

- b) When a gas heat pump is operated in the range of HP operation separated from exhaust heat according to building load ($t < T_{CP}$).

$$P_h(t_j) = \mu \times (P_{ho} + P_{hi}) \dots\dots\dots (2.2.2)$$

The heating power consumption at the outdoor air temperature during the heating period is shown in figure A.5.

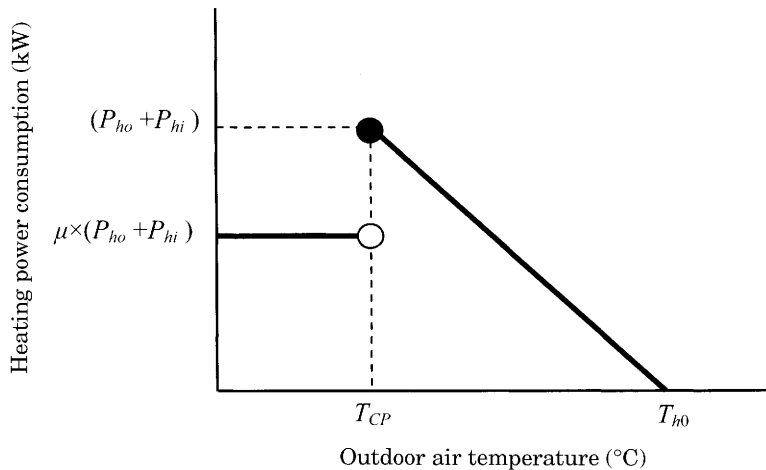


Figure A.5 Outdoor air temperature and heating power consumption

The heating seasonal power consumption of a gas heat pump shall be calculated from the following formula.

$$HSPC = \sum_{j=1}^{31} P_h(t_j) \times n_j \dots\dots\dots (2.2.3)$$

A.5.3 Annual energy consumption (AEC) The annual energy consumption *AEC* of a gas heat pump shall be calculated from the following formula.

$$AEC = CSGC + CSPC + HSGC + HSPC \dots\dots\dots (3.1)$$

A.5.4 Annual performance factor (APF) The annual performance factor *APF* of a gas heat pump shall be as follows.

The cooling seasonal performance factor *CSPF* shall be calculated from the following formula.

$$CSPF = \frac{CSTL}{CSGC + CSPC} \dots\dots\dots (4.1)$$

The heating seasonal performance factor *HSPF* shall be calculated from the following formula.

$$HSPF = \frac{HSTL}{HSGC + HSPC} \dots\dots\dots (4.2)$$

The annual performance factor *APF* shall be calculated from the following formula.

$$APF = \frac{CSTL + HSTL}{AEC} \dots\dots\dots (4.3)$$

Table A.13 Cooling season and occurrence time period for each district with regard to independent stores

(Unit: outdoor air temperature: °C, occurrence time period: h)

