



**BSR/ASHRAE Addendum d to
ANSI/ASHRAE Standard 15.2-2024**

Second Public Review Draft

Proposed Addendum d to Standard 15.2-2024, Safety Standard for Refrigeration Systems in Residential Applications

**Second Public Review (June 2026)
(Draft shows Proposed Changes to Current Standard)**

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FOREWORD

This addendum addresses requirements for installation of refrigeration systems in an isolated space because refrigeration systems with a refrigerant charge less than m_1 need to be evaluated when installed in an isolated space.

Note: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strike 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 d to Standard 15.2-2024

Modify Section 4 as follows. The remainder of Section 4 remains unchanged

4. DEFINITIONS

isolated space: A space in which all or part of an appliance's refrigeration system is installed, wherein refrigerant can directly leak into the space and cannot be dissipated.

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

7. LOCATION OF REFRIGERATION SYSTEMS AND RESTRICTIONS

[...]

7.2 Requirements for Installations in an Isolated Space.

7.2.1 No part of a refrigeration system containing a Group A2L refrigerant shall be installed in an isolated space without applying one of the following mitigating actions:

a. Mechanical ventilation of the isolated space to provide ventilation air at the airflow rate not less than Table 7-1 and in accordance with Section 11.

b. Permanently connected to the outdoors with a minimum of two permanent ventilation openings, each with an open area of no less than 110 in² (0.071 m²). The lower edge of the lower ventilation opening shall not be more than 4.0 in (101.6 mm) above the finished floor level. The upper edge of the upper ventilation opening shall be no less than 60 in (1524 mm) above the finished floor level. Where louvered openings are used, the net free area of louvers shall be used to determine compliance with this section.

Exception to 7.2.1 (b): A single ventilation opening may be used if its lower edge meets the requirement of the lower edge of the lower ventilation opening in 7.2.1 (b), the upper edge meets the requirement of the upper edge of the upper ventilation opening in 7.2.1 (b), the minimum total open area requirement in 7.2.1 (b) is met, and use of such doors meet other requirements of this standard.

c. Natural ventilation in accordance with 7.2.2 where the connected space itself is not an isolated space.

Exceptions to 7.2.1:

1. An isolated space having only continuous pipe or tube containing refrigerant.

2. An isolated space having only refrigerant-containing pipes or tubes with field-applied joints in accordance with Section 8.5.2.1

3. An isolated space where the refrigerant dispersal height is not less than 86.6 in (2.20 m) and where the floor area is not less than indicated in Table 7-2 for the installed system's releasable refrigerant charge.

4. An isolated space where the refrigerant dispersal height is not less than 86.6 in (2.20 m), where natural ventilation per Section 7.2.2 is connected to another isolated space, and the combined floor area is not less than Table 7-2 for the installed system's releasable refrigerant charge.

7.2.2 Isolated Space Connected by Natural Ventilation. For an isolated space using 7.2.1 (c) to comply with Section 7.2.1, the following shall apply:

a. A connected space shall be on the same floor as the isolated space.

b. Connected spaces *shall* be provided with a minimum of two permanent natural *ventilation* openings, each with an open area of no less than 110 in² (0.071 m²). The lower edge of the lower natural *ventilation* opening *shall not* be more than 4.0 in (101.6 mm) above the finished floor level. The upper edge of the upper *ventilation* opening *shall* be no less than 60 in (1524 mm) above the finished floor level. Where louvered openings are used, the net free area of louvers *shall* be used to determine compliance with this section.

Exception to 7.2.2 (b): A single *ventilation* opening may be used if its lower edge meets the requirement of the lower edge of the lower *ventilation* opening in 7.2.2 (b), the upper edge meets the requirement of the upper edge of the upper *ventilation* opening in 7.2.2 (b), the minimum total open area requirement in 7.2.2 (b) is met and use of such doors meet other requirements of this standard.

Table 7-1 Ventilation Rate for an Isolated Space

<u>Releasable Refrigerant Charge ^a</u>		<u>Ventilation Rate</u>	
<u>lbm</u>	<u>kg</u>	<u>cfm</u>	<u>m³/h</u>
<u>0.4</u>	<u>0.2</u>	<u>20</u>	<u>34</u>
<u>0.7</u>	<u>0.3</u>	<u>40</u>	<u>68</u>
<u>1.1</u>	<u>0.5</u>	<u>60</u>	<u>102</u>
<u>1.4</u>	<u>0.6</u>	<u>80</u>	<u>136</u>
<u>1.8</u>	<u>0.8</u>	<u>100</u>	<u>170</u>
<u>2.1</u>	1.0	<u>120</u>	<u>204</u>
<u>2.5</u>	<u>1.1</u>	<u>140</u>	<u>238</u>
<u>2.8</u>	<u>1.3</u>	<u>160</u>	<u>272</u>
<u>3.2</u>	<u>1.4</u>	<u>180</u>	<u>306</u>
<u>3.5</u>	<u>1.6</u>	<u>200</u>	<u>340</u>
<u>4.2</u>	<u>1.9</u>	<u>220</u>	<u>374</u>
<u>4.6</u>	<u>2.1</u>	<u>240</u>	<u>408</u>
<u>5.0</u>	<u>2.3</u>	<u>260</u>	<u>442</u>
<u>5.4</u>	<u>2.4</u>	<u>280</u>	<u>476</u>
<u>5.8</u>	<u>2.6</u>	<u>300</u>	<u>510</u>
<u>6.2</u>	<u>2.8</u>	<u>320</u>	<u>544</u>
<u>6.5</u>	<u>3.0</u>	<u>340</u>	<u>578</u>
<u>6.9</u>	<u>3.1</u>	<u>360</u>	<u>612</u>
<u>7.3</u>	<u>3.3</u>	<u>380</u>	<u>646</u>
<u>7.7</u>	<u>3.5</u>	<u>>400</u>	<u>>680</u>

a. For refrigerant charge falling between the values *listed* in this table, interpolation *shall* be permitted to determine the precise *ventilation* rates. Otherwise, the closest higher charge value *shall* be used.

