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 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.

DISCLAIMER

ASHRAE uses its best efforts to promulgate Standards and Guidelines for the benefit of the public in light of available information and accepted industry practices. However, ASHRAE does not guarantee, certify, or assure the safety or performance of any products, components, or systems tested, installed, or operated in accordance with ASHRAE's Standards or Guidelines or that any tests conducted under its Standards or Guidelines will be nonhazardous or free from risk.

ASHRAE INDUSTRIAL ADVERTISING POLICY ON STANDARDS

ASHRAE Standards and Guidelines are established to assist industry and the public by offering a uniform method of testing for rating purposes, by suggesting safe practices in designing and installing equipment, by providing proper definitions of this equipment, and by providing other information that may serve to guide the industry. The creation of ASHRAE Standards and Guidelines is determined by the need for them, and conformance to them is completely voluntary.

In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE.
FOREWORD

This addendum removes any credit for assumed infiltration. It does not change the overall target ventilation rate, and credit for measured infiltration is still allowed. The effect of this change is to ensure that each home will have the required minimum ventilation rate regardless of airtightness. This is especially important as homes are becoming commonly tighter than was assumed previously in 62.2. This change is consistent with the total ventilation rate method in the recently-published Addendum n and also with the recently-published addendum on multifamily buildings.

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 r to Standard 62.2-2010

Revise Section 4 as shown below. Note that this addendum shows changes relative to Addendum n to Standard 62.2-2010. Addendum n to Standard 62.2-2010 is available for free download on the ASHRAE website at www.ashrae.org/standards-research-technology/standards-addenda.

4. WHOLE-BUILDING VENTILATION

4.1 Ventilation Rate. A mechanical exhaust system, supply system, or combination thereof shall be installed for each dwelling unit to provide whole-building ventilation with outdoor air each hour at a rate not less than specified in 4.1.1, Fan Ventilation Rate Method, or 4.1.2, Total Ventilation Rate Method.

4.1.1 Fan Ventilation Rate Method. The mechanical ventilation rate shall be as specified in Table 4.1a or Table 4.1b or, equivalently, calculated using Equation 4.1a or Equation 4.1b, based on the floor area of the conditioned space and number of bedrooms.

\[ Q_{fan} = 0.01 A_{floor} + 7.5 (N_{br} + 1) \]  

(4.1a)

where

- \( Q_{fan} \) = fan flow rate, cfm
- \( A_{floor} \) = floor area, ft\(^2\)
- \( N_{br} \) = number of bedrooms; not to be less than one

\[ Q_{fan} = 0.054 A_{floor} + 3.5 (N_{br} + 1) \]  

(4.1b)

where

- \( Q_{fan} \) = fan flow rate, L/s

 Exceptions: Whole-building mechanical systems are not required provided that at least one of the following conditions is met:

a. the building has no mechanical cooling and is in zone 1 or 2 of the IECC 2004 Climate Zone Map (see Figure 8.2), or

b. the building is thermally conditioned for human occupancy for less than 876 h per year,

and if the authority having jurisdiction determines that window operation is a locally permissible method of providing ventilation.

4.1.2 Total Ventilation Rate Method. The total required ventilation rate \( Q_{tot} \) shall be as specified in Table 4.1a or Table 4.1b, or alternatively calculated using Equation 4.1a or Equation 4.1b.

\[ Q_{tot} = 0.03 A_{floor} + 7.5 (N_{br} + 1) \]  

