APPROVED BY THE CALIFORNIA BUILDING STANDARDS COMMISSION

DECEMBER 17, 2024

# FINAL EXPRESS TERMS FOR PROPOSED BUILDING STANDARDS OF THE STATE FIRE MARSHAL REGARDING THE 2025 CALIFORNIA MECHANICAL CODE, CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 4 (SFM 01/24)

The state agency shall draft the regulations in plain, straightforward language, avoiding technical terms as much as possible and using a coherent and easily readable style. The agency shall draft the regulation in plain English. A notation shall follow the express terms of each regulation listing the specific statutes authorizing the adoption and listing specific statutes being implemented, interpreted, or made specific (Government Code Section 11346.2(a)(1)).

If using assistive technology, please adjust your settings to recognize underline, strikeout, italic and ellipsis.

## LEGEND for EXPRESS TERMS (Based on model codes - Parts 2, 2.5, 3, 4, 5, 9, 10)

* Model Code language appears upright
* Existing California amendments appear in *italic*
* Amended model code or new California amendments appear *underlined & italic*
* Repealed model code language appears ~~upright and in strikeout~~
* Repealed California amendments appear in *~~italic and strikeout~~*
* Ellipses ( …) indicate existing text remains unchanged

## FINAL EXPRESS TERMS

### ITEM 1 Chapter 1, Administration

[The SFM proposes to carry forward existing California provisions contained in Sections 1.11 through 1.11.11 with modification as shown in Item 1-1.]

#### ITEM 1-1 Division I, California Administration, Section 1.1.1 Title

***1.1.1 Title.*** *These regulations shall be known as the California Mechanical Code, may be cited as such and will be referred to herein as “this code.” The California Mechanical Code is Part 4 of thirteen parts of the official compilation and publication of the adoption, amendment, and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the ~~2021~~ 2024 Uniform Mechanical Code of the International Association of Plumbing and Mechanical Officials with necessary California amendments.*

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50.

Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 2 Chapter 2, Definitions

[The SFM proposes to adopt Chapter 2, carry forward existing amendments and repeal and replace existing amendments with model code as shown below.]

#### ITEM 2-1 Section 202.0 -R-

[The SFM proposes to repeal language that was brought in as an early adoption in the 2022 Intervening Code Cycle from the 2024 Uniform Mechanical Code and replace with model code language. There is no regulatory effect.]

***~~Refrigerant.~~*** *~~A chemical compound intended to be used for heat transfer in a refrigerating system.~~*

***~~Refrigerant Concentration Limit (RCL). (SFM)~~*** *~~The refrigerant concentration limit, in air, determined in accordance with this code and intended to reduce the risks of acute toxicity, asphyxiation, and flammability hazards in normally occupied, enclosed spaces. [ASHRAE 34:3.1]~~*

…

**Refrigerant Safety Classifications.** Made up of a letter (A or B), that indicates the toxicity class, followed by a number (1, 2L *~~2L~~*, 2, or 3), that indicates the flammability class.

...

**Flammability Classification.** Refrigerants shall be classified for flammability in accordance with one of the following:

**Class 1.** …

**Class 2.** …

**Class 2L. …**

***~~Class 2L.~~*** *~~Refrigerants having a lower flammability limit (LFL) of more than 0.00625 pound per cubic foot (lb/ft3) (0.10012 kg/m3) at 140°F (60°C), 14.7 psia (101 kPa), a heat of combustion of less than 8169 British thermal units per pound (Btu/lb) (1.8988 E+07 J/kg), and a maximum burning velocity of 3.9 inches per second (10 cm/s) where tested at 73.4°F (23°C) and 14.7 psia (101 kPa) in dry air.~~*

**Class 3.** …

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 3 Chapter 3, General Regulations

[The SFM proposes to adopt Chapter 3 carry forward existing amendments with modifications shown in Item 3-1, and repeal and replace existing amendments with model code language as shown in items below.]

#### ITEM 3-1 Section 303.8.5 Electrical Power.

[The SFM proposes to amend the reference from NFPA 70 to the California Electrical Code.]

**303.8.5 Electrical Power.**

Appliances requiring an external source of electrical power shall be installed in accordance with ~~NFPA 70~~ *the California Electrical Code.*

#### ITEM 3-2 Section 307.3 Heat Pump and Electric Cooling Appliances.

[The SFM proposes to repeal and replace existing amendments with model code language.]

**307.3 Heat Pump and Electric Cooling Appliances.**

Heat pumps and electric cooling appliances shall bear a permanent and legible factory-applied nameplate on which shall appear:

(1) The name or trademark of the manufacturer.

(2) The model number or equivalent.

(3) The serial number.

(4) The amount of refrigerant.

*~~(5) The refrigerant designation.~~*

*~~(6)~~* (5) The factory test pressures or pressures applied.

*~~(7)~~* (6) The electrical rating in volts, amperes, and, for other than

single phase, the number of phases.

*~~(8)~~* (7) The output rating in Btu/h (kW).

*~~(9)~~* (8) The electrical rating in volts, amperes, or watts of each

field replaceable electrical component.

*~~(10)~~* (9) The symbol of an approved agency certifying compliance of the equipment with recognized standards.

*~~(11)~~* (10) Required clearances from combustible surfaces on which or adjacent to which it is permitted to be mounted.

An appliance shall be accompanied by clear and complete installation instructions, including required clearances from combustible other than mounting or adjacent surfaces, and temperature rating of field-installed wiring connections exceeding 140°F (60°C).

#### ITEM 3-3 Section 307.4 Absorption Units.

[The SFM proposes to repeal and replace existing amendments with model code language.]

**307.4 Absorption Units.**

Absorption units shall bear a permanent and legible factory-applied nameplate on which shall appear:

(1) The name or trademark of the manufacturer.

(2) The model number or equivalent.

(3) The serial number.

(4) The amount of refrigerant.

*~~(5) The refrigerant designation~~*.

*~~(6)~~* (5) Hourly rating in Btu/h (kW).

*~~(7)~~* (6) The type of fuel approved for use with the unit.

*~~(8)~~* (7) Cooling Capacity Btu/h (kW).

*~~(9)~~* (8) Required clearances from combustible surfaces on which or adjacent to which is permitted to be mounted.

*~~(10)~~* (9) The symbol of an approved agency certifying compliance of the equipment with recognized standards.

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 4 Chapter 4, Ventilation Air

[The SFM is proposing to adopt Chapter 4 and carry forward existing amendments.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 5 Chapter 5, Exhaust Systems

[The SFM proposes to adopt Chapter 5 and carry forward existing amendments with modifications shown in Item 5-1.]

#### ITEM 5-1 Section 505.7.3 Smoke Control Systems.

[The SFM is proposing to adopt with modifications of Section 505.7.3 shown below.]