| District | Cooling season | During cooling season: Time period during which the temperature of 22°C or higher occurs [classified into summer season (July 1 to September 30) and other seasons according to electric charge system] | | | | | | | | | | | | | | | | | | | | Sum | |
|-----------|-------------------------|---|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|-----|------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | 21 |
| Tokyo | Temperature division | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | |
| | Outdoor air temperature | 0 | 0 | 0 | 0 | 0 | 49 | 66 | 90 | 77 | 113 | 145 | 159 | 119 | 91 | 91 | 35 | 11 | 6 | 4 | 0 | 0 | 1056 |
| | Summer season | 0 | 0 | 0 | 0 | 0 | 77 | 77 | 77 | 70 | 41 | 33 | 7 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 387 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 126 | 143 | 167 | 147 | 154 | 178 | 166 | 121 | 93 | 92 | 35 | 11 | 6 | 4 | 0 | 0 | 1443 |
| Osaka | Sum | 0 | 0 | 0 | 0 | 25 | 44 | 37 | 85 | 123 | 117 | 139 | 125 | 112 | 108 | 108 | 76 | 43 | 14 | 9 | 1 | 0 | 1166 |
| | Summer season | 0 | 0 | 0 | 0 | 91 | 105 | 98 | 87 | 84 | 65 | 55 | 20 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 613 |
| | Other seasons | 0 | 0 | 0 | 0 | 116 | 149 | 135 | 172 | 207 | 182 | 194 | 145 | 120 | 108 | 108 | 76 | 43 | 14 | 9 | 1 | 0 | 1779 |
| | Sum | 0 | 0 | 0 | 0 | 39 | 61 | 69 | 125 | 115 | 129 | 116 | 105 | 92 | 83 | 61 | 37 | 39 | 15 | 7 | 7 | 2 | 1102 |
| Nagoya | Summer season | 0 | 0 | 0 | 0 | 66 | 72 | 44 | 43 | 39 | 33 | 13 | 14 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 370 |
| | Other seasons | 0 | 0 | 0 | 0 | 105 | 133 | 113 | 168 | 158 | 168 | 149 | 118 | 106 | 86 | 61 | 37 | 39 | 15 | 7 | 7 | 2 | 1472 |
| | Sum | 0 | 0 | 0 | 0 | 100 | 123 | 129 | 111 | 110 | 97 | 46 | 50 | 30 | 14 | 8 | 4 | 2 | 0 | 0 | 0 | 0 | 824 |
| | Other seasons | 0 | 0 | 0 | 0 | 11 | 11 | 8 | 15 | 6 | 5 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 |
| Sendai | Sum | 0 | 0 | 0 | 0 | 111 | 134 | 137 | 126 | 116 | 102 | 50 | 53 | 33 | 14 | 8 | 4 | 2 | 0 | 0 | 0 | 0 | 890 |
| | Summer season | 0 | 0 | 0 | 0 | 49 | 70 | 63 | 90 | 73 | 83 | 99 | 115 | 136 | 119 | 109 | 72 | 44 | 11 | 0 | 0 | 0 | 1133 |
| | Other seasons | 0 | 0 | 0 | 0 | 89 | 102 | 79 | 36 | 23 | 11 | 15 | 25 | 15 | 9 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 409 |
| | Sum | 0 | 0 | 0 | 0 | 138 | 172 | 142 | 126 | 96 | 94 | 114 | 140 | 151 | 128 | 114 | 72 | 44 | 11 | 0 | 0 | 0 | 1542 |
| Hiroshima | Summer season | 0 | 0 | 0 | 0 | 60 | 77 | 96 | 94 | 126 | 163 | 122 | 118 | 105 | 108 | 51 | 22 | 4 | 2 | 2 | 0 | 0 | 1150 |
| | Other seasons | 0 | 0 | 0 | 0 | 82 | 97 | 78 | 60 | 28 | 16 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 364 |
| | Sum | 0 | 0 | 0 | 0 | 142 | 174 | 174 | 154 | 154 | 179 | 124 | 119 | 105 | 108 | 51 | 22 | 4 | 2 | 2 | 0 | 0 | 1514 |
| | Other seasons | 0 | 0 | 0 | 0 | 33 | 51 | 80 | 119 | 119 | 140 | 130 | 122 | 128 | 103 | 89 | 39 | 10 | 0 | 0 | 0 | 0 | 1163 |
| Takamatsu | Summer season | 0 | 0 | 0 | 0 | 53 | 65 | 53 | 56 | 46 | 41 | 23 | 8 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 353 |
| | Other seasons | 0 | 0 | 0 | 0 | 86 | 116 | 133 | 175 | 165 | 181 | 153 | 130 | 132 | 107 | 89 | 39 | 10 | 0 | 0 | 0 | 0 | 1516 |
| | Sum | 0 | 0 | 0 | 0 | 60 | 74 | 118 | 120 | 148 | 181 | 117 | 92 | 70 | 48 | 25 | 5 | 2 | 0 | 0 | 0 | 0 | 1060 |
| | Other seasons | 0 | 0 | 0 | 0 | 46 | 42 | 35 | 30 | 12 | 15 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 189 |
| Toyama | Sum | 0 | 0 | 0 | 0 | 106 | 116 | 153 | 150 | 160 | 196 | 122 | 94 | 72 | 48 | 25 | 5 | 2 | 0 | 0 | 0 | 0 | 1249 |
| | Summer season | 0 | 0 | 0 | 0 | 88 | 70 | 88 | 86 | 113 | 109 | 94 | 73 | 81 | 65 | 50 | 33 | 11 | 8 | 1 | 2 | 0 | 972 |
| | Other seasons | 0 | 0 | 0 | 0 | 75 | 56 | 51 | 44 | 47 | 32 | 13 | 10 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 339 |
| | Sum | 0 | 0 | 0 | 0 | 163 | 126 | 139 | 130 | 160 | 141 | 107 | 83 | 89 | 68 | 50 | 33 | 11 | 8 | 1 | 2 | 0 | 1311 |
| Sapporo | Summer season | | | | | | | | | | | | | | | | | | | | | | |
| | Other seasons | | | | | | | | | | | