:

1. Refueling operations for liquid-fueled equipment or devices shall be conducted by trained personnel in accordance with the manufacturer's instructions and this code.
2. The equipment or device shall be turned off and allowed to cool prior to refueling.
3. Operations shall be conducted in a well-ventilated area at a minimum of 10 feet (3048 mm) from any building or structure.

#### **4101.9 Cooling operations – pg. 411**

New section requiring portable cooking equipment using combustible oils or solids to comply with the following.

1. A noncombustible lid shall be immediately available. The lid shall be of sufficient size to cover the cooking well completely.
2. Equipment shall be placed on a noncombustible surface.
3. A portable fire extinguisher for protection appropriate to the cooking media shall be provided at a location *approved* by the *fire code official*.

#### **4101.10 Hazard abatement – pg. 412**

New section requiring unsafe conditions or operations to be abated. Equipment and devices that are modified or damaged and constitute an electrical or fire hazard shall not be used.

##### **4101.10.1 Correction of unsafe conditions – pg. 412**

New section stating that the *fire code official* shall be authorized to require the owner, the owner's authorized agent, operator or user of the equipment to abate unsafe operations or conditions or cause such conditions to be abated or corrected either by removal, repair, rehabilitation, disposal or other *approved* corrective action in compliance with this code.

#### **4103 Portable fuel-fired heating appliance – pg. 412**

New section addressing the use of portable fuel-fired heating appliances.

#### **4104 Portable fuel-fired cooking appliances – pg. 413**

New section with the requirements for the use of portable fuel-fired cooking appliances.

##### **4104.1 Portable fuel-fired cooking appliances – pg. 413**

New section stating that portable fuel-fired cooking appliances shall be permitted to be used in all occupancies in accordance with this section.

##### **4104.2 Open flame cooking devices – pg. 413**

Section moved from section 308.1.4 in the 2021 IFC.

Is amended to read as follows:

**4104.2 Open-flame cooking devices.** Charcoal burners and other open-flame cooking devices shall not be operated on combustible balconies or decks or within 10 feet (3048 mm) of combustible construction.

Exceptions:

1. One- and two-family dwellings.
2. Where buildings, balconies and decks are protected by an automatic sprinkler system.
3. LP-gas cooking devices having LP-gas container with a water capacity not greater than ~~2½ pounds~~ 47.8 pounds [nominal 20 pounds (9 kg) LP-gas capacity].

This longstanding amendment allows for the common size of LPG tanks. It is restricted to only 1 tank.

#### **4104.3 Indoor cooking – pg. 413**

New sub-section stating that portable fuel fired cooking appliances used indoors shall not be located within 10 feet of exits or combustible materials.

#### **4104.4 Cooking operations – pg. 413**

Section moved from 3107.12.6 in the 2021 IFC. Language changed to reduce the separation of cooking from tents or membrane structures from 20 feet to 10 feet when the following conditions are met.

1. Cooking devices shall be isolated from the public.
2. Cooking devices shall be maintained according to manufacturer's instruction.

An exception was added to remove the separation requirement when the tent is protected by an automatic sprinkler system.

#### **4104.5 Separation of cooking tents – pg. 413**

Separation of cooking tents from non-cooking tents or membrane structures reduced from 20' to 10'. Exemption added for accessory tents limited to 100 ft<sup>2</sup>.

##### **4104.5.1 Groups of cooking tents – pg. 413**

New subsection allowing tents to be placed side by side when:

1. The area of the cooking tents has a maximum area of 700 square feet (65 m<sup>2</sup>).
2. Each grouping of tents shall have a fire break clearance of at least 12 feet (3658 mm).
3. A fire access aisle separating rows of cooking tents has a minimum width of 16 feet (4877 mm) clear.

#### **4105 Portable cooking appliances – pg. 413**

New section added for portable cooking appliances.

##### **4105.1 Portable electric cooking appliances – pg. 413**

New section allowing the use of portable cooking appliances in all occupancies in accordance with 4105.1.1 through 4105.1.5.

###### **4105.1.1 Listed and labeled – pg. 413**

New sub section requiring portable electric cooking appliances to be labeled and listed and used in accordance with their listing and manufacturer's instructions.

###### **4105.1.2 Power supply – pg. 413**

New sub section requiring portable electric cooking appliances to be plugged directly into an approved receptacle or connected to a relocatable power tap rated at 20 amps.