**505.7.3 Smoke Control Systems.**

Smoke control systems shall be designed in accordance with NFPA 92 and installed where required by the ~~building code~~ *California Building Code and the California Fire Code*. Smoke control systems shall be equipped with a control unit that complies with UL 864.

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 6 Chapter 6, Duct Systems

[The SFM proposes to adopt Chapter 6 and carry over existing amendments with modifications shown below.]

#### ITEM 6-1 Chapter 6, Section 606.0 Smoke Dampers, Fire Dampers, and Ceiling Dampers.

[The SFM proposes to carry forward existing amendments formally 606.8 and renumber as Section 606.4.1.]

***~~606.8~~*** *~~…~~*

**606.4 Combination Fire/Smoke Dampers.** …

***~~606.8~~ 606.4.1*** *When the automatic activation of a smoke damper or a combination smoke-fire damper …*

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 7 Chapter 7, Combustion Air

[The SFM proposes to adopt Chapter 7 without amendment.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 8 Chapter 8, Chimneys and Vents

[The SFM proposes to adopt Chapter 8 without amendment.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 9 Chapter 9, Installation of Specific Appliances

[The SFM proposes to adopt Chapter 9 without amendment.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 10 Chapter 10, Boilers and Pressure Vessels

[The SFM proposes to adopt Chapter 10 without amendment.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 11 Chapter 11, Refrigeration

[The SFM proposes to adopt Chapter 11 and carry forward existing amendments in Section 1108.4, and repeal California amendments that were brought in as an early adoption in the 2022 Intervening Code Cycle from the 2024 Uniform Mechanical Code and replace with model code language as shown in Items 11-1 through 11-54. There is no regulatory effect.]

#### ITEM 11-1 Section 1103.1.1 Safety Group.

[Propose to repeal and replace amendments with model code.]

**1103.1.1 Safety Group.** …*~~as shown in Table 1103.1.1~~*.

#### ITEM 11-2 Table 1103.1.1 Refrigerant Safety Group Classifications.

[Propose to repeal and replace amendments with model code.]

**Table 1103.1.1 Refrigerant Safety Group Classifications**

***~~TABLE 1103.1.1~~***

***~~REFRIGERANT SAFETY GROUP CLASSIFICATIONS~~***

| ***~~Higher Flammability~~*** | ***~~A3~~*** | ***~~B3~~*** |
| --- | --- | --- |
| ***~~Flammable~~*** | ***~~A2~~*** | ***~~B2~~*** |
| ***~~Lower Flammability~~*** | ***~~A2L~~*** | ***~~B2L~~*** |
| ***~~No Flame Propagation~~*** | ***~~A1~~*** | ***~~B1~~*** |
|  | ***~~Lower Toxicity~~*** | ***~~Higher Toxicity~~*** |

#### ITEM 11-3 Table 1104.1 Permissible Refrigeration Systems.

[Propose to repeal and replace amendments with model code.]

**TABLE 1104.1**

**PERMISSIBLE REFRIGERATION SYSTEMS1**

| **OCCUPANCY GROUP3** | **HIGH-PROBABILITY**  **SYSTEM** | **LOW PROBABILITY**  **SYSTEM** | **MACHINERY ROOM** |
| --- | --- | --- | --- |
| **A-1** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **A-2** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
|  |  |  |  |
| **A-3** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **A-4** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **B** | Group A12 *~~or A2L~~ ~~2,4~~* only | **Any** | **Any** |
| **E** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **F-1** | Group A12 *~~or A2L~~ ~~2,4~~* only | **Any** | **Any** |
| **F-2** | **Any 2** | **Any** | **Any** |
| **H-1** | **Any** | **Any** | **Any** |
| **H-2** | **Any** | **Any** | **Any** |
| **H-3** | **Any** | **Any** | **Any** |
| **H-4** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **H-5** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **I-1** | **None** | **Any** | **Any** |
| **I-2** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| ***[OSHPD 1, 1R, 2, 3, 4 & 5] I-2.1*** | *Group A1 only* | ***Any*** | ***Any*** |
| **I-3** | **None** | **Any** | **Any** |
| **I-4** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **M** | Group A12 *~~or A2L~~ ~~2,4~~* only | **Any** | **Any** |
| **R-1** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **R-2** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **R-3** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **R-4** | Group A1 *~~or A2L~~~~4~~* only | **Any** | **Any** |
| **S-1** | Group A12 *~~or A2L~~ ~~2,4~~* only | **Any** | **Any** |
| **S-2** | **Any2** | **Any** | **Any** |
| **U** | **Any** | **Any** | **Any** |

**Notes:**

…

*~~4~~ ~~See Section 1104.6 for requirements applicable to A2L equipment.~~*

#### ITEM 11-4 1104.2 Refrigent concentration limit (RCL)

[Propose to repeal and replace amendments with model code.]

**1104.2 Refrigerant Concentration Limit *~~(RCL)~~*.** The concentration of refrigerant in a complete discharge of an independent circuit of high-probability systems shall not exceed the amounts shown in Table 1102.3, except as provided in Section 1104.3*,* Section 1104.4, *~~and Section 1104.6.~~* The volume of occupied space shall be determined in accordance with Section 1104.2.1 through Section 1104.2.3.

**Exceptions:**

(1) Listed equipment *~~in locations other than public corridors and lobbies~~* containing not more than 6.6 pounds (2.99 kg) of refrigerant, regardless of the refrigerant safety classification, provided the equipment is installed in accordance with the listing and with the manufacturer’s installation instructions.

(2) Listed equipment for use in laboratories with more than 100 square feet (9.29 m2) of space per person, regardless of the refrigerant safety classification, provided that the equipment is installed in accordance with the listing and the manufacturer’s installation instructions. [ASHRAE 15:7.2]

#### ITEM 11-5 Section 1104.5 Flammable Refrigerants.

[Propose to repeal and replace amendments with model code.]

**1104.5 Flammable Refrigerants.** The total of Group A2, B2, A3, and B3 refrigerants, other than Group A2L and B2L refrigerants shall not exceed 1100 pounds (498.9 kg) without approval by the Authority Having Jurisdiction. Institutional Occupancies shall comply with Section 1104.3.*~~Machinery rooms required in accordance with Section 1106.0 based on flammability shall be constructed and maintained in accordance with Section 1106.2.1 through Section 1106.2.6 and Section 1106.11 for Group A2L and B2L refrigerants.~~*

#### ITEM 11-6 Section 1104.6 Group A2L Refrigerants for Human Comfort.

[Propose to repeal and replace amendments with model code.]

