



BSR/ASHRAE Addendum **z
to ANSI/ASHRAE Standard 15-2022**

First Public Review Draft

Proposed Addendum **z to
Standard 15-2022, Safety Standard
for Refrigeration Systems**

**First Public Review (September 2024)
(Draft shows Proposed Changes to Current Standard)**

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FOREWORD

This proposed addendum better harmonizes the requirements for Group A2L refrigerants in Sections 7.6 and 7.7. It specifically better aligns the requirements on refrigerant charge limits and ventilation. Changes related to Addendum e of the 2022 edition of ASHRAE Standard 15 are also noted, as they affect the same section.

Note: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~striking through~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.

Addendum z to Standard 15-2022

Modify Section 7.7 as follows. The remainder of Section 7.7 remains unchanged.

7.7* Group A2L Refrigerants for Refrigeration Systems Other Than Human Comfort. *High-probability systems using Group A2L refrigerants for other than human comfort applications shall comply with Sections 7.7.1 through ~~7.7.5~~7.7.4.*

7.7.1 Refrigerant Charge Limits. *Refrigerant charge shall be limited as follows:*

a. Refrigeration systems containing a releasable refrigerant charge more than $0.141 \times LFL$ (lb) ($4 \times LFL$ [kg]) in an independent circuit shall not be installed within 20 ft (6 m) of an open flame.

[...]

7.7.2 Refrigerant ~~Concentration~~Quantity Limits

~~7.7.2.1 Occupied spaces shall comply with Section 7.3.~~

~~7.7.2.2 Non-occupied spaces with refrigerant containing equipment, including but not limited to piping or tubing, shall comply with Section 7.3 except as permitted by Section 7.7.5.~~

7.7.2.1 Where a high-probability refrigeration system using Group A2L refrigerants has either

a. air circulation initiated by a refrigerant detector in compliance with Section 7.6.2.4 or

b. continuous air circulation.

EDVC shall be calculated in accordance with Section 7.6.1.1.

7.7.2.2 For any high-probability refrigeration system not meeting the requirements of Section 7.7.2.1, EDVC shall be calculated in accordance with Section 7.3.1.

7.7.2.3 Mechanical ventilation for refrigerant safety mitigation shall comply with section 7.6.4.

[...]

~~7.7.5 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, it shall be permissible to exceed maximum refrigerant charge calculated in accordance with Section 7.3, provided a mechanical ventilation system is used to prevent exceeding the RCL and all of the following provisions are met:~~

~~a. The releasable refrigerant charge of the largest independent circuit shall not exceed $9.2 \times LFL$ (lb) ($260 \times LFL$ [kg]). Releasable charges greater than $9.2 \times LFL$ (lb) ($260 \times LFL$ [kg]) shall comply with the machinery room requirements of Section 8.11.~~

~~b. A mechanical ventilation system shall be provided that will mix air with leaked refrigerant and remove it from the space where the equipment is located. The space shall be provided with an exhaust fan. The exhaust fan shall remove air from the space where the equipment is located in accordance with Section 8.11.11.4.~~

~~c. The space and mechanical ventilation system is in compliance with Section 7.6.4(b) through (e) and Section 7.6.4(i).~~

~~d. Electric motors driving fans shall not be placed inside the exhaust ducts; fan rotating elements shall be nonferrous or nonsparking, or the casing shall consist of or be lined with such material.~~

[...]

Note to reader: Addendum e to the 2022 edition of ASHRAE Standard 15 also made changes to the charging statement to Section 7.7. When first implementing the changes from Addendum e, this proposed addendum would read as follows:

7.7* High-Probability Commercial Refrigeration Systems using Group A2L Refrigerants. *High-probability systems* using Group A2L refrigerants for commercial refrigeration applications within the scope of UL 60335-2-89⁷/CSA C22.2 No. 60335-2-89⁸ shall comply with this section.

7.7.1 Refrigerant Charge Limits. Refrigerant charge shall be limited as follows:

a. Refrigeration systems containing a [releasable refrigerant charge](#) more than $0.141 \times LFL$ (lb) ($4 \times LFL$ [kg]) in an independent circuit shall not be installed within 20 ft (6 m) of an open flame.

[...]

7.7.2 Refrigerant ~~Concentration~~Quantity Limits

~~7.7.2.1 Occupied spaces shall comply with Section 7.3.~~

~~7.7.2.2 Non-occupied spaces with refrigerant containing equipment, including but not limited to piping or tubing, shall comply with Section 7.3 except as permitted by Section 7.7.5.~~

[7.7.2.1](#) Where a high-probability refrigeration system using Group A2L refrigerants has either

[a. air circulation initiated by a refrigerant detector in compliance with Section 7.6.2.4 or](#)

[b. continuous air circulation.](#)

[EDVC shall be calculated in accordance with Section 7.6.1.1.](#)

[7.7.2.2](#) For any high-probability refrigeration system not meeting the requirements of Section 7.7.2.1, [EDVC shall be calculated in accordance with Section 7.3.1.](#)

[7.7.2.3](#) Mechanical ventilation for refrigerant safety mitigation shall comply with section 7.6.4.

[...]

~~**7.7.5 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, it shall be permissible to exceed maximum refrigerant charge calculated in accordance with Section 7.3, provided a mechanical ventilation system is used to prevent exceeding the RCL and all of the following provisions are met:~~

~~a. The releasable refrigerant charge of the largest independent circuit shall not exceed $9.2 \times LFL$ (lb) ($260 \times LFL$ [kg]). Releasable charges greater than $9.2 \times LFL$ (lb) ($260 \times LFL$ [kg]) shall comply with the machinery room requirements of Section 8.11.~~

~~b. A mechanical ventilation system shall be provided that will mix air with leaked refrigerant and remove it from the space where the equipment is located. The space shall be provided with an exhaust fan. The exhaust fan shall remove air from the space where the equipment is located in accordance with Section 8.11.11.4.~~

~~c. The space and mechanical ventilation system is in compliance with Section 7.6.4(b) through (e) and Section 7.6.4(i).~~

~~d. Electric motors driving fans shall not be placed inside the exhaust ducts; fan rotating elements shall be nonferrous or nonsparking, or the casing shall consist of or be lined with such material.~~

[...]