ADDENDA

ANSI/ASHRAE Addendum d to
ANSI/ASHRAE Standard 15-2024

Safety Standard for Refrigeration Systems

Approved by ASHRAE and the American National Standards Institute on August 29, 2025.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (www.ashrae.org/continuous-maintenance).

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SPECIAL NOTE

This American National Standard (ANS) is a national voluntary consensus Standard developed under the auspices of ASHRAE. *Consensus* is defined by the American National Standards Institute (ANSI), of which ASHRAE is a member and which has approved this Standard as an ANS, as "substantial agreement reached by directly and materially affected interest categories. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution." Compliance with this Standard is voluntary until and unless a legal jurisdiction makes compliance mandatory through legislation.

ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees.

The Senior Manager of Standards of ASHRAE should be contacted for

a. interpretation of the contents of this Standard,
b. participation in the next review of the Standard,
c. offering constructive criticism for improving the Standard, or
d. permission to reprint portions of the Standard.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Addendum d to ANSI/ASHRAE Standard 15-2024 addresses changes of refrigerant to existing refrigeration systems, whether for changes within the same refrigerant safety group or to a different refrigerant safety group. The modifications apply to Sections 5.3, 7.6.2, 7.7.3, Informative Appendix A, and a new Informative Appendix G that provides guidelines for retrofit of certain types of refrigeration systems.

This proposed change clarifies requirements for refrigeration systems retrofitted or recommissioned with a new refrigerant designation. When the new refrigerant is classified (by ASHRAE Standard 34) in a different safety group than the original refrigerant, the equipment must meet the requirements of this standard for a new installation, with some provisions to address the listing requirements. For example, changing from safety group A1 to safety group A2L, A2, or A3 will require modifications such as refrigerant leak detection and mitigation (where applicable), as specified in UL/CSA 60335-2-89 2nd edition (2021) or UL/CSA 60335-2-40 4th edition (2022). The change of refrigerant to a new safety group will be required to be evaluated by a National Recognized Testing Laboratory (NTRL) or be approved by the Authority Having Jurisdiction (AHJ).

Informative Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum d to Standard 15-2024

Modify Section 5 as shown. The remainder of Section 5 remains unchanged.

5. REFRIGERATING SYSTEM CLASSIFICATION

[. . .]

5.3 Changing Refrigerant.

[. . .]

5.3.3* Where the replacement *refrigerant* is classified into the same safety group, requirements that were applicable to the existing *refrigeration system shall* continue to apply.

5.3.4* Where the replacement *refrigerant* is classified into a different safety group, existing listing mark(s) *shall* be removed and the retrofitted *refrigeration system shall* comply with the requirements of this standard for a new installation and written instructions provided by one of the following:

a. The original equipment *manufacturer*
b. A registered design professional
c. A *nationally recognized testing laboratory*

~~the~~ The change of *refrigerant shall* require a field evaluation by a *nationally recognized testing laboratory* or AHJ approval.

Modify Section 7 as shown. The remainder of Section 7 remains unchanged.

7. RESTRICTIONS ON REFRIGERANT USE

[. . .]

7.6* High-Probability Air Conditioners, Heat Pumps, and Dehumidifiers Using Group A2L Refrigerants.

[. . .]

7.6.2 Listing and Installation Requirements. *Refrigeration systems*, other than those serving *industrial occupancies*, shall be *listed* in accordance with UL 484 [11] or UL 60335-2-40 [5]/CSA C22.2 No. 60335-2-40.[6] ~~The~~ Each *refrigeration system shall* be installed in accordance with Sections 7.6.2.1 through 7.6.2.5, the listing, the *manufacturer*'s instructions, and any markings on the equipment restricting the installation.

Exception to 7.6.2: Where changing *refrigerant* in accordance with Section 5.3, the existing *refrigeration system shall not* be required, after the change of *refrigerant*, to be *listed* in accordance with UL 484[11] or UL 60335-2-40[5]/CSA C22.2 No. 60335-2-40.[6]

[. . .]

7.7* High-Probability Commercial Refrigeration Systems Using Group A2L Refrigerants.

[. . .]

7.7.3 Listing and Installation Requirements. Refrigeration systems, other than those serving *industrial occupancies*, *shall* be *listed* ~~to~~ in accordance with UL 60335-2-89 [7]/CSA C22.2 No. 60335-2-89.[8] ~~and~~ Each *refrigeration system shall* be installed in accordance with Sections 7.7.3.1 through 7.7.3.4, the listing, ~~and~~ the *manufacturer*'s instructions~~.~~, and any markings on the equipment restricting the installation.