***~~1104.6 Group A2L Refrigerants for Human Comfort.~~*** *~~High-probability systems using Group A2L refrigerants for human comfort applications shall comply with this section. [ASHRAE 15:7.6].~~*

#### ITEM 11-7 Section 1104.6.1 Refrigerant concentration limits.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.1 Refrigerant Concentration Limits.~~*** *~~Occupied spaces shall comply with the releasable charge limitations of the equipment listing and ASHRAE 15. Unoccupied spaces with refrigerant containing equipment, not including continuous piping or tubing, shall comply with the releasable charge limitations of the equipment listing or Section 1104.6.4. [ASHRAE 15:7.6.1-7.6.1.2]~~*

#### ITEM 11-8 Section 1104.6.2 Listing and Installation Requirements.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.2 Listing and Installation Requirements.~~*** *~~Refrigeration systems shall be listed and shall be installed in accordance with listing, the manufacturer’s instructions, and any markings on the equipment restricting the installation. [ASHRAE 15:7.6.2]~~*

#### ITEM 11-9 Section 1104.6.2.1 Nameplate.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.2.1 Nameplate.~~*** *~~The nameplate required by Section 1115.5 shall include a symbol indicating that a flammable refrigerant is used, as specified by the product listing. [ASHRAE 15:7.6.2.1].~~*

#### ITEM 11-10 Section 1104.6.2.2 Labeling.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.2.2 Labeling.~~*** *~~A label indicating a flammable refrigerant is used shall be placed adjacent to service ports and other locations where service involving components containing refrigerant is performed, as specified by the product listing. [ASHRAE 15:7.6.2.2]~~*

#### ITEM 11-11 Section 1104.6.2.3 Refrigerant Detection Systems.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.2.3 Refrigerant Detection Systems.~~*** *~~Refrigerant detection systems shall be in accordance with the listing and ASHRAE 15.~~*

#### ITEM 11-12 Section 1104.6.2.4 Refrigerant Concentration Above Limit.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.2.4 Refrigerant Concentration Above Limit.~~*** *~~When the refrigerant detection system senses~~**~~a refrigerant exceeding its setpoint, the following~~**~~actions shall be taken:~~*

1. *~~The supply air fan of the equipment shall activate with a minimum airflow rate specified by the manufacturer.~~*
2. *~~Turn off the compressor and all other electrical devices, excluding the control power transformers, control systems, and the supply air fan. The supply air fan shall continue to operate for at least five minutes after the refrigerant detection system has sensed a drop in the refrigerant concentration below the value specified in Section 1104.6.6(b).~~*
   * 1. ***~~Exception:~~*** *~~The compressor operation shall not be turned off when the compressor operation reduces the leak rate or the total amount of released refrigerant to the indoor space.~~*
3. *~~Any device that controls airflow located within the product or in ductwork that supplies air to the occupied space shall be fully open. Any device that controls airflow shall be listed.~~*
4. *~~Mitigation action required by the equipment listing shall be initiated [ASHRAE 15:7.6.2.4]~~*

#### ITEM 11-13 Section 1104.6.3 Ignition Sources Located in Ductwork.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.3 Ignition Sources Located in Ductwork.~~*** *~~Open-flame-producing devices shall not be permanently installed in the ductwork that serves the space. Unclassified electrical devices shall not be located within the ductwork that serves the space. Devices containing hot surfaces exceeding 1290°F (700°C) shall not be located in the ductwork that serves the space unless there is a minimum airflow of 200 ft/min (1.0 m/s) across the heating device(s) and there is proof of airflow before the heating device(s) is energized. [ASHRAE 15:7.6.3-7.6.3.3]~~*

#### ITEM 11-14 Section 1104.6.4 Mechanical Ventilation.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.4~~*** ***~~Mechanical Ventilation.~~*** *~~When the releasable charge of the refrigeration system exceeds the refrigerant concentration limit specified in Section 1104.6.1, the refrigerant charge and ventilation air flow shall be in accordance with the equipment listing and ASHRAE 15.~~*

#### ITEM 11-15 Section 1104.6.5 Compressors and Pressure Vessels Located Indoors.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.5~~*** ***~~Compressors and Pressure Vessels Located Indoors.~~*** *~~For refrigeration compressors and pressure vessels located in an indoor space that is accessible only during service and maintenance, the refrigerant charge shall be in accordance with the equipment listing and ASHRAE 15.~~*

#### ITEM 11-16 Section 1104.6.6 Sensors.

[Propose to repeal and replace amendments with model code.]

***~~1104.6.6 Refrigerant Sensors.~~*** *~~Refrigerant sensors required by Section 1106.2.6 shall meet the following requirements:~~*

1. *~~Refrigerant sensors shall be evaluated by the testing laboratory as part of the equipment listing.~~*
2. *~~Refrigerant sensors shall be located such that refrigerant will be detected if the refrigerating system is operating or not operating.~~* 
   1. *~~For refrigerating systems that are connected to the occupied space through ductwork, refrigerant sensors shall be located within the listed equipment.~~*
   2. *~~For refrigerating systems that are directly connected to the occupied space without ductwork, the refrigerant sensor shall be located in the equipment in accordance with the equipment listing. Additional remote refrigerant sensors shall be permitted within the occupied space when included as part of the equipment mitigation system according to manufacturer’s instructions. [ASHRAE 15:7.6.5]~~*

#### ITEM 11-17 Section 1104.7 Applications for Human Comfort and for Nonindustrial Occupanices

[The SFM proposes to repeal and replace amendments with model code.]

**1104.7 Applications for Human Comfort and for Nonindustrial Occupancies**. In nonindustrial occupancies, Group A2, A3, B1, B2L, B2, and B3 refrigerants shall not be used in high-probability systems for human comfort.*~~Use of Group A2L refrigerants used in high-probability systems for human comfort shall be in accordance with Section 1104.6.~~*

#### ITEM 11-18 Sections 1104.8, 1104.8.1, 1104.8.2, 1104.8.3, 1104.8.4.

[Propose to repeal renumbering and replace amendments with model code.]

***~~1104.8~~* Refrigerant Type and Purity. …**

***~~1104.8.1~~* Recovered Refrigerants. …**

***~~1104.8.2~~* Recycled Refrigerants. …**

***~~1104.8.3~~* Reclaimed Refrigerants. …**

***~~1104.8.4~~* Mixing.**Refrigerants, with different *~~refrigerant~~* designations *~~shall only be mixed in a system in accordance with the following:~~*

1. *~~The addition of a second refrigerant is allowed by the equipment manufacturer and is in accordance with the manufacturer’s instructions.~~*
2. *~~The resulting mixture does not change the refrigerant safety group. [ASHRAE 15:7.5.1.7]~~*

#### ITEM 11-19 Sections 1104.9 Changing Refrigerants.

[The SFM proposes to repeal and replace amendments with model code.]