###### **4105.1.3 Extension cords – pg. 413**

New sub section stating portable electric cooking appliances shall not be plugged into extension cords.

###### **4105.1.4 Temporary connections – pg. 413**

New sub section stating temporary use portable cooking appliances shall be disconnected from the power supply when not in uses.

#### **4105.1.5 Prohibited areas – pg. 414**

New sub section stating portable electric cooking appliances shall not be operated within 3' of any combustibles or in a Group H occupancy. They shall only be operated in locations for which they are listed.

#### **4106 Mobile Food Preparation Vehicles – pg. 414**

New section moved from chapter 3 of the 2021 IFC.

#### **4106.1 General – pg. 414**

Language added to required mobile food preparation vehicles that are equipped with appliances that produce smoke or grease-laded vapors for the purposes of preparing, cooking or serving food shall comply with NFPA 96. Also, it states that the indoor use of mobile food preparation vehicles is prohibited unless approved by the AHJ.

#### **4106.4 Maintenance – pg. 414**

Sub section moved from 319.4 and title changed from *fire protection* to *maintenance*. Maintenance of systems on mobile food preparation vehicles shall be in accordance with Sections 4106.4.1 through 4106.4.3.

#### **4106.4.1 Exhaust systems – pg. 414**

Sub section moved from 319.4.1 and title changed from *fire protection for cooking equipment* to *exhaust systems*. New language requiring the exhaust system, including hood, grease removal fans, ducts and appurtenances to be inspected and cleaned in accordance with NFPA 96.

#### **4106.4.2 Fire protection systems and devices – pg. 414**

Section moved from 319.4.2 and title changed from *fire extinguisher* to *fire protection systems and devices*. Fire protection systems and devices shall be maintained in accordance with Section 901.6.

#### **4106.4.3 Fuel gas systems – pg. 414**

New sub section requiring fuel gas systems to be maintained in accordance with Sections 4106.4.3.1 through 4106.4.3.4.

#### **4106.4.3.1 Lp-gas systems – pg. 414**

New sub section requiring LP-gas containers installed on the vehicle and fuel gas piping systems shall be inspected annually by an *approved* inspection agency, person or special expert who is qualified to ensure that system components are free from damage, suitable for the intended service and not subject to leaking.

#### **4106.4.3.2 CNG systems – pg. 414**

New sub section requiring CNG containers and fuel gas piping systems shall be inspected annually by an *approved* inspection agency, person or special expert who is qualified to ensure that system components are free from damage, suitable for the intended service and not subject to leaking.



#### **4106.4.3.3 Annual leakage test – pg. 414**

New sub section requiring All fuel gas piping systems and appliances shall be checked annually for leakage at the operating pressure of the system using a manometer or pressure gauge. Where leakage is indicated, the gas supply shall be turned off until repairs have been made and the system no longer leaks.

#### **4106.4.3.4 Inspection tag – pg. 414**

New sub section requiring Upon a satisfactory annual inspection, the *approved* inspection agency, person or special expert shall affix a tag on the fuel gas system or within the vehicle indicating the name of the inspection agency and the date of the satisfactory inspection.

#### **4106.5 Manual system operation for the automatic fire extinguishing system(s) – pg. 414**

Section moved from 319.5 and title changed from *Appliance connection to fuel supply piping*. Previous language removed and new language states: A manual actuation device shall be provided for the *automatic fire extinguishing system(s)* provided for the cooking appliance(s). The manual actuation device shall be unobstructed and in view from the means of egress, located at or near a means of egress from the cooking area, and at a location acceptable to the *fire code official*. The manual actuation device shall be installed not more than 48 inches (1200 mm) nor less than 42 inches (1067 mm) above the walking surface of the means of egress and shall clearly identify the hazard protected. The manual actuation shall require a maximum force of 40 pounds (178 N) and a maximum movement of 14 inches (356 mm) to actuate the fire suppression system.

### **Chapters 42-49 Reserved for future use**

### **2024 IFC Chapters 50-60 presented by Brett Bergh**

#### **Chapter 50**

##### **Hazardous Materials**

#### **Table 5003.1.1(1) Maximum allowable quantity per control area of hazardous materials posing a physical hazard – pg. 421**

**Footnote (c.)** was replaced and now refers to section 428 of the IBC and chapter 38 for hazardous materials in group B higher education laboratory occupancies.

