IMC SIG CHANGE

1107.4 Piping materials and 1107.5 Pipe Fittings

1107.4 Piping materials standards. Refrigerant pipe shall conform to one or more of the standards listed in Table 1107.4. **For refrigeration systems used in residential occupancies serving only a single dwelling unit or sleeping unit, refrigerant piping and tubing shall be limited to aluminum, copper, and copper alloy.** The exterior of the pipe shall be protected from corrosion and degradation.

1107.5 Pipe fittings. Refrigerant pipe fittings shall be approved for installation with the piping materials to be installed, and shall conform to one of more of the standards listed in Table 1107.5 or shall be listed and labeled as complying with UL 207. **For refrigeration systems used in residential occupancies serving only a single dwelling unit or sleeping unit, refrigerant fittings shall be limited to aluminum, copper, copper alloys, stainless steel, and steel.**

[Note: **Bold** text is from the 2027 approved changes.]

1

Result of the codes reference to ASHRAE 15.2. With the separation between ASHRAE 15 and ASHRAE 15.2, there were certain changes that impact the refrigerant piping requirements. For residential systems, the piping material is limited to aluminum, copper, and copper alloy pipe or tube. The fitting requirements are similar material requirements with the addition of stainless steel and steel.

IMC SIG CHANGE

1109.2.5 Refrigerant pipe shafts

Refrigerant piping that penetrates two or more floor/ceiling assemblies shall be enclosed in a fire-resistance-rated shaft enclosure. The fire-resistance-rated shaft enclosure shall comply with Section 713 of the International Building Code.

Exceptions:

1. Refrigeration systems using R-718 refrigerant (water).
2. Piping in a direct refrigeration system ~~**using Group A1 refrigerant**~~ where the refrigerant quantity does not exceed the limits of Table 1103.1 for the smallest occupied space through which the piping passes.
3. Piping located on the exterior of the building where vented to the outdoors.

[Note: **Bold** text is from the 2027 approved changes.]

2

ASHRAE 15 removed the limitation in exception 2 regarding applying only to Group A1 refrigerants. It was determined that any refrigerant meeting the limitations of Table 1103.1 are safe to install without a shaft enclosure. This modification is consistent with ASHRAE 15-2022.

IMC SIG CHANGE

1109.2.7 Pipe identification

Refrigerant pipe located in areas other than the room or space where the refrigerating equipment is located shall be identified. The pipe identification shall be located at intervals not exceeding 20 feet (6096 mm) on the refrigerant piping or pipe insulation. The minimum height of lettering of the identification label shall be / inch (12.7 mm). The identification shall indicate the refrigerant designation and safety group classification of refrigerant used in the piping system. For Group A2L and B2L refrigerants, the identification shall also include the following statement: "WARNING—Risk of Fire. Flammable Refrigerant." For Group A2, A3, B2 and B3 refrigerants, the identification shall also include the following statement: "DANGER—Risk of Fire or Explosion. Flammable Refrigerant." For any Group B refrigerant, the identification shall also include the following statement: "DANGER—Toxic Refrigerant."

Exception:

For refrigeration systems used in residential occupancies serving only a single dwelling unit or sleeping unit pipe identification shall not be required.

[Note: **Bold** text is from the 2027 approved changes.]

3

2024 Modification:

New language added requiring that piping for Group A2L and B2L refrigerants have additional identification including the following statement: "WARNING— Risk of Fire. Flammable Refrigerant." The code already contained language requiring similar identification for piping in Groups A2, A3, B2 and B3 classification, as well as separate identification for all Group B refrigerants identifying the refrigerant as toxic. The new language expands the flammability labeling to the A2L and B2L refrigerants.

2027 Modification:

Result of the codes reference to ASHRAE 15.2. The Exception is added since Pipe identification is not required for piping systems regulated by ASHRAE 15.2. The reason for this is that the refrigerant piping is obviously not needing to be individually identified. Whereas in commercial buildings there are often multiple piping systems where the type of piping system is not obvious.