***~~1104.9~~* 1104.9 Changing Refrigerants.** *~~Changes of refrigerant in an existing system to a refrigerant with a different refrigerant designation shall only be allowed where in accordance with Section 1104.9.1 through Section 1104.9.4.~~* ~~[ASHRAE 15:5.3]~~

***~~1104.9.1 Approval.~~*** *~~The change of refrigerant shall be approved by the owner. [ASHRAE 15:5.3.1]~~*

***~~1104.9.2 Procedures.~~*** *~~The change of refrigerant shall be in accordance with one of the following:~~*

*~~(1) Written instructions of the original equipment manufacturer.~~*

*~~(2) An evaluation of the system by a registered design professional or by an approved nationally recognized testing laboratory that validates safety and suitability of the replacement refrigerant.~~*

*~~(3) Approval of the Authority Having Jurisdiction. [ASHRAE 15:5.3.2]~~*

***~~1104.9.3 Replacement Refrigerant of Same Classification.~~*** *~~Where the replacement refrigerant is classified~~**~~into the same safety group, requirements that were~~**~~applicable to the existing system shall continue to apply.~~**~~[ASHRAE 15:5.3.3]~~*

***~~1104.9.4 Replacement Refrigerant of Different Classification.~~*** *~~Where the replacement refrigerant is~~**~~classified into a different safety group, the system shall~~**~~comply with the requirements of this chapter for a new~~**~~installation, and the change of refrigerant shall require~~**~~Authority Having Jurisdiction approval. [ASHRAE~~**~~15:5.3.4]~~*

#### ITEM 11-20 Sections 1105.12 Storing Refrigerant.

[The SFM proposes to repeal and replace amendments with model code.]

**1105.12.1 *~~Storing Refrigerant~~*….**

#### ITEM 11-21 Section 1106.2.2 Openings.

[Propose to repeal and replace amendments with model code.]

**1106.2.2 Openings.** Each refrigeration machinery room shall have a tight-fitting door or doors opening outward, self-closing where they open into the building and adequate in number to ensure freedom for persons to escape in an emergency. With the exception of access doors and panels in air ducts and air-handling units in accordance with Section *~~1106.2.3~~* 1106.2.3, there shall be no openings that will permit passage of escaping refrigerant to other parts of the building. [ASHRAE 15: 8.11.2]

#### ITEM 11-22 Section 1106.2.3 Airflow.

[Propose to repeal and replace amendments with model code.]

***~~1106.2.3~~* 1106.2.3Airflow.** There shall be no airflow to or from an occupied space through a machinery room unless the air is ducted and sealed in such a manner as to prevent *~~any~~* refrigerant leakage from entering the airstream. Access doors and panels in ductwork and air-handling units shall be gasketed and tight fitting. [ASHRAE 15:8.11*.~~3~~*]

#### ITEM 11-23 Section 1106.2.4 Restricted Access.

[Propose to repeal and replace amendments with model code.]

***~~1106.2.4~~* 1106.2.4 Restricted Access.** Access to the refrigeration machinery room shall be restricted to authorized personnel. Doors shall be clearly marked, or permanent signs shall be posted at each entrance to indicate this restriction. [ASHRAE 15:8.11.*~~4~~*]

#### ITEM 11-24 Section 1106.2.5 Detectors and Alarms.

[Propose to repeal and replace amendments with model code.]

***~~1106.2.5~~* 1106.2.5 Detectors and Alarms.** Each refrigeration machinery room shall contain one or more refrigerant detectors in accordance with Section *~~1106.2.6~~* 1106.2.6, located in areas where refrigerant from a leak will concentrate, that actuate an alarm and mechanical ventilation in accordance with Section *~~1106.2.7~~* 1106.2.7at a set point not more than the corresponding Occupational Exposure Limit, OEL, in accordance with Table 1102.3, a set point determined in accordance with the OEL as defined in Chapter 2 shall be approved by the Authority Having Jurisdiction. The alarm shall annunciate visual and audible alarms inside the refrigeration machinery room and outside each entrance to the refrigeration machinery room. The alarms required in this section shall be of the manual reset type with the reset located inside the refrigeration machinery room. Alarms set at other levels, such as IDLH, and automatic reset alarms shall be permitted in addition to those required in accordance with this section. The meaning of each alarm shall be clearly marked by signage near the annunciator.

**Exception:** Refrigerant detectors are not required where only systems using R-718 (water) are located in the refrigeration machinery room. *~~For Group A2L and B2L, refrigerant detectors shall comply with Section 1106.11.~~* For Group A2L and B2L, refrigerant detectors shall comply with Section 1106.11.

#### ITEM 11-25 Section 1106.2.6 Refrigerant Detectors.

[Propose to repeal and replace amendments with model code.]

***~~1106.2.6~~* 1106.2.6 Refrigerant Detectors.** Refrigerant detectors required in accordance with Section *1106.2.5* or Section 1107.1.7 shall meet all of the following conditions:

1. The refrigerant detector shall perform automatic self-testing of sensors. Where a failure is detected, a trouble signal shall be activated.
2. The refrigerant detector shall have one or more set points to activate responses in accordance with Section *~~1106.2.5~~* 1106.2.5or Section 1107.1.7.
3. The refrigerant detector as installed, including any sampling tubes, shall activate responses within a time not to exceed 30 seconds after exposure to refrigerant concentration exceeding the set point value specified in Section *~~1106.2.5~~* 1106.2.5 or Section 1107.1.7.

#### ITEM 11-26 Sections 1106.2.7 and 1106.2.8

[Propose to repeal renumbering and replace amendments with model code.]

***~~1106.2.7~~* 1106.2.7 Mechanical Ventilation. …**

***~~1106.2.8~~* 1106.2.8 Ventilation. …**

#### ITEM 11-27 Section 1106.2.9 Emergency Ventilation-Required Airflow.

[Propose to repeal and replace amendments with model code.]

***~~1106.2.9~~* 1106.2.9 Emergency Ventilation-Required Airflow.** An emergency ventilation system shall be required to exhaust an accumulation of refrigerant due to leaks or a rupture of the system. The emergency ventilation required shall be capable of removing air from the machinery room in not less than the airflow quantity in Section *~~1106.2.9.1~~*~~.~~ 1106.2.9.1. Where multiple refrigerants are present, then the highest airflow quantity shall apply.

***~~1106.2.9.1~~* 1106.2.9.1 Ventilation - A1, A2, A3, B1, B2 and B3 Refrigerants.** The emergency ventilation for A1, A2, A3, B1, B2 and B3 refrigerants shall have the capacity to provide mechanical exhaust at a rate as determined in accordance with Equation *~~1106.2.9.1~~*. 1106.2.9.1. …

#### ITEM 11-28 Sections 1106.4, 1106.6, 1106.7, 1106.8, 1106.9, 1106.10.

[Propose to repeal and replace amendments with model code.]

**1106.4 Natural Ventilation.** *~~When~~* When a refrigerating system is located outdoors more than 20 feet (6096 mm) from building openings and is enclosed by a penthouse, lean-to, or other open structure, natural or mechanical ventilation shall be provided. The requirements for such natural ventilation shall be in accordance with the following:

1. The free-aperture cross section for the ventilation of a machinery room shall be not less than as determined in accordance with Equation 1106.4.

*F* = √*G* (Equation 1106.4)

Where:

*F* = The free opening area, square feet.

*G* = The mass of refrigerant in the largest system, any part of which is located in the machinery room, pounds.

For SI units: 1 cubic foot per minute = 0.00047 m3/s, 1 pound = 0.453 kg

1. Locations of the gravity ventilation openings shall be based on the relative density of the refrigerant to air. [ASHRAE 15:*~~8~~*~~.~~*~~14~~* 8.14]

…

***~~1106.6~~* Ventilation Intake. …**

***~~1106.7~~*Maximum Temperature. …**

***~~1106.8~~*Refrigerant Parts in Air Duct. …**

***~~1106.9~~* Dimensions. …**

***~~1106.10~~*Exits. …**

#### ITEM 11-29 Section 1106.11 Machinery Room, A2L and B2L.

[Propose to repeal and replace amendments with model code.]

***~~1106.11 Machinery Room, A2L and B2L.~~*** *~~When required by Section 1106.1, machinery rooms shall comply with Section 1106.11.1 through Section 1106.11.6. [ASHRAE 15:8.13]~~*

#### ITEM 11-30 Section 1106.11.1 Flame-Producing Device.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.1 Flame-Producing Device.~~*** *~~There shall be no flame-producing device or hot surface over 1290°F (70 °C) in the room, other than that used for maintenance or repair, unless installed in accordance with Section 1106.5. [ASHRAE 15:8.13.1]~~*

#### ITEM 11-31 Section 1106.11.2 Communicating Spaces.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.2 Communicating Spaces.~~*** *~~Doors communicating with the building shall be approved, self-closing, tight-fitting fire doors. [ASHRAE 15:8.13.2]~~*

#### ITEM 11-32 Section 1106.11.3 Noncombustible Construction*~~.~~*

[Propose to repeal and replace amendments with model code.]

***~~1106.11.3 Noncombustible Construction.~~*** *~~Walls, floor, and ceiling shall be tight and of noncombustible construction. Walls, floor, and ceiling separating the refrigerating machinery room from other occupied spaces shall be of at least one-hour fire-resistive construction. [ASHRAE 15:8.13.3]~~*

#### ITEM 11-33 Section 1106.11.4 Exterior Openings.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.4 Exterior Openings.~~*** *~~Exterior openings, if present, shall not be under any fire escape or any open stairway. [ASHRAE 15:8.13.4]~~*

#### ITEM 11-34 Section 1106.11.5 Pipe Penetrations.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.5 Pipe Penetrations.~~*** *~~All pipes piercing the interior walls, ceiling, or floor of such rooms shall be tightly sealed to the walls, ceiling, or floor through which they pass. [ASHRAE 15:8.13.5]~~*

#### ITEM 11-35 Section 1106.11.6 Machinery Room Designation.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.6 Machinery Room Designation.~~*** *~~When any refrigerant of Groups A2, A3, B2, or B3 are used, the machinery room shall be designated as Class I, Division 2 hazardous (classified) electrical location in accordance with the California Electrical Code. When the only flammable refrigerants used are from Group A2L or B2L, the machinery room shall comply with both Section 1106.11.6.1 for ventilation and Section 1106.11.6.2 for refrigerant detection, or shall be designated as Class I, Division 2 hazardous (classified) electrical location in accordance with the California Electrical Code. [ASHRAE 15:8.13.6]~~*

***~~1106.11.6.1 Mechanical Ventilation.~~*** *~~The machinery room shall have a mechanical ventilation system in accordance with Section 1106.11.11. The mechanical ventilation system shall:~~*

1. *~~Run continuously, and failure of the mechanical ventilation system actuates an alarm, or~~*
2. *~~Be activated by one or more refrigerant detectors, conforming to requirements of Section 1106.11.8. [ASHRAE 15:8.13.6.1]~~*

***~~1106.11.6.2 Detection System.~~*** *~~Detection of refrigerant concentration that exceeds 25 percent of the LFL or the upper detection limit of the refrigerant detector, whichever is lower, shall automatically de-energize the following equipment in the machinery room:~~*

1. *~~Refrigerant compressors~~*
2. *~~Refrigerant pumps~~*
3. *~~Normally closed automatic refrigerant valves~~*
4. *~~Other unclassified electrical sources of ignition with apparent power rating greater than 1 kVA, where the apparent power is the product of the circuit voltage and current rating. [ASHRAE 15:8.13.6.2]~~*

#### ITEM 11-36 Section 1106.11.7 Mechanical Equipment Control.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.7 Mechanical Equipment Control.~~*** *~~Remote control of the mechanical equipment in the refrigerating machinery room shall be provided immediately outside the machinery room door solely for the purpose of shutting down the equipment in an emergency. Ventilation fans shall be on a separate electrical circuit and have a control switch located immediately outside the machinery room door. [ASHRAE 15:8.13.7]~~*

#### ITEM 11-37 Section 1106.11.8 Refrigerant Detectors.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.8 Refrigerant Detectors.~~*** *~~Each refrigerating machinery room in accordance with Section 1106.11 shall contain one or more refrigerant detectors in accordance with Section 1106.11.9. The detector(s) sensing element shall be located in areas where refrigerant from a leak will concentrate, with one or more set points that activate responses in accordance with Section 1106.11.10 for alarms and Section 1106.11.11 for mechanical ventilation. Multiport-type devices shall be prohibited. [ASHRAE 15:8.13.8]~~*

#### ITEM 11-38 Section 1106.11.9 Refrigerant Detector Requirements.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.9 Refrigerant Detector Requirements.~~*** *~~Refrigerant detectors required by Section 1106.11 shall meet all of the following conditions:~~*