(4.1a)

where

- \( Q_{tot} \) = Total required ventilation rate, cfm

<table>
<thead>
<tr>
<th>TABLE 4.1a (I-P)</th>
<th>Ventilation Air Requirements, cfm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Area (ft(^2))</td>
<td>0-1</td>
</tr>
<tr>
<td>0-1500</td>
<td>30</td>
</tr>
<tr>
<td>1501-3000</td>
<td>45</td>
</tr>
<tr>
<td>3001-4500</td>
<td>60</td>
</tr>
<tr>
<td>4501-6000</td>
<td>75</td>
</tr>
<tr>
<td>6001-7500</td>
<td>90</td>
</tr>
<tr>
<td>&gt;7500</td>
<td>105</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 4.1b (SI)</th>
<th>Ventilation Air Requirements, L/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Area (m(^2))</td>
<td>0-1</td>
</tr>
<tr>
<td>0-44</td>
<td>44</td>
</tr>
<tr>
<td>45-139</td>
<td>21</td>
</tr>
<tr>
<td>140-279</td>
<td>28</td>
</tr>
<tr>
<td>280-557</td>
<td>35</td>
</tr>
<tr>
<td>558-697</td>
<td>42</td>
</tr>
<tr>
<td>&gt;697</td>
<td>50</td>
</tr>
</tbody>
</table>

ANSI/ASHRAE Addendum r to Standard 62.2-2010 1
\[ A_{floor} = \text{Floor area of residence, ft}^2 \]
\[ N_{br} = \text{Number of bedrooms (to be not less than one)} \]
\[ Q_{tot} = 0.15A_{floor} + 3.5(N_{br} + 1) \]  \hspace{1cm} (4.1b-4.2b)

where
\[ Q_{tot} = \text{Total required ventilation rate, L/s} \]
\[ A_{floor} = \text{Floor area of residence, m}^2 \]

**Exceptions:** Whole-building mechanical systems are not required provided that at least one of the following conditions is met:

- the building has no mechanical cooling and is in zone 1 or 2 of the IECC 2004 Climate Zone Map (see Figure 8.2), or
- the building is thermally conditioned for human occupancy for less than 876 h per year.

And if the authority having jurisdiction determines that window operation is a locally permissible method of providing ventilation.

### 4.1.2 Infiltration Credit

If a blower door test has been done then a credit for estimated infiltration may be taken using the following procedure.

Effective Annual Average Infiltration Rate \((Q_{inf})\) shall be calculated using the normalized leakage calculated from measurements of envelope leakage using either ASTM E779-10 or CGSB 149.10-M86. The authority having jurisdiction may approve other means of calculating effective leakage area \((ELA)\), such as the RESNET Mortgage Industry National Home Energy Systems Standard.

**ASTM Procedure.** To calculate the effective leakage area from the ASTM E779-10 standard, the leakage area for pressurization and depressurization (using a 4 Pa reference pressure) shall be averaged using Equation 4.2.

\[ ELA = (L_{press} + L_{dpress})/2 \]  \hspace{1cm} (4.24.3)

where
\[ ELA = \text{Effective leakage area, ft}^2 (m^2) \]
\[ L_{press} = \text{Leakage area from pressurization, ft}^2 (m^2) \]
\[ L_{dpress} = \text{Leakage area from depressurization, ft}^2 (m^2) \]

**CGSB Procedure.** To calculate the effective leakage area from CAN/CGSB-149.10-M86, the following modifications to the test procedure must be made: (1) all vents and intentional openings must be in the same configuration as specified in the ASTM standard (i.e., HVAC dampers and registers should be in the normal operating position; fireplace and other dampers should be closed unless they are required for test operation), (2) height and floor area must be reported consistently with the definitions of this standard, and (3) the leakage area as calculated from the CGSB procedure must be converted using Equation 4.34.

\[ ELA = 0.61 \cdot (0.4)^n \cdot 0.5 \cdot L_{cgsb} \]  \hspace{1cm} (4.34.4)

where
\[ n = \text{Exponent measured from the CGSB standard} \]
\[ L_{cgsb} = \text{CGSB leakage area, as modified above, (ft}^2 \text{[m}^2\text{]} \]

