BSR/ASHRAE Addendum t
to ANSI/ASHRAE Standard 15-2024

First Public Review Draft

Proposed Addendum t to Standard 15-2024, Safety Standard for Refrigeration Systems

First Public Review (February 2026)
(Draft shows Proposed Independent Substantive Changes to Previous Public Review Draft)

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed standard, go to the ASHRAE website at www.ashrae.org/standards-research--technology/public-review-drafts and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE website) remains in effect. The current edition of any standard may be purchased from the ASHRAE Online Store at www.ashrae.org/bookstore or by calling 404-636-8400 or 1-800-727-4723 (for orders in the U.S. or Canada).

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(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

This addendum addresses CMP 15-2022-0009-001 regarding low-probability refrigerant systems that utilize a Class 2L, 2, or 3 refrigerant where the refrigerant system performs a heat transfer with a secondary coolant loop where a portion of the secondary coolant loop is located indoors as defined as an occupied or non-occupied space in ASHRAE 15. These changes restrict the installation to include construction to prevent the release of refrigerant into the secondary coolant loop, or have a means to release refrigerant vapor from the secondary coolant loop to the outdoors or a space that can meet the calculated effective dispersal volume charge.

Note to Reviewers: This public review makes proposed independent substantiative changes to the previous public review draft. These substantive changes to the previous public review draft are indicated by underlining (for additions) ~~strikethrough~~ (for deletions), except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the previous public review are open for review and comment at this time. Additional material is provided for context only and is not open for comment, except as related to the proposed substantive changes.

Addendum t to Standard 15-2024

3.1 Defined Terms

air vent: a manual or automatic device for removing vapor from *secondary coolant* loops.

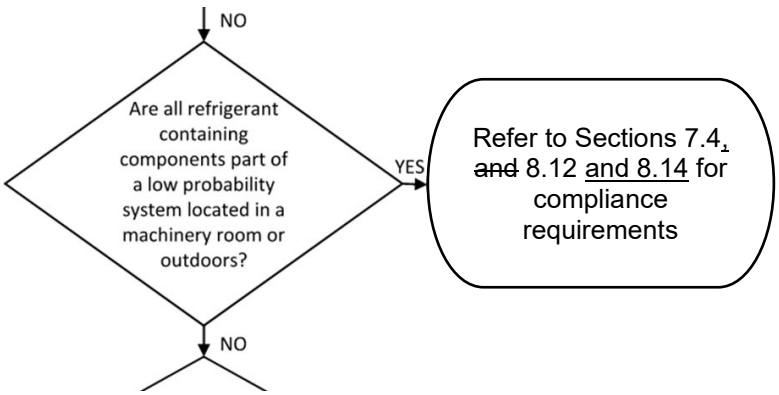
[…]

5.2.2 Low-Probability System. A *low-probability system* is any *refrigeration system* in which the basic design or the location of components is such that a leakage of *refrigerant* from a failed connection, seal, or component cannot directly enter the *occupied space*. Typical *low-probability systems* are (a) *indirect closed systems* or (b) double *indirect open spray systems* and (c) *indirect open spray systems* if the following condition is met: In a *low-probability indirect open spray system*, the *secondary coolant* pressure *shall* remain greater than *refrigerant* pressure in all conditions of operation and standby. Operation conditions are defined in Section 9.2.1, and standby conditions are defined in Section 9.2.1.2.

[…]

Figure 7-1 Refrigerant charge limit compliance path—Part 1.

Modify the figure as follows, no other changes are made to the figure.



[…]

***8.14 Secondary Coolant Loop of Low-Probability Systems with Class 2L, Class 2 and Class 3 Refrigerants**

Low-probability systems utilizing *refrigerant* safety groups A2L, A2, B2L, or B2, where any portion of a *secondary coolant* loop is located within *occupied spaces* or nonoccupied spaces, *shall* comply with Section 8.14.1 or 8.14.2 to prevent *refrigerant* from leaking into the *secondary coolant* loop or limit the amount of *refrigerant* charge released into these spaces if *refrigerant* leaks into the *secondary coolant* loop.

Low-probability systems utilizing *refrigerant* safety groups A3 or B3, where any portion of a *secondary coolant* loop is located within *occupied spaces* or nonoccupied spaces, *shall* comply with 8.14.2 to prevent *refrigerant* from leaking into the *secondary coolant* loop or limit the amount of *refrigerant* charge released into these spaces if *refrigerant* leaks into the *secondary coolant* loop.