1. *~~A refrigerant detector shall be capable of detecting each of the specific refrigerant designations in the machinery room.~~*
2. *~~The refrigerant detector shall activate responses within a time not to exceed a limit specified in Section 1106.11.10 and Section 1106.11.11 after exposure to refrigerant concentration exceeding a limit value specified in Section 1106.11.10 and Section 1106.11.11.~~*
3. *~~The refrigerant detector shall have a set point not greater than the applicable Occupational Exposure Limit (OEL) value in accordance with Table 1102.3. The applicable OEL value shall be the lowest OEL value for any refrigerant designation in the machinery room. For refrigerants that do not have an OEL value in Table 1102.3, use a value determined in accordance with the OEL as defined by ASHRAE 34 where approved by the Authority Having Jurisdiction.~~*
4. *~~The refrigerant detector shall have a set point not more than the applicable Refrigerant Concentration Limit (RCL) value in accordance with Table 1102.3. The applicable RCL value shall be the lowest RCL value for any refrigerant designation in the machinery room. For refrigerants that do not have a RCL value in Table 1102.3, use a value determined in accordance with the RCL as defined by ASHRAE 34 where approved by the Authority Having Jurisdiction.~~*
5. *~~The refrigerant detector shall provide a means for automatic self-testing and shall be in accordance with Section 1106.11.10.4. The refrigerant detector shall be tested during installation and annually thereafter in accordance with the fire code, or at an interval not exceeding the manufacturer’s installation instructions, whichever is less. Testing shall verify compliance with the alarm set points and response times per Section 1106.11.10 and Section 1106.11.11. [ASHRAE 15:8.13.9]~~*

#### ITEM 11-39 Section 1106.11.10 Alarms.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.10 Alarms.~~*** *~~Alarms required by Section 1106.11.8 shall comply with Section 1106.11.10.1 through Section 1106.11.10.4.~~*

***~~1106.11.10.1 Visual and Audio.~~*** *~~The alarm shall have visual and audible annunciation inside the refrigerating machinery room and outside each entrance to the refrigerating machinery room. [ASHRAE 15:8.13.10.1]~~*

***~~1106.11.10.2 Detector Activation.~~*** *~~The refrigerant detector set points shall activate an alarm in accordance with the type of reset in Table 1106.11.10.2. Manual reset type alarms shall have the reset located inside the refrigerating machinery room. [ASHRAE 15:8.13.10.2]~~*

#### ITEM 11-40 TABLE 1106.11.10.2 REFRIGERANT DETECTOR SET POINTS, RESPONSE TIMES, ALARMS, AND VENTILATION LEVELS [ASHRAE 15: TABLE 8-1]

[Propose to repeal and replace amendments with model code.]

***~~TABLE 1106.11.10.2~~***

***~~REFRIGERANT DETECTOR SET POINTS, RESPONSE TIMES, ALARMS, AND VENTILATION LEVELS~~***

***~~[ASHRAE 15: TABLE 8-1]~~***

| ***~~LIMIT VALUE~~*** | ***~~RESPONSE~~***  ***~~TIME (seconds)~~*** | ***~~ALARM TYPE~~*** | ***~~ALARM~~***  ***~~RESET TYPE~~*** | ***~~VENTILATION~~***  ***~~RATE~~*** | ***~~VENTILATION~~***  ***~~RESET TYPE~~*** |
| --- | --- | --- | --- | --- | --- |
| *~~Set point ≤ OEL~~* | *~~≤ 300~~* | *~~Trouble Alarm~~* | *~~Automatic~~* | *~~Level 1~~* | *~~Automatic~~* |
| *~~Set point ≤ RCL~~* | *~~≤ 15~~* | *~~Emergency Alarm~~* | *~~Manual~~* | *~~Level 2~~* | *~~Manual~~* |

#### ITEM 11-41 Section 1106.11.10.3 Alarm Levels.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.10.3 Alarm Levels.~~*** *~~Alarms set at levels other than Table 1106.11.10.2 (such as IDLH) and automatic reset alarms are permitted in addition to those required by Section 1106.11.10. The meaning of each alarm shall be clearly marked by signage near the annunciators. [ASHRAE 15:8.13.10.3]~~*

#### ITEM 11-42 Section 1106.11.10.4 Emergency.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.10.4 Emergency.~~*** *~~In the event of a failure during a refrigerant detector self-test in accordance with Section 1106.11.9(5), a trouble alarm signal shall be transmitted to an approved monitored location. [ASHRAE 15:8.13.10.4]~~*

#### ITEM 11-43 Section 1106.11.11 Mechanical Ventilation.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.11 Mechanical Ventilation.~~*** *~~Machinery rooms, in accordance with Section 1106.11, shall be vented to the outdoors, using mechanical ventilation in accordance with Section 1106.11.11.1, Section 1106.11.11.2, and Section 1106.11.11.3. [ASHRAE 15:8.13.11]~~*

#### ITEM 11-44 Section 1106.11.11.1 Mechanical Ventilation Requirements.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.11.1 Mechanical Ventilation Requirements.~~*** *~~Mechanical ventilation referred to in Section 1106.11.11 shall be in accordance with all of the following:~~*

1. *~~Include one or more power-driven fans capable of exhausting air from the machinery room; multispeed fans shall be permitted.~~*
2. *~~Electric motors driving fans shall not be placed inside ducts; fan rotating elements shall be nonferrous or non-sparking, or the casing shall consist of or be lined with such material.~~*
3. *~~Include provision to supply make-up air to replace that being exhausted; ducts for supply to and exhaust from the machinery room shall serve no other area; the makeup air supply locations shall be positioned relative to the exhaust air locations to avoid short circuiting.~~*
4. *~~Inlets to the exhaust ducts shall be located in an area where refrigerant from a leak will concentrate, in consideration of the location of the replacement supply air paths, refrigerating machines, and the density of the refrigerant relative to air.~~*
5. *~~Inlets to exhaust ducts shall be within 1 foot (0.3 m) of the lowest point of the machinery room for refrigerants that are heavier than air and shall be within 1 foot (0.3 m) of the highest point for refrigerants that are lighter than air.~~*
6. *~~The discharge of the exhaust air shall be to the outdoors in such a manner as not to cause a nuisance or danger. [ASHRAE 15:8.13.11.1]~~*

#### ITEM 11-45 Section 1106.11.11.2 Level 1 Ventilation Rate.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.11.2 Level 1 Ventilation Rate.~~*** *~~The refrigerating machinery room mechanical ventilation in Section 1106.11.11.1 shall exhaust at an airflow rate not less than shown in Table 1106.11.11.2. [ASHRAE 15:8.13.11.2]~~*

#### ITEM 11-46 TABLE 1106.11.11.2 LEVEL 1 VENTILATION RATE FOR CLASS 2L REFRIGERANTS [ASHRAE 15: Table 8-2]

[Propose to repeal and replace amendments with model code.]