**Normalized Leakage.** Normalized leakage shall be calculated using Equation 4.44.

\[ NL = 1000 \cdot \frac{ELA}{A_{floor}} \left(\frac{H}{Hr}\right)^n \]  \hspace{1cm} (4.44.5)

where
\[ NL = \text{Normalized leakage} \]
\[ Hr = \text{Reference height, (8.2 ft) [2.5 m]} \]
\[ H = \text{Vertical distance from lowest above grade floor to highest ceiling, (ft) (m)} \]
\[ z = 0.4 \text{ for the purpose of calculating the following effective annual average infiltration rate} \]

<table>
<thead>
<tr>
<th>Table 4.1a (I-P)</th>
<th>Table 4.1b (SI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ventilation Air Requirements, cfm</strong></td>
<td><strong>Ventilation Air Requirements, L/s</strong></td>
</tr>
<tr>
<td><strong>Floor Area, ft(^2)</strong></td>
<td><strong>Bedrooms</strong></td>
</tr>
<tr>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>&lt;500</td>
<td>30</td>
</tr>
<tr>
<td>501–1000</td>
<td>45</td>
</tr>
<tr>
<td>1001–1500</td>
<td>60</td>
</tr>
<tr>
<td>1501–2000</td>
<td>75</td>
</tr>
<tr>
<td>2001–2500</td>
<td>90</td>
</tr>
<tr>
<td>2501–3000</td>
<td>105</td>
</tr>
<tr>
<td>3001–3500</td>
<td>120</td>
</tr>
<tr>
<td>3501–4000</td>
<td>135</td>
</tr>
<tr>
<td>4001–4500</td>
<td>150</td>
</tr>
<tr>
<td>4501–5000</td>
<td>165</td>
</tr>
</tbody>
</table>
Effective Annual Average Infiltration Rate \( (Q_{\text{inf}}) \) shall be calculated using Equation 4.5a, 4.6a or Equation 4.5b, 4.6b.

\[
Q_{\text{inf}}(\text{cfm}) = \frac{NL \cdot wsf \cdot A_{\text{floor}}}{7.3}
\]

\[
Q_{\text{inf}}(L/s) = \frac{NL \cdot wsf \cdot A_{\text{floor}}}{1.44}
\]

where
- \( NL = \) Normalized leakage
- \( wsf = \) Weather and shielding factor from Normative Appendix X
- \( A_{\text{floor}} = \) Floor area of residence, \( ft^2 \)

Required Mechanical Ventilation Rate \( (Q_{\text{fan}}) \) shall be calculated using Equation 4.6, 4.7.

\[
Q_{\text{fan}} = Q_{\text{tot}} - Q_{\text{inf}}
\]

where
- \( Q_{\text{fan}} = \) Required mechanical ventilation rate, (cfm) \[L/s]\]

\( Q_{\text{inf}} \) may be no greater than \( 2/3 \cdot Q_{\text{tot}} \). See Appendix A for exceptions for existing buildings.

If \( Q_{\text{fan}} \) is less than or equal to zero then no whole-building ventilation fan is required.

Add the following reference to Section 9:

9. REFERENCES


Revise Section A2 in Normative Appendix A as shown below. Note that this addendum shows changes relative to Addendum n to Standard 62.2-2010. Addendum n to Standard 62.2-2010 is available for free download on the ASHRAE website at www.ashrae.org/standards-research-technology/standards-addenda.

A2. WHOLE-BUILDING MECHANICAL VENTILATION RATE

If Section 4.1.1 is used to determine the fan flow requirement, then the required mechanical ventilation rate, \( Q_{\text{fan}} \), shall be the rate in Section 4.1.1 plus the required additional airflow calculated in accordance with Section A3.

If Section 4.1.2 is used to determine the fan flow requirement, then the required additional airflow calculated in accordance with Section A3 shall be added to \( Q_{\text{tot}} \) prior to application of \( Q_{\text{inf}} \). For existing buildings, if \( Q_{\text{fan}} \) is less than or equal to zero then no whole-building ventilation fan is required.
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.