*The information from the old footnote (c.) is now located on pg. 424 in the **New Table 5003.1.1(5) Hazardous Materials Exemptions** under alcoholic beverages.*

**Footnote (i.)** was changed in the re-labelling of the footnotes for this table.

*The information from the old footnote (i.) is now located on pg. 425 in the **New Table 5003.1.1(5) Hazardous Materials Exemptions** under fuel oil.*

#### **Table 5003.1.1(1) Maximum allowable quantity per control area of hazardous materials posing a physical hazard – pg. 422**

**Footnote (o.)** was changed to **footnote (n.)** and now refers to section 5704.3.6 for the unchanged requirements for flammable and combustible liquid storage in Group M occupancy wholesale and retail sales uses.

*The information from the old footnote (o.) is now located on pg. 424 in the **New Table 5003.1.1(5) Hazardous Materials Exemptions** under baled cotton.*

**Footnote (p.)** was changed to **footnote (o.)** and now states quantities in this table shall be modified in accordance with the **New Table 5003.1.1(5) Hazardous Materials Exemptions**.

*The information from the old footnote (p.) is now located on pg. 424 and 425 in the **New Table 5003.1.1(5) Hazardous Materials Exemptions** under flammable and combustible liquids and gases.*

**New footnote (q.)** now refers to “High BV” Category 1B flammable gas. “High BV” flammable gas has a burn velocity greater than 3.9 inches/sec. (10 cm/s) and “Low BV” flammable gas has a burning velocity equal to or less than 3.9 inches/sec. (10cm/s).

*This information is used to classify Flammable gases in Table 5003.1.1(1) on pages 420-422.*

*This change is a move towards the Global Harmonization System (GHS) of the Classification and Labelling of Chemicals. The change meant to make application of safety codes and standards easier for all parties.*

**Table 5003.1.1(2) Maximum allowable quantity per control area of hazardous materials posing a physical hazard – pg. 422**

**New footnote (j.)** now states quantities in this table shall be modified in accordance with the **New Table 5003.1.1(5) Hazardous Materials Exemptions**.

**Table 5003.1.1(3) Maximum allowable quantity per control area of hazardous materials posing a physical hazard in an outdoor control area – pg. 422**

**New footnote (e.)** now refers to “High BV” Category 1B flammable gas. “High BV” flammable gas has a burn velocity greater than 3.9 inches/sec. (10 cm/s) and “Low BV” flammable gas has a burning velocity equal to or less than 3.9 inches/sec. (10cm/s).

*This information is used to classify Flammable gases in Table 5003.1.1(3) on pages 422-423.*

*This change is a move towards the Global Harmonization System (GHS) of the Classification and Labelling of Chemicals. The change meant to make application of safety codes and standards easier for all parties.*

**Table 5003.1.1(5) Hazardous materials exemptions – pg. 424-425**

*This New Table is largely previously used footnote exemptions. Some new exemptions have been added to clarify some gray areas in the code. The exemptions extend/ expand storage and use capabilities that some sections of code had previously limited when it was not necessarily the intention of the code.*

**Table 5003.8.2 Detached Building Required – pg. 428-429**

**New footnote (e.)** states, “Does not apply to consumer fireworks, Division 1.4G”.

**5003.8.3.5.4 Flammable Gas – pg. 430**

**New Section**

The aggregate quantity of Category 1B flammable gas having a burning velocity of 3.9 in/s (10 cm/s) or less stored and displayed within a single control area of a Group M occupancy, in an outdoor control area or stored in a single control area of a Group S occupancy is allowed to exceed the maximum allowable quantities per control area specified in Table 5003.1.1(1) without classifying the building or use as a Group H occupancy, provided that the materials are stored and displayed in accordance with Section 5003.11.2.

### **5003.11.2 Category 1B flammable gas with low burning velocity – pg. 433**

#### **New Section**

The aggregate quantity of Category 1B flammable gas having a burning velocity of 3.9 in/s (10 cm/s) or less stored and displayed within a single control area of a Group M occupancy, in an outdoor control area or stored in a single control area of a Group S occupancy shall not exceed the amounts set forth in Table 5003.11.2.

