APPENDIX B
WHOLE BUILDING VENTILATION SYSTEM SPECIFICATIONS

B100 SCOPE AND APPLICABILITY

B101.1 Applicability of Appendix B. Appendix B is part of this standard.

B101.2 Scope. The provisions contained in Appendix B provide the specifications necessary for complying with Section 902.2.1 for the installation of whole building ventilation systems. To receive points for implementing Practice 902.2.1, the chosen whole building ventilation system is to be in accordance with the applicable specifications of Appendix B.

B191.3 Acknowledgment. The text of Appendix B, Section B200 and related Tables are extracted from ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.) Standard 62.2-2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, Section 4, and is used with the permission of ASHRAE. The referenced Section and Table numbers within the extracted text are modified to be applicable to Appendix B of this Standard. 

B200 WHOLE-BUILDING VENTILATION

B201.1 Ventilation Rate. A mechanical exhaust system, supply system, or other combination thereof shall be installed for each dwelling unit to provide whole-building ventilation with outdoor air each hour at no less than the rate specified in Tables B201.1a and B201.1b or, equivalently, Equations B201.1a and B201.1b, based on the floor area of the conditioned space and number of bedrooms.

B201.2 Alternative Ventilation. Other methods may be used to provide the required ventilation rates (of Tables B201.1a and B201.1b) when approved by a licensed design professional.

Equation B201.1a

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

where

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

Equation B201.1b

\[ Q_{\text{fan}} = 0.05A_{\text{floor}} + 3.5(N_{\text{br}} + 1) \]

where

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

TABLE B201.1a (I-P)
Ventilation Air Requirements, cfm

<table>
<thead>
<tr>
<th>Floor Area (ft²)</th>
<th>0-1</th>
<th>2-3</th>
<th>4-5</th>
<th>6-7</th>
<th>&gt;7</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1500</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>75</td>
<td>90</td>
</tr>
<tr>
<td>1501-3000</td>
<td>45</td>
<td>60</td>
<td>75</td>
<td>90</td>
<td>105</td>
</tr>
<tr>
<td>3001-4500</td>
<td>60</td>
<td>75</td>
<td>90</td>
<td>105</td>
<td>120</td>
</tr>
</tbody>
</table>
TABLE B201.1b (SI)
Ventilation Air Requirements, L/s

<table>
<thead>
<tr>
<th>Floor Area (m²)</th>
<th>0-1</th>
<th>2-3</th>
<th>4-5</th>
<th>6-7</th>
<th>&gt;7</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;139</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td>139.1-279</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>279.1-418</td>
<td>28</td>
<td>35</td>
<td>42</td>
<td>50</td>
<td>57</td>
</tr>
<tr>
<td>418.1-557</td>
<td>35</td>
<td>42</td>
<td>50</td>
<td>57</td>
<td>64</td>
</tr>
<tr>
<td>557.1-697</td>
<td>42</td>
<td>50</td>
<td>57</td>
<td>64</td>
<td>71</td>
</tr>
<tr>
<td>&gt;697</td>
<td>50</td>
<td>57</td>
<td>64</td>
<td>71</td>
<td>78</td>
</tr>
</tbody>
</table>

Exception: An intermittently operating, whole-house mechanical ventilation system may be used if the ventilation rate is adjusted according to the exemption to Section B201.4. The system must be designed so that it can operate automatically based on a timer. The intermittent mechanical ventilation system must operate at least one hour out of every twelve.

Equation B201.4

\[ Q_f = \frac{Q_r}{\varepsilon f} \]

where

- \( Q_f \) = fan flow rate
- \( Q_r \) = ventilation air requirement (from Table B201.1a or B201.1b)
- \( \varepsilon \) = ventilation effectiveness (from Table B201.1)
- \( f \) = fractional on time

if the system runs at least every three hours, 1.0 can be used as the ventilation effectiveness. (See ASHRAE 62.2*, Appendix B for an example of this calculation.)