IMC SIG CHANGE

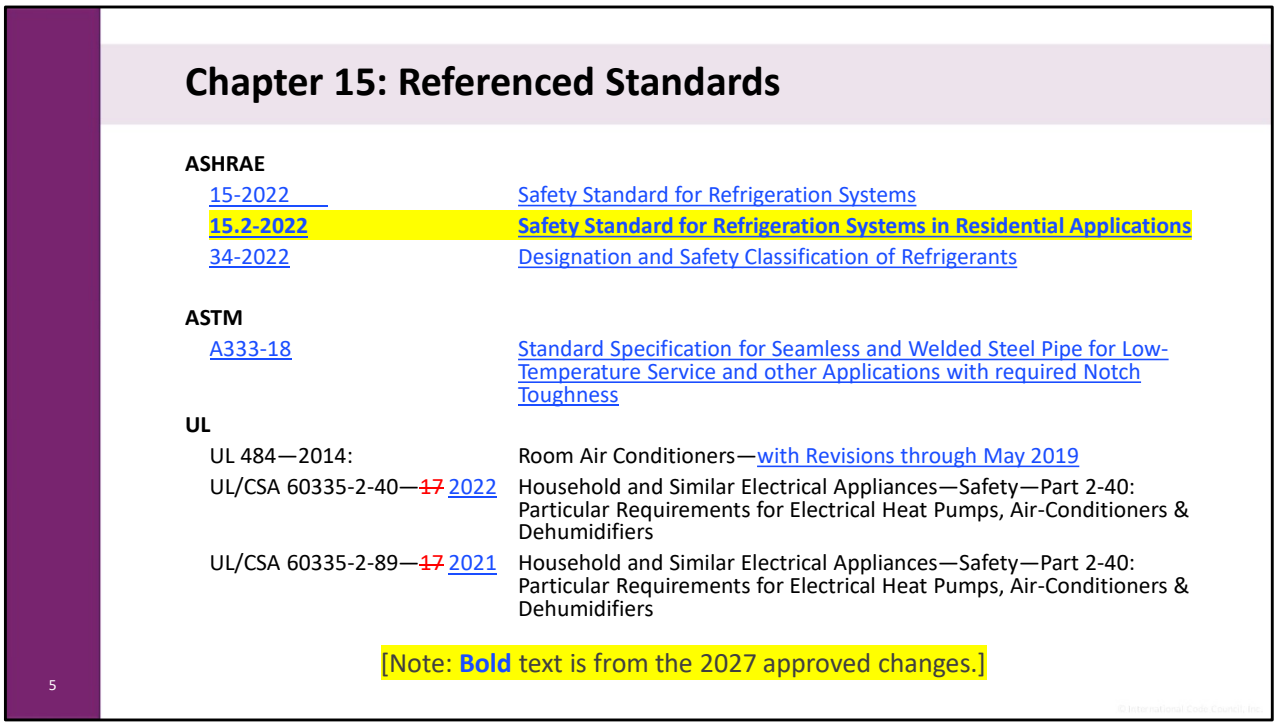
1109.3.2 Shaft ventilation

Refrigerant pipe shafts with systems using Group A2L or B2L refrigerant shall be naturally or mechanically ventilated. Refrigerant pipe shafts with one or more systems using any Group A2, A3, B2 or B3 refrigerant shall be continuously mechanically ventilated and shall include a refrigerant detector. The shaft ventilation exhaust outlet shall comply with Section 501.3.1. Naturally ventilated shafts shall have a pipe, duct or conduit not less than 4 inches (102 mm) in diameter that connects to the lowest point of the shaft and extends to the outdoors. The pipe, duct or conduit shall be level or pitched downward to the outdoors. Mechanically ventilated shafts shall have a minimum airflow velocity in accordance with Table 1109.3.2. The mechanical ventilation shall be continuously operated or activated by a refrigerant detector. Systems utilizing a refrigerant detector shall activate the mechanical ventilation at a maximum refrigerant concentration of 25 percent of the lower flammable limit of the refrigerant. The detector, or a sampling tube that draws air to the detector, shall be located in an area where refrigerant from a leak will concentrate. The shaft shall not be required to be ventilated for double-wall refrigerant pipe where the interstitial space of the double-wall pipe is vented to the outdoors. **For refrigeration systems used in residential occupancies serving only a single dwelling unit or sleeping unit, shaft ventilation shall not be required where the pipe or tube is continuous without fittings in the shaft.**

[Note: **Bold** text is from the 2027 approved changes.]

4

Result of the 2027 code reference to ASHRAE 15.2. For shaft ventilation, there is an allowance in residential systems to eliminate the ventilation of the shaft when the piping system is continuous without fittings in the shaft.



Chapter 15: Referenced Standards

ASHRAE

15-2022	Safety Standard for Refrigeration Systems
15.2-2022	**Safety Standard for Refrigeration Systems in Residential Applications**
34-2022	Designation and Safety Classification of Refrigerants

ASTM

A333-18	Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service and other Applications with required Notch Toughness

UL

UL 484—2014:	Room Air Conditioners—with Revisions through May 2019
UL/CSA 60335-2-40—~~17~~ 2022	Household and Similar Electrical Appliances—Safety—Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners & Dehumidifiers
UL/CSA 60335-2-89—~~17~~ 2021	Household and Similar Electrical Appliances—Safety—Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners & Dehumidifiers

[Note: **Bold** text is from the 2027 approved changes.]

5

2024 Modifications:

These latest ASHRAE and UL equipment standards correlate with the 2024 IMC A2L refrigerant related code provisions.

2027 Addition:

ASHRAE 15.2 is an approved change for the 2027 IMC and should be referenced for residential applications.