### **Table 5003.11.2 Maximum Allowable Quantity of Low Burning Velocity Category 1B Flammable Gas In Group M And S Occupancies Per Control Area – pg. 434**

#### **New Table**

*This information in this Table is used to ensure flammable gases with “Low BV” are stored correctly in M and S occupancies with regards to quantities and sprinklered vs. nonsprinklered. This change is a move towards the Global Harmonization System (GHS) of the Classification and Labelling of Chemicals. The change meant to make application of safety codes and standards easier for all parties.*

### **5003.11.2.1 Fire Protection and storage arrangements – pg. 434**

#### **New Section**

*This new section defines the fire protection and storage arrangement requirements for the quantities of Category 1B flammable gases permitted by the **New Table 5003.11.2***

### **5003.13: 5003.13.1-5003.13.5 Outdoor rooftop storage, use and handling – pg. 434-435**

**New Section** Storage, use and handling and use of hazardous materials on top of roofs or canopies shall be classified as rooftop storage or use and shall comply with **New Sections 5003.13.1 through 5003.13.5**.

*These new sections provide the requirements for hazardous materials on rooftops or canopies. This clears up the requirements for these locations where as the requirements could have previously been found in different sections and or chapters and may not have been applied as the codes intended.*

## **Chapter 51**

### **Aerosols**

No significant changes.

## **Chapter 52 Reserved for Future Use**

## **Chapter 53**

### **Compressed Gas**

#### **5306.2 Interior supply location – pg. 455**

##### **New language added**

Rooms containing medical gases shall be labeled in accordance with NFPA 99.

#### **5306.5.1 Medical gas cylinders – pg. 455**

##### **New Section**

Operation and management of medical gas cylinders shall be in accordance with NFPA 99.

*This is further clarification to continue to follow NFPA 99.*

### **5307.3.2 Gas detection system – pg. 456**

#### **Added language**

“complying with Section 916”

*This added language clarifies the type of gas detection system that is required by referring to Section 916.*

### **Chapter 54**

#### **Corrosive Materials**

No changes.

### **Chapter 55**

#### **Cryogenic Fluids**

No changes.

### **Chapter 56**

#### **Explosives and Fireworks**

No changes.

### **Chapter 57**

#### **Flammable and Combustible Liquids**

##### **5704.2.9.6.1 Locations where above-ground tanks are prohibited – pg. 495**

Amended to read as follows:

Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited within the limits established by law as set forth in the fire code adoption ordinance or other regulation adopted by the jurisdiction. Above-ground tanks, with a capacity exceeding 660 gallons in individual capacity or 1,320 gallons in aggregate capacity, outside of buildings shall be installed only in areas zoned industrial or limited industrial and shall be located at least 300 feet from all non-industrial zoned districts.

Exception: Above-ground tanks containing a class II liquid directly connected to a fuel burning appliance shall not exceed 1,320 gallons in all non-industrial zoned districts.

Above-ground tanks used for dispensing outside of buildings in all non-industrial zoned districts shall not exceed 660 gallons in individual capacity or 1,320 gallons in aggregate capacity, and shall be *listed* and *labeled* as protected above-ground tanks in accordance with UL 2085.

This is a longstanding regulation that was in the land development code to restrict aboveground tanks and dispensing to limited industrial areas. The amendment allows smaller tanks for dispensing in non-industrial areas. All tanks used for dispensing in non-industrial areas are required to be UL 2085 rated.

##### **5704.2.13.1.4 Tanks abandoned in place – pg. 498**

Amended by adding the following Subsection 7 to:

7. Site assessment is required to determine if there are any spills, leaks, or discharge from the tank system. Records of site assessment shall be kept on the site of tank location.

#### **5705.3.7.5.1 Ventilation – pg. 516**

The exception is amended to read as follows:

**Exception:** 1. Where natural ventilation can be shown to be effective for the materials used, dispensed or mixed.

2. When approved by the chief, continuous ventilation may be provided for one complete air change per hour, if supplemented with mechanical ventilation designed to provide for a complete air change six times per hour. The non-continuous ventilation equipment and any lighting fixtures shall be operated by the same switch located outside of the door.

#### **5705.5 Alcohol-based hand rubs classified as Class I or II liquids – pg. 518**

##### **New information added.**

5. Dispensers shall not obstruct required means of egress or be placed within 3 feet (914 mm) of an open flame, heating device or other ignition source.

*Clarifying language*

#### **5706.2.4.4 Locations where above-ground tanks are prohibited – pg. 520**

Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited within the limits established by law as set forth in the fire code adoption ordinance or other regulation adopted by the jurisdiction.