Exception to 7.7.3: ~~These requirements do not apply to *industrial occupancies*.~~ Where changing *refrigerant* in accordance with Section 5.3, the existing *refrigeration system shall not* be required, after the change of *refrigerant*, to be *listed* in accordance with UL 60335-2-89[7]/CSA C22.2 No. 60335-2-89.[8]

[. . .]

Modify Informative Appendix A as shown. The remainder of Appendix A remains unchanged.

INFORMATIVE APPENDIX A
EXPLANATORY MATERIAL

Sections of the standard with associated explanatory information in this appendix are marked with an asterisk "*" after the section number.

[. . .]

Section 5.3.3

Section G1 of Informative Appendix G contains guidelines to field retrofit commercial refrigeration equipment with a *refrigerant* belonging to the same safety group. Guidelines for other equipment may be added in a future edition.

Section 5.3.4

Section G2 of Informative Appendix G contains guidelines to field retrofit commercial refrigeration equipment with a *refrigerant* belonging to a different safety group. Guidelines for other equipment may be added in a future edition.

Add new Informative Appendix G as shown. Existing Appendix G is relettered as Informative Appendix H.

(This appendix is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

INFORMATIVE APPENDIX G
CHANGE OF REFRIGERANT

G1. GUIDELINES TO FIELD RETROFIT COMMERCIAL REFRIGERATION EQUIPMENT WITHIN THE SAME REFRIGERANT SAFETY GROUP

Per Sections 5.3.2 and 5.3.3, where changing the *refrigerant* within the same safety group, the OEM, registered design professional, or *NRTL* may develop the written technical instructions for the field retrofit of the commercial refrigeration equipment or the *refrigeration system*.

G2. GUIDELINES TO FIELD RETROFIT COMMERCIAL REFRIGERATION EQUIPMENT FROM REFRIGERANT SAFETY GROUP A1 TO REFRIGERANT SAFETY GROUP A2L

Per Sections 5.3.2 and 5.3.4, where changing the *refrigerant* to a different safety group, either the OEM or a registered design professional can collaborate with the *NRTL* to develop the written technical instructions for the field retrofit of the commercial refrigeration equipment or the *refrigeration system*. Examples of typical requirements for a field retrofit of commercial refrigeration equipment from a safety group A1 to a safety group A2L *refrigerant* include the following:

a. As applicable, demonstrate compliance with Annex CC of UL 60335-2-89[7]/CSA C22.2 No. 60335-2-89[8] with the same or a similar equipment model.

b. Evaluate the *design pressure* requirements for the field retrofit *refrigerant* in accordance with Section 9.2.
c. Evaluate the *refrigeration system* lubricant for the field retrofit *refrigerant* in accordance with Section 7.5.1.8.
d. Evaluate the *refrigeration system* for compliance with *refrigerant* sensor and *refrigerant detection system* requirements of the applicable product safety standard.
e. Evaluate the mitigation requirements of the applicable product safety standard.
f. Verify that *safety shutoff valves* activated by a *refrigerant detection system* are installed and functional.
g. Verify that the maximum *releasable refrigerant charge* from any independent *refrigerant* circuit is less than 9.2 × *LFL* (lb), where *LFL* is in pounds per 1000 ft^3 (260 × *LFL* [kg], where *LFL* is in kilograms per m^3).
h. Ensure electrical components inside of the display cases and walk-in coolers/freezers are *listed* for use with safety group A2L *refrigerants* or have been replaced with new ones that are in accordance with the applicable product safety standard.
i. Verify that the *manufacturer*(s) of the display cases have lab testing that show where the optimal *refrigerant* sensor location is for each different type of merchandiser (i.e., a glass-door reach-in freezer may be different than an open multideck dairy case).
j. Verify that the *releasable refrigerant charge* for any isolated portion of the commercial refrigeration system complies with the limits established in UL 60335-2-89[7]/CSA C22.2 No. 60335-2-89,[8] as applicable. Testing can be conducted on similar products.
k. If an existing *compressor* is reused, determine whether the *compressor*'s OEM has evaluated its suitability for use with the new safety group A2L *refrigerant* and lubricant.
l. Evaluate components for compatibility with the field retrofit *refrigerant*, lubricant, and additives, and replace the components with OEM recommended components for the field retrofit *refrigerant* (e.g., replacing seals, drier cores, and filters).
m. Mark the ANSI/ASHRAE Standard 34[3] *refrigerant designation* (e.g., R-454C) and safety group (A2L) on all partial units (e.g., *compressor* rack, *condenser*, display case, walk-in unit cooler).
n. Mark the *system refrigerant charge* on the partial unit containing the *compressor* or *compressors*.

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

ASHRAE · 180 Technology Parkway · Peachtree Corners, GA 30092 · www.ashrae.org

About ASHRAE

Founded in 1894, ASHRAE is a global professional society committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration, and their allied fields.

As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

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