***~~TABLE 1106.11.11.2~~***

***~~LEVEL 1 VENTILATION RATE FOR CLASS 2L REFRIGERANTS~~***

***~~[ASHRAE 15: Table 8-2]~~***

| ***~~STATUS~~*** | ***~~AIRFLOW~~*** |
| --- | --- |
| *~~Operated when occupied and operated~~*  *~~when activated in accordance with~~*  *~~Section 1106.11.9(3) and Table~~*  *~~1106.11.10.2~~* | *~~The greater of the following:~~*  *~~(1) 0.5 ft3/min per ft3 (2.54 L/s per m3) of machinery room area, or~~*  *~~(2) 20 ft3/min (9.44 L/s) per person~~* |
| *~~Operable when occupied~~* | *~~With or without mechanical cooling of the machinery room, the greater of:~~*  *~~(1) The airflow rate required to not exceed a temperature rise of 18°F (10°C) above inlet air temperature or~~*  *~~(2) The airflow rate required to not exceed a maximum air temperature of~~*  *~~122°F (50°C) in the machinery room.~~* |

#### ITEM 11-47 Section 1106.11.11.3 Level 2 Ventilation.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.11.3 Level 2 Ventilation.~~*** *~~A part of the refrigerating machinery room mechanical ventilation referred to in Section 1106.11.11.1 shall exhaust an accumulation of refrigerant due to leaks or a rupture of a refrigerating system, or portion thereof, in the machinery room. The refrigerant detectors required in accordance with Section 1106.11.8 shall activate ventilation at a set point and response time in accordance with Table 1106.11.10.2, at an airflow rate not less than the value determined in accordance with Section 1106.11.11.4.~~*

*~~When multiple refrigerant designations are in the machinery room, evaluate the required airflow according to each refrigerating system, and the highest airflow quantity shall apply.~~*

*~~Ventilation reset shall be in accordance with the type of reset in Table 1106.11.10.2. Manual-type ventilation reset shall have the reset located inside the refrigerating machinery room. [ASHRAE 15:8.13.11.3]~~*

#### ITEM 11-48 Section 1106.11.11.4 Level 2 Ventilation Rate.

[Propose to repeal and replace amendments with model code.]

***~~1106.11.11.4 Level 2 Ventilation Rate.~~*** *~~When required by Section 1106.11.11.3, the total airflow for Level 2 ventilation shall be not less than the airflow rate determined by Figure 1106.11.11.4. [ASHRAE 15:8.13.11.4]~~*

#### ITEM 11-49 *Figure 1106.11.11.4 (1) LEVEL 2 VENTILATION RATE FOR CLASS 2L REFRIGERANTS [ASHRAE 15: FIGURE 8-1].*

[Propose to repeal and replace amendments with model code.]

***~~Figure 1106.11.11.4 (1) LEVEL 2 VENTILATION RATE FOR CLASS 2L REFRIGERANTS [ASHRAE 15: FIGURE 8-1].~~***

FIGURE 1106.13.11.4(1)
LEVEL 2 VENTILATION RATE FOR CLASS 2L REFRIGERANTS
[ASHRAE 15: FIGURE 8-1]

Chart (a)

Repeal California amendment and replace with model code.


![FIGURE 1106.13.11.4(1)
LEVEL 2 VENTILATION RATE FOR CLASS 2L REFRIGERANTS
[ASHRAE 15: FIGURE 8-1]

Chart (b)]()

***~~FIGURE 1106.11.11.4(1)~~***

***~~LEVEL 2 VENTILATION RATE FOR CLASS 2L REFRIGERANTS~~***

***~~[ASHRAE 15: FIGURE 8-1]~~***

#### ITEM 11-50 Section 1107.1.7 Group A2L and B2L Refrigerants.

[The SFM proposes to repeal and replace amendments with model code including modifications of Section 1107.1.7 shown below.]

**1107.1.7 Group A2L and B2L Refrigerants.**

Where refrigerants of Groups A2L or B2L are used, the requirements of Class 1 Division 2, of ~~NFPA 70~~ *California Electrical Code,* shall not apply to the machinery room provided that the conditions in Section 1107.7.1 through Section 1107.1.7.3 are met.

**1107.1.7.1 Mechanical Ventilation.** The mechanical ventilation system in the machinery room is run continuously in accordance with Section *~~1106.11.6.1~~* 1106.11.6.1 and failure of the mechanical ventilation system actuates an alarm, or the mechanical ventilation system in the machinery room is activated by one or more refrigerant detectors, in accordance with the requirements of Section*~~1106.11.11.~~* 1106.11.11

**1107.1.7.2 Refrigeration Detectors.** For the refrigerant detection required in Section*~~1106.2.5~~* 1106.2.5,

**1107.1.7.3 Machinery Rooms.** The machinery room shall comply with Section *~~1106.11~~* 1106.11.

…

**1107.1.9 Refrigeration Systems.** As part of the mechanical ventilation system in accordance with Section *~~1106.2.8~~* 1106.2.8,

#### ITEM 11-51 Section 1108.0 Refrigeration Machinery Room Equipment and Controls.

[The SFM proposes to repeal and replace amendments with model code include modifications of Section 1108.2 shown below.]

**1108.2 Electrical.**

Electrical equipment and installations shall comply with ~~NFPA 70~~ *California Electrical Code.* The refrigeration machinery room shall not be classified as a hazardous location except as provided in Section 1107.1.7 or Section 1107.1.8.

**1108.3 Emergency Shutoff.** … in accordance with Section *~~1106.2.5~~* 1106.2.5.

**1108.4 Installation, Maintenance, and Testing.** … Section *~~1106.2.5~~* 1106.2.5.

#### ITEM 11-52 Section 1112.11.1 Discharging Location Interior to Building.

[Propose to repeal and replace amendments with model code.]

**1112.11.1 Discharging Location Interior to Building.** Pressure-relief devices, including fusible plugs, serving refrigeration systems shall be permitted to discharge to the interior of a building where in accordance with *~~all of~~* all of the following:

1. The system contains less than 110 pounds (49.9 kg) of a Group A1 *~~or A2L~~*or A2L refrigerant.
2. The system contains less than 6.6 pounds (2.99 kg) of a Group A2, B1, B2 *~~or B2L~~* or B2L refrigerant.
3. The system is to be installed in a machinery room in accordance with Section 1106.0.

#### ITEM 11-53 Section 1115.5 Nameplate.

[Propose to repeal and replace amendments with model code.]