#### **5706.5.4 Dispensing from tank vehicles and tank cars – pg. 525**

##### **New information added.**

Dispensing from tank cars into the fuel tanks of motor vehicles shall be prohibited.

*Clarifying language that under no circumstances should motor vehicles be fueled by tank cars. If subsections are followed, tank vehicles may still be used to fuel motor vehicles.*

#### **5706.5.4.1 Marine craft and special equipment – pg. 525**

##### **New information added.**

5. The operation shall be in accordance with Sections 2310.4.1 and 2310.4.2.

*Clarifying information requires operations in Chapter 23 to be followed which regulates fuel dispensing.*

### **Chapter 58**

#### **Flammable Gases and Flammable Cryogenic Fluids**

##### **5806.2 Limitations – pg. 532**

Amended to read as follows:

Storage of flammable *cryogenic fluids* in stationary containers outside of buildings is prohibited within the limits established by law as set forth in the fire code adoption ordinance or other regulation adopted by the jurisdiction. Stationary containers shall be installed only in areas zoned industrial or limited industrial and shall be located at least 300 feet from all non-industrial zoning districts.

Clarifies language regarding flammable cryogenic liquids and places the same restrictions that currently exist for installation of above ground tanks.

## **5809 On-demand hydrogen mobile fueling operations – pg. 535-536**

### **New Section**

**5809.1 General.** On-demand hydrogen mobile fueling operations that dispense gaseous hydrogen into the fuel tanks of motor vehicles shall comply with **Sections 5809.1** through **5809.6.5**.

**5809.1.1 Approval required.** Hydrogen mobile fueling operations shall not be conducted without first obtaining a permit and approval from the fire code official . Hydrogen mobile fueling operations shall occur only at approved locations. The fire code official is authorized to approve individual locations or geographic areas where mobile fueling is allowed.

**5809.2 Hydrogen mobile fueling vehicle or trailer.** An on-demand hydrogen mobile fueling vehicle or mobile fueling trailer shall be that which is utilized in on-demand fueling operations for the dispensing of gaseous hydrogen into the fuel tanks of motor vehicles.

**5809.2.1 Hydrogen mobile fueling vehicle requirements.** Each hydrogen mobile fueling vehicle or mobile fueling trailer shall comply with all local, state and federal requirements, as well as the following:

1. The hydrogen mobile fueling vehicle or mobile fueling trailer and its equipment shall be in compliance with the appropriate requirements of **NFPA 2**.
2. Hydrogen mobile fueling vehicles or mobile fueling trailers shall only contain and dispense gaseous hydrogen.
3. The hydrogen mobile fueling vehicle or mobile fueling trailer and its equipment shall be maintained in good repair.
4. Fueling a hydrogen motor vehicle shall be from tanks or containers mounted on a mobile fueling trailer or from tanks or containers mounted on a mobile fueling vehicle. A mobile fueling operation shall not combine a mobile fueling vehicle with a mobile fueling trailer.
5. Mobile fueling vehicles and trailers shall be provided with at least one minimum 10-pound ABC dry-chemical portable fire extinguisher with an agent discharge rate of 1 pound per second (0.454 kg/s) or greater.

**5809.3 Required documents.** Documents developed to comply with **Sections 5809.3.1** through **5809.3.3** shall be updated as necessary by the owner of the mobile fueling operation and shall be maintained in compliance with **Section 110.3**.

**5809.3.1 Safety and emergency response plan.** Hydrogen mobile fueling operators shall have an approved written safety and emergency response plan that establishes policies and procedures for fire safety, release and control, personnel training and compliance with other applicable requirements of this code.

**5809.3.2 Training records.** Hydrogen mobile fueling vehicles or mobile fueling trailers shall be operated only by designated personnel who are trained on proper fueling procedures and the safety and emergency response plan. Training records of operators shall be maintained.

**5809.3.3 Site plan.** Where required by the fire code official, a site plan shall be developed for each location at which hydrogen mobile fueling occurs. The site plan shall be of sufficient detail to indicate the following:

1. All buildings and structures.
2. Lot lines or property lines.
3. Solar photovoltaic parking lot canopies.
4. Appurtenances on-site and their use or function.
5. All uses adjacent to the lot lines of the site.
6. Hydrogen fueling locations.

7. Scale of the site plan.

**5809.4 Hydrogen mobile fueling areas.** Hydrogen mobile fueling shall not occur on public streets, in public ways or inside buildings. Fueling on the roof level of parking structures or other buildings is prohibited unless access to the roof level is available without entering the structure or building.

**5809.4.1 Separation.** The point of connection of the vehicle being fueled shall not take place within the distances specified by **NFPA 2** Table 7.2.2.3.2 based on the maximum rated capacity of the hydrogen mobile fueling vehicle.

**5809.4.2 Sources of ignition.** Smoking, open flames and other sources of ignition shall be prohibited within 25 feet (7620 mm) of fuel-dispensing activities. Signs prohibiting smoking or open flames within 25 feet (7620 mm) of the vehicle or the point of fueling shall be prominently posted on the hydrogen mobile fueling vehicle. The fuel cell of vehicles being fueled shall be shut off during fueling.

**5809.5 Equipment.** Hydrogen mobile fueling equipment shall comply with **Sections 5809.5.1** and **5809.5.2**.

**5809.5.1 Dispensing hoses, nozzles and equipment.** Dispensing hoses, nozzles and equipment shall comply with **NFPA 2**.

**5809.5.2 Fire extinguisher.** An approved portable fire extinguisher complying with **Section 906** with a minimum rating of 4-A:80-B:C shall be provided on the hydrogen mobile fueling vehicle with signage clearly indicating its location.

**5809.6 Operations.** Hydrogen mobile fueling vehicles or mobile fueling trailers shall be operated in accordance with this section and **NFPA 2**.

**5809.6.1 Attendant.** Hydrogen mobile fueling vehicles or mobile fueling trailers shall be attended at all times during fueling operations, with brakes set and warning lights in operation.

**5809.6.2 Emergency access roads.** Hydrogen mobile fueling vehicles shall not obstruct emergency vehicle access roads.

**5809.6.3 Dispensing hose.** Where equipped, hydrogen mobile fueling vehicles or mobile fueling trailers shall be positioned in a manner to preclude traffic from driving over the dispensing hose. The dispensing hose shall be properly placed on an approved reel or in an approved compartment prior to moving the mobile fueling vehicle.

**5809.6.4 Safety cones.** Safety cones or other visual barriers shall be employed as warning devices to highlight the vehicle fueling area.

**5809.6.5 Vehicle lights.** The hydrogen mobile fueling vehicle or mobile fueling trailer flasher lights shall be in operation while dispensing operations are in progress.

**5809.6.6 Nighttime deliveries.** Nighttime deliveries shall be made only in areas deemed adequately lighted by the fire code official.

**5809.6.7 Spill reporting.** Releases shall be reported where required by **Section 5003.3.1**.

*New Section added to regulate on-demand hydrogen mobile fueling operations should they arrive in our jurisdiction in the future.*

## **Chapter 59**

### **Flammable Solids**

No changes.

**Chapter 60**  
**Highly Toxic and Toxic Materials**  
 No changes.

**2024 IFC Chapters 61-80 presented by Matt Kramer**

**Chapter 61**  
**6103.2.1.6 Use with self-contained torch assemblies – pg. 547**

Amended to read as follows:  
 Portable LP-gas containers are allowed to be used to supply *approved* self-contained torch assemblies or similar appliances. Such containers shall not exceed a water capacity of 2 ½ pounds (1 kg) 12 pounds.

**6104.2 Maximum capacity within established limits – pg. 548**

Amended to read as follows:  
 For the protection of heavily populated or congested areas, storage of liquefied petroleum gas shall not exceed an aggregate capacity in any one installation of 2,000 gallons (7570 L) within the limits established by law as set forth in the fire code adoption ordinance or other regulation adopted by the jurisdiction. Unprotected tanks with a water capacity exceeding 2,000 gallons shall be installed only in areas zoned industrial or limited industrial and shall be located at least 300 feet from all non-industrial zoning districts.

Clarifies language regarding LPG storage and places the same restrictions that currently exist for installation of above ground tanks.  
*The section is reworded but the limits remain the same.*

**Table 6109.12 Separation from exposures of LP-gas containers awaiting use, resale or exchange stored outside of buildings – pg. 551**

A change in wording, no significant change.