Table 7-2 Floor Area for Isolated Space Determination

<u>Releasable Refrigerant Charge ^a</u>		<u>Floor Area</u>	
<u>lbm</u>	<u>kg</u>	<u>ft²</u>	<u>m²</u>
<u>0.5</u>	<u>0.2</u>	<u>7.15</u>	<u>0.7</u>
<u>1.0</u>	<u>0.5</u>	<u>14.3</u>	<u>1.3</u>
<u>2.0</u>	<u>0.9</u>	<u>28.6</u>	<u>2.7</u>
<u>3.0</u>	<u>1.4</u>	<u>42.9</u>	<u>4.0</u>
<u>4.0</u>	<u>1.8</u>	<u>57.2</u>	<u>5.3</u>
<u>5.0</u>	<u>2.3</u>	<u>71.5</u>	<u>6.6</u>
<u>6.0</u>	<u>2.7</u>	<u>85.8</u>	<u>8.0</u>
<u>7.0</u>	<u>3.2</u>	<u>100</u>	<u>9.3</u>
<u>8.0</u>	<u>3.6</u>	<u>114</u>	<u>10.6</u>
<u>9.0</u>	<u>4.1</u>	<u>129</u>	<u>12.0</u>
<u>10.0</u>	<u>4.5</u>	<u>143</u>	<u>13.3</u>
<u>11.0</u>	<u>5.0</u>	<u>171</u>	<u>15.9</u>
<u>12.0</u>	<u>5.4</u>	<u>204</u>	<u>18.9</u>
<u>13.0</u>	<u>5.9</u>	<u>239</u>	<u>22.2</u>
<u>14.0</u>	<u>6.4</u>	<u>278</u>	<u>25.8</u>
<u>15.0</u>	<u>6.8</u>	<u>319</u>	<u>29.6</u>
<u>16.0</u>	<u>7.3</u>	<u>362</u>	<u>33.7</u>
<u>17.0</u>	<u>7.7</u>	<u>409</u>	<u>38.0</u>
<u>18.0</u>	<u>8.2</u>	<u>459</u>	<u>42.6</u>
<u>19.0</u>	<u>8.6</u>	<u>511</u>	<u>47.5</u>
<u>20.0</u>	<u>9.1</u>	<u>566</u>	<u>52.6</u>
<u>21.0</u>	<u>9.5</u>	<u>624</u>	<u>58.0</u>
<u>22.0</u>	<u>10.0</u>	<u>685</u>	<u>63.7</u>
<u>23.0</u>	<u>10.4</u>	<u>749</u>	<u>69.6</u>

<u>24.0</u>	<u>10.9</u>	<u>816</u>	<u>75.8</u>
<u>25.0</u>	<u>11.3</u>	<u>885</u>	<u>82.2</u>
<u>26.0</u>	<u>11.8</u>	<u>957</u>	<u>88.9</u>
<u>27.0</u>	<u>12.3</u>	<u>1032</u>	<u>95.9</u>

a. For refrigerant charge falling between the values *listed* in this table, interpolation *shall* be permitted to determine the precise floor area. Otherwise, the closest higher charge value *shall* be used.

Modify Section 11 as follows. The remainder of Section 11 remains unchanged.

11. MECHANICAL VENTILATION

[.....]

11.1 Ventilation. Where used as a basis for adjusting the *maximum refrigerant charge* (m_{max}) in Section 9.5, or for compliance to Section 7.2 (a) for isolated space installations for isolated space installations, ventilation shall comply with Sections 11.1.1 through 11.1.3.

Modify Section 9 as follows. The remainder of Section 9 remains unchanged.

9. REFRIGERANT CHARGE LIMITS

[...]

9.4.3.5 **Heat-Pump Water Heater.** The dispersal height of a heat-pump water heater shall be the ~~floor area of the space containing the heat pump water heater multiplied by the height of the appliance~~ actual height of the system or appliance but not less than 2.0 ft (0.6 m) and not or more than 9.0 ft (2.74 m).

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

INFORMATIVE APPENDIX A

EXPLANATORY MATERIAL [..]

Section 7.2.2

This section addresses natural ventilation of a space to another indoor space where the spaces are connected by permanent openings. The minimum required area of the opening is calculated using the following equation:

$$A_{vvvv} = \frac{m_{rel} - m_{min}}{LLL \times 0.444} \times \frac{A_{ccvccvvc}}{g \times m_{min}} \times \frac{M_{mcrmr}}{M_{mcrmr} - 22} \quad (IP) \quad (A-xx)$$

$$A_{vvvv} = \frac{m_{rel} - m_{min}}{LLL \times 404} \times \frac{A_{ccvccvvc}}{g \times m_{min}} \times \frac{M_{mcrmr}}{M_{mcrmr} - 22} \quad (SI) \quad (A-yy)$$

Where,

m_{rel} = releasable refrigerant charge, kg or lb_m (per section 9.6). m_{max} =

maximum refrigerant charge, kg or lb_m (per section 9.5).

LFL = lower flammability limit of the refrigerant, kg/m³ or lb_m/1000 ft³ (from ASHRAE Standard 34). $A_{confined}$ = floor area of isolated space, m² or ft².

g = gravitational acceleration, 9.81 m/s² or 32.2 ft/s². M_{molar} =

relative molar mass of refrigerant, dimensionless.

These equations are not applicable for refrigerants with a relative molar mass less than 42.