3. Efficient Use of Energy by Mechanical Ventilation Equipment Other Than Air Conditioning Equipment

3-1. Construction clients shall take proper measures to achieve efficient use of energy by mechanical ventilation equipment other than air conditioning equipment, with due consideration given to the following practices.

   (1) They shall make a plan to minimize energy loss in air ducts and others.
   (2) They shall adopt a proper control system for mechanical ventilation equipment other than air conditioning equipment.
   (3) They shall introduce mechanical ventilation equipment with high energy efficiency and a proper capacity for the required ventilation volume.

3-2. The judgment whether construction clients have taken proper measures for the matters listed in Paragraph 3-1 related to mechanical ventilation equipment (except for air conditioning equipment; this is applicable in the rest of Section 3) installed in a building (except for that of the building type described in Column (8) of Attached Table 1; this is common in Paragraphs 3-2 and 3-3 below) shall be based on Paragraph 3-3. Note that the judgment for mechanical ventilation equipment installed in a building having a total floor area of 5,000 square meters or less may be based on Paragraph 3-4, as well as Paragraph 3-3.

3-3. The value calculated by dividing the annual primary energy consumption for mechanical ventilation equipment installed in a building (hereinafter called the “primary energy consumption for ventilation”) in terms of heat quantity (Joule) by the annual assumed primary energy consumption for ventilation of the building in the same period in terms of heat quantity shall be equal to or smaller than the value specified in each cell of Raw (d) of Attached Table 1. In this case, when converting the quantity of consumed energy shown in the left-hand column of Attached Table 3 into the heat quantity, the corresponding value in the right-hand column of the table shall be used for the calculation. (If a smaller value than the value given in the right-hand column can be obtained by installing energy-efficient equipment, the smaller value shall be used.) For other energy types, the conversion shall depend on their actual data, such as their composition etc. The primary energy consumption for ventilation and the assumed primary energy consumption for ventilation shall be as specified in (1) and (2) below:

   (1) The primary energy consumption for ventilation shall be the total of electric power consumption for one year by the units listed in a to c below:
      a. Air charger
      b. Exhaust unit
      c. Other units required for the ventilation equipment concerned
(2) The assumed primary energy consumption for ventilation shall be calculated from the following equation:

\[ E = Q \times T \times 3.676 \times 10^{-4} \]

where \( E \), \( Q \), and \( T \) represent the values shown below:

- \( E \): Assumed primary energy consumption for ventilation (unit: kWh)
- \( Q \): Design ventilation quantity (unit: m\(^3\)/hour)
- \( T \): Annual operation time (unit: hour)

3-4. With regard to the mechanical ventilation equipment shown in the note in Paragraph 3-2, for the equipment which is installed in non-air conditioned rooms and which is important from the viewpoint of energy use, the value calculated by adding 80 to the total scores selected based on the measures taken for each item in the table below shall be 100 or more.

<table>
<thead>
<tr>
<th>Item</th>
<th>Measures taken</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control system</td>
<td>Gas concentration sensor control system is provided in all parking spaces, or human detection control, temperature sensor control, lighting control system linked to illumination sensor, or time schedule control is provided in two thirds or more of the number of rooms (only non-air conditioned rooms; this is common in this table) provided with mechanical ventilation equipment except in parking spaces.</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Gas concentration sensor control system is provided in half or more of the total parking area, or human detection control, temperature sensor control, lighting control system linked to illumination sensor, or time schedule control is provided in one third or more of the number of rooms provided with mechanical ventilation equipment except in parking spaces.</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Other than those above</td>
<td>0</td>
</tr>
<tr>
<td>When a low-voltage three-phase squirrel-cage high efficiency induction motor is used</td>
<td>Two thirds or more of the number of motors</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>One third or more and less than two thirds of the number of motors</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Less than one third of the number of motors</td>
<td>0</td>
</tr>
<tr>
<td>Ventilation by air chargers and exhaust units</td>
<td>Air chargers and exhaust units are used in half or less of the total car parking area or they are not used in any rooms provided with mechanical ventilation equipment.</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Other than those above</td>
<td>0</td>
</tr>
</tbody>
</table>

1. “Gas concentration sensor control system” means a control system by the concentration of carbon monoxide or dioxide.
2. “Parking space” means a room used for car parking facilities.
3. “Low-voltage three-phase squirrel-cage high efficiency induction motors” mean that defined by the Japanese Industrial Standards C4212 (low-voltage three-phase squirrel-cage high efficiency induction motors).

3-5. Owners of specified buildings shall take proper measures to achieve efficient use of energy by mechanical ventilation equipment, with due consideration given to the following practices.

(1) They shall maintain air transport equipment, which is introduced to minimize energy loss,
by inspecting and repairing air ducts and others.

(2) They shall maintain the control system of the introduced mechanical ventilation equipment by inspecting the operation status of fans and others.

(3) They shall maintain the ventilation performance and efficient use of energy of the introduced mechanical ventilation equipment by inspecting and cleaning it.