QUANTITY OF LP-GAS STORED (pounds)	MINIMUM SEPARATION DISTANCE FROM STORED LP-GAS CYLINDERS TO (feet):						
	Nearest important building or group of buildings or line of adjoining property that <del>may</del> <b>be has the potential to be</b> built on	Line of adjoining property occupied by schools, places of religious worship, hospitals, athletic fields or other points of public gathering; busy thoroughfares; or sidewalks	LP-gas dispensing station	Doorway or opening to a building with two or more means of egress	Doorway or opening to a building with one means of egress	Combustible materials	Motor vehicle fuel dispenser

**Chapter 62**  
**Organic Peroxides**  
 No changes.



**Chapter 63**  
**Oxidizers, Oxidizing Gases and Oxidizing Cryogenic Fluids**  
No Changes.

**Chapter 64**  
**Pyrophoric Materials**  
No changes.

**Chapter 65**  
**Pyroxylin (Cellulose Nitrate) Plastics**  
No changes.

**Chapter 66**  
**Unstable (Reactive) Materials**  
No changes.

**Chapter 67**  
**Water Reactive Solids and Liquids**  
No changes.

**Chapters 68-79 Reserved for Future use**

**Chapter 80**  
**Referenced Standards**  
Numerous updates to the Standard's Edition and Year of publication. No significant changes with the Referenced Standards.

**2024 IFC Appendix A-O presented by Ryan Young**

**Appendix A**  
**Board of Appeals – pg. 584**  
Appendix A is not adopted by the City of Fargo. There is no recommendation to adopt Appendix A.

**Appendix B**  
**Fire-Flow Requirements for Buildings – pg. 586**  
Appendix B is adopted and enacted in its entirety.

**B104.1 General – pg. 586**  
Exceptions added stating:  
1. The fire-flow calculation area of buildings constructed of Types IA and IB construction shall be the area of the three largest successive floors.  
2. The fire-flow calculation area for open parking garages of Types IA and IB construction shall be determined by the area of the largest floor.

**B104.3 Type 1A and Type 1B construction – pg. 586**

Is deleted and moved in to the exception of Section B104.1

**Appendix C**

**Fire Hydrant Locations and Distribution – pg. 589**

Appendix C is adopted and enacted in its entirety.

**Appendix D**

**Fire Apparatus Access Roads – pg. 591**

Appendix D is adopted and enacted in its entirety.

**D103.1 Access road width with a hydrant – pg. 591**

Is hereby deleted in its entirety.

The access road width of 20' is adequate to accommodate access and fire hydrants.

**Appendix E**

**Hazard Categories – pg. 594**

Appendix E is for informational purposes only and is not intended for adoption.

**Appendix F**

**Hazard Ranking – pg. 612**

Appendix F is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix G**

**Cryogenic Fluids – Weight and Volume Equivalents – pg. 614**

Appendix G is for informational purposes only and is not intended for adoption.

**Appendix H**

**Hazardous Materials Management Plan (HMMP) and Hazardous Material Inventory Statement (HMIS) Instructions – pg. 616**

Appendix H is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix I**

**Fire Protection Systems – Noncompliant Conditions – pg. 623**

Appendix I is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix J**

**Building Information Sign – pg. 626**

Appendix J is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix K**

**Construction Requirements for Existing Ambulatory Care Facilities – pg. 629**

Appendix K is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix L**

**Requirements for Firefighter Air Replenishment Systems – pg. 633**

Appendix L is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix M**

**High-Rise Buildings – Retroactive Automatic Sprinkler Requirement – pg. 636**

Appendix M is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix N**

**Indoor Trade Shows and Exhibitions – pg. 637**

Appendix N is not adopted by the City of Fargo. There is no recommendation to adopt.

**Appendix O**

**Valet Trash and Recycling Collection in Group R-2 Occupancies – pg. 640**

Appendix O is not adopted by the City of Fargo. There is no recommendation to adopt.

Shawn responded to Clay's previous question regarding the 5/8 sheetrock. He looked in the IRC and the IBC and there were no changes in either of those for that provision so it is unique to the fire code.

**New Business**

No new Business

**Announcements**

- a) Adjustments to Tentative Code Review Schedule
  - a. 1809.5 IBC was added to the December schedule

Clay Dietrich called for a motion to adjourn the meeting. David Vig motioned to adjourn the meeting, seconded by Justin Schoenberg. No one was in opposition and the motion was declared carried.

Meeting adjourned at 11:26 am.

Respectfully submitted



Shawn Ouradnik  
Board Secretary