

## **No. 21-01 Refrigerant Standards**

Statewide Alternate Methods are approved by the Division administrator in consultation with the appropriate advisory board. The advisory board's review includes technical and scientific facts of the proposed alternate method. In addition:

- Building officials shall approve the use of any material, design or method of construction addressed in a statewide alternate method;
- The decision to use a statewide alternate method is at the discretion of the applicant; and
- Statewide alternate methods do not limit the authority of the building official to consider other proposed alternate methods encompassing the same subject matter.

**Code / section:** 2019 Oregon Mechanical Specialty Code (OMSC) Table 1103.1

**Date:** June 2021

**Subject:** Use of new and low global-warming-potential refrigerants

### **Background:**

As industry moves toward using low global-warming-potential (GWP) refrigerants in HVAC and refrigeration equipment, new refrigerant types are being released more frequently. ASHRAE Standard 34-2016 sets the limits for refrigerant types found in the 2019 Oregon Mechanical Specialty Code (OMSC) Table 1103.1. ASHRAE Standard 34-2019 includes many new low GWP refrigerants that do not appear in the 2016 edition. If a refrigerant is not listed in Table 1103.1 or in the referenced version of ASHRAE 34, the refrigerant cannot be used. ASHRAE Standard 15 is the safety standard for installation of refrigerant systems. Alignment of the edition of ASHRAE 34 and ASHRAE 15 is necessary in code, as the ASHRAE 15 ventilation/safety installation requirements are intertwined with the latest refrigerant type/safety classification in ASHRAE 34.

ASHRAE 15-2019 includes additional safety improvements, as well as some minor clean-ups to the 2016 edition. The 2021 International Mechanical Code (IMC) will reference the 2019 editions of ASHRAE 15 and ASHRAE 34.

With the change to low GWP refrigerants, the OMSC needs to be updated to address the use of Group A2L refrigerants in high probability (direct) systems. All of the commonly used low GWP replacement refrigerants for direct systems fall into the category of Group A2L in the 2019 edition of ASHRAE 34. The safety requirements in ASHRAE 15 address the concerns regarding the use of these new refrigerants. There are provisions for listing of equipment, installation of refrigerant detectors, and ventilation to mitigate any leak of refrigerant. By referencing ASHRAE 15 directly, the requirements become an enforceable part of the code.

In addition, ASHRAE 15 requires an A2L appliance or equipment to be listed to UL/CSA 60335-2-40-2019. This standard is an update to a 2012 edition, referenced in the 2017 Oregon Residential Specialty Code (ORSC); equipment is listed to either UL 1995 or UL 60335-2-40. A reference to allow listing to either UL 1995 or UL/CSA 60335-2-40-2019 is necessary for use of equipment using new low GWP refrigerants found in the 2019 edition of ASHRAE 34.

**Discussion:**

The Building Codes Division finds that the 2019 editions of ASHRAE 34 and ASHRAE 15, as well as UL/CSA 60335-2-40-2019, to be contemporary building code advancing the public safety and general welfare through timely evaluation and recognition of the latest advancements in construction techniques, energy efficiency, and emerging science and technology related to the built environment. The division anticipates adopting the 2019 editions of the ASHRAE standards as an interim amendment to the 2019 OMSC. This statewide alternate method is intended to allow use of newer, more environmentally friendly refrigeration methods utilizing the most current refrigerant technology.

**Conclusion:**

Accordingly, the current 2019 editions of ASHRAE 34 and ASHRAE 15 serve as an effective alternate to the 2016 standards referenced in the 2019 OMSC. An alternate method would allow for the use of refrigerants found in the latest editions. Equipment utilizing new refrigerants listed to UL 60335-2-40 may be installed in Oregon.

The following amendments to the 2019 OMSC are made part of this statewide alternate method:

- Blue/underline – added language to the 2019 OMSC
- ~~Red/strikethrough~~ – deleted language from the 2019 OMSC

**Chapter 11 Refrigeration**

**1101.2 Factory-built equipment and appliances.** *Listed and labeled* self-contained, factory-built *equipment* and appliances shall be tested in accordance with UL 207, 412, 471 ~~or~~ 1995, or 60335-2-40-2019. Such *equipment* and appliances are deemed to meet the design, manufacture and factory test requirements of this code if installed in accordance with their listing and the manufacturer’s instructions.

**1102.2 Refrigerants.** The refrigerant shall be that which the *equipment* or *appliance* was designed to utilize or converted to utilize. Refrigerants not identified in ASHRAE 34 or Table 1103.1 shall be *approved* before use.

**1103.1 Refrigerant classification.** Refrigerants shall be classified in accordance with ASHRAE 34 as listed in Table 1103.1. The ASHRAE 34 Tables may be used for compliance with Chapter 11 for classified refrigerants not included in Table 1103.1.

**Chapter 15 Referenced Standards**

**ASHRAE**

- 15—~~2016~~-2019 Safety Standards for Refrigerations Systems
- 34—~~2016~~-2019 Designation and Safety Classification of Refrigerants

**UL**

- 60335-2-40—2019 Household and Similar Electric Appliances - Safety - Part 2-40: Particular Requirements for Electric Heat Pumps, Air-Conditioners and Dehumidifiers – 3<sup>rd</sup> Edition ..... 1101.2

The technical and scientific facts for the statewide alternate method are approved.

**Signature on file**

6/9/2021

Alana Cox, Administrator  
Building Codes Division

Date