***~~1115.5 Nameplate.~~*** *~~Each self-contained system and each separate condensing unit, compressor, or compressor unit sold for field assembly in a refrigerating system shall carry a nameplate marked with the manufacturer’s name, nationally registered trademark or trade name, identification number, design pressures, and refrigerant for which it is designed. The refrigerant shall be designated by the refrigerant number (“R-” number) as shown in Table 1102.3. [ASHRAE 15:9.15]~~*

*~~Heat pumps and electric cooling appliances shall bear a factory-applied nameplate in accordance with Section 307.3.~~*

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 12 Chapter 12, Hydronics

[The SFM proposes to not adopt Chapter 12.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 13 Chapter 13, Fuel Gas Piping

[The SFM proposes the adoption of Chapter 13 and carry forward existing amendment.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 14 Chapter 14, Process Piping

[The SFM proposes to adopt Chapter 14.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 15 Chapter 15, Solar Energy Systems

[The SFM proposes to not adopt Chapter 15.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 16 Chapter 16, Stationary Power Plants

[The SFM proposes to adopt Chapter 16 and carry forward existing amendments.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 17 Chapter 17, Geothermal Energy Systems and Ambient Temperature Loops

[The SFM proposes to adopt Chapter 17.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 18 Chapter 18, Reference Standards

[The SFM proposes to adopt Chapter 18 and carry forward existing amendments with modifications shown below.]

#### ITEM 18-1 AMCA 540, ASME B16.18, B16.22, B31.3, NFPA 2, 13, 17, 17A, 30A, 51, 52, 54, 58, 68, 70, 85, 86, 88A, 90A, 90B, 92, 99, 105, 211, 262, 750, 780

[Amend to adopt to the latest edition of the standards.]

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| --- | --- | --- | --- |
| AMCA 540-~~2013~~ *2023* | Test Method for Louvers Impacted by Wind Borne Debris | Louvers | 315.1.2 |
| ASME B16.18-~~2018~~ *2023* | Cast Copper Alloy Solder Joint Pressure Fittings | Fittings | Table 1109.1, Table 1210.1 |
| ASME B16.22-~~2018~~ *2023* | Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings | Fittings | Table 1109.1, Table 1210.1, 1715.3 |
| ASME B31.3~~-2020~~ *2022* | Process Piping | Process Piping | 1406.1 |
| NFPA 2-~~2019~~*2023* | Hydrogen Technologies Code | Gaseous Hydrogen Systems | 936.1 |
| NFPA 13-~~2022~~ *2025*  *\*See California Fire Code for amendments* | Standard for the Installation of Sprinkler Systems | Fire Extinguishing | 513.2.3(2), 517.7.6 |
| NFPA 17-~~2021~~ *2024* | Standard for the Installation of Dry Chemical Extinguishing Systems | Fire Extinguishing | 513.2.3(3), 513.3.5 |
| NFPA 17A-~~2021~~ *2024* | Standard for the Installation of Wet Chemical Extinguishing Systems | Fire Extinguishing | 513.2.3(4), 513.2.5.6, 513.3.5 |
| NFPA 30A-~~2021~~ *2024* | Motor Fuel Dispensing Facilities and Repair Garages | Miscellaneous | 303.11.2 |
| NFPA 51-~~2018~~ *2023* | Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes | Fuel Gas Systems | 902.7 |
| NFPA 52-~~2019~~ *2023* | Vehicular Natural Gas Fuel Systems Code | CNG Vehicle Fuel Systems | 937.1 |
| NFPA 54/ANSI Z223.1-~~2021~~ *2024* | National Fuel Gas Code | Fuel Gas | 402.4.1.2, 516.2.1 |
| NFPA 58-~~2020~~ *2024* | Liquefied Petroleum Gas Code | Fuel Gas | 303.7, 516.2.1, 1308.4.4.2.3, 1308.4.8.4, 1310.6(8), 1312.11 |
| NFPA 68-~~2018~~ *2023* | Explosion Protection by Deflagration Venting | Product Conveying Ducts | 505.3.3 |
| NFPA 70-~~2020~~ *2023*  *\*See California Electrical Code for amendments* | National Electrical Code | Electrical | 301.4(1), 301.4(3), 303.8.5, 511.1.6, 512.2.5, 516.2.7, 516.2.9(4),602.2.1, 903.2.7, 905.9.2, 930.4, 1104.4(5),  1106.11.6,1107.1.7,  1107.1.8, 1108.2, 1124.1, 1217.11.1, 1310.14.5.2, 1311.2.4, 1311.7, 1717.1 |
| NFPA 85-~~2019~~ *2023* | Boiler and Combustion Systems Hazards Code | Appliances | 1002.1(3), Table  1003.2.1, 1011. |
| NFPA 86-~~2019~~ *2023* | Standard for Ovens and Furnaces | Product Conveying Ducts | 505.3.2 |
| NFPA 88A-~~2019~~ *2023* | Standard for Parking Sturcutures | Miscellaneous | 303.11.1 |
| NFPA 90A-~~2021~~ *2024* | Installation of Air-Conditioning and Ventilating Systems | HVAC | 604.1 |
| NFPA 90B-~~2021~~ *2024* | Installation of Warm Air Heating and Air-Conditioning Systems | HVAC | 604.1 |
| NFPA 92-~~2018~~ *2024* | Smoke Control Systems | Smoke Control Systems | 505.7.3 |
| NFPA 99-~~2021~~ *2024* | Health Care Facilities Code | Miscellaneous | 402.1.2 |
| NFPA 105-~~2019~~ *2025* | Standard for Smoke Door Assemblies and Other Opening Protectives | Miscellaneous | 606.6(1), 606.6(3) |
| NFPA 211-~~2019~~ *2024* | Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances. | Fuel Gas Appliances | 303.10, 402.4.1.2, 517.7, 517.7.1, 801.2, 801.3, 802.5.2, 802.5.3, 802.5.7.1, 802.5.7.3, 902.10 |
| NFPA 262-~~2019~~ *2023* | Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces | Certification | 602.2.1 |
| NFPA 750-~~2019~~ *2023* | Water Mist Fire Protection Systems | Fire Extinguishing | 513.2.3(5) |
| NFPA 780-~~2020~~ *2023* | Standard for the Installaion of Lightning Protection Systems | Fuel Gas | 1311.5 |

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 19 Appendices A-J

[The SFM proposes to not adopt Appendices A-J.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.

### ITEM 20 Useful Tables

[The SFM proposes to adopt Useful Tables.]

#### Notation:

Authority: Health and Safety Code Sections 1250, 1502, 1568.02, 1569.72 - 1569.78, 1597.44 - 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13145, 13146, 13211, 16022.5, 17921, 18928, 18949.2, 25500 through 25545; Government Code Sections 51176, 51177, 51178, 51179 and 51189; Public Education Code 17074.50; Public Resources Code Sections 4201 through 4204.

Reference(s): Health and Safety Code Sections 13108, 13108.5, 13113, 13113.5, 13114, 13132, 13132.7, 13133, 13135, 13143, 13143.1, 13143.2, 13143.6, 13143.9, 13145, 13146, 13210, 13211, 16022.5, 17921.