8.14.1 In the event of *refrigerant* release into a *secondary coolant* loop of a l*ow-probability system* containing Group A2L, A2, B2L, or B2 refrigerant, the *secondary coolant* loop shall be permitted to release refrigerant to *occupied spaces* or nonoccupied spaces only where all of the following apply:

a. Each *independent circuit* of *refrigeration systems* serving the *secondary coolant* loop contain less than 110 lb (50 kg) of a Group A2L *refrigerant*.
b. Each *independent circuit* of *refrigeration systems* serving the *secondary coolant* loop contain less than 6.6 lb (3 kg) of a Group A2, B2L, or B2 *refrigerant*.
c. The *releasable refrigerant charge* into the *secondary coolant* loop does not exceed the *effective dispersal volume charge* limit for each space where a *secondary coolant* loop *air vent* discharges or where any part of the *secondary coolant* loop is open to the space. The maximum charge of flammable *refrigerant* for an *effective dispersal volume* of each space *shall* be calculated using Equation 8-3a or 8-3b:

$EDVC_{sec} = RCL \times Veff \times Focc$ (8-3a [I-P])
$EDVC_{sec} = RCL \times Veff \times Focc/1000$ (8-3b [SI])
where
$EDVC_{sec}$ = *effective dispersal volume charge* for a space to which a *secondary coolant* loop may release flammable *refrigerant*, lb (kg)

RCL = refrigerant concentration limit, lb/1000ft^3 (g/m^3)
Veff = effective dispersal volume, ft^3 (m^3), established using Sections 7.2.1 through 7.2.3
Focc = occupancy adjustment factor (For all *occupancies* other than institutional, *Focc* has a value of 1. For *institutional occupancies*, *Focc* has a value of 0.5.)

8.14.2 In accordance with Section 8.14, l*ow-probability systems* utilizing *refrigerant* safety groups A2L, A2, A3, B2L, B2, or B3, shall prevent the release of *refrigerant* to *occupied spaces* and nonoccupied spaces from the *refrigeration system* through the *secondary coolant* loop in accordance with at least one of the following:

a. *Secondary coolant* within an open loop is vented to the outdoors in accordance with Section 7.6.4, 8.11.11, 8.12, or 9.7.8.2;
b. *Secondary coolant* is separated from the *refrigerant* by a double-wall heat exchanger, where the interstitial space of the double-wall heat exchanger is vented to the outdoors in accordance with section 9.7.8.2, each wall of the double-wall heat exchanger shall have a *design pressure* not less than the higher of the *design pressures* for the *secondary coolant* loop and the *refrigeration system*;
c. The *secondary coolant* pressure is greater than *refrigerant* pressure at all conditions of operation and standby;
d. All *pressure relief valves* and *air vents* on *secondary coolant* loops are vented to the outdoors in accordance with section 9.7.8.2;
e. *Heat exchangers that are components of a refrigeration system that is *listed* per UL 60335-2-40[5]/CSA C22.2 No. 60335-2-40[6] and evaluated by the *nationally recognized testing laboratory* as part of the listing provided the refrigeration system contain a *releasable refrigerant charge* no more than 9.2 × LFL (lb), where LFL is in lb/1000 ft3 (260 × LFL [kg], where LFL is in kg/m3) of Group A2L refrigerant.

[...]

INFORMATIVE APPENDIX A
EXPLANATORY MATERIAL

Section 8.14

The intent of this section is to mitigate the risk of *refrigerant* entering the s*econdary coolant* loop due to a failure or leak in the *refrigerant*-to-*secondary coolant* heat exchanger of the *low probability refrigeration system* and subsequently entering indoor or enclosed spaces either as a result of a leak within the *secondary coolant* loop located within the indoor or enclosed space, or as a result of venting of *refrigerant* from *secondary coolant* loop into occupied space through *air vent(s)* or *pressure relief valve(s)*.

When evaluating the *EDVC* of spaces that contain any portion of a *secondary coolant* loop, the potential for release of *refrigerant* is based on the presence of *air vents* in the *secondary coolant loop* or use of an *indirect open spray system*. It is not necessary to consider rupture of the *secondary coolant* loop piping as a potential *refrigerant* release mechanism.

Heat exchangers that are part of appliances listed to UL 60335-2-40[5]/CSA C22.2 No. 60335-2-40[6] have been evaluated to the requirements of Annex GG, clause GG.6, "Requirements for refrigerating systems employing secondary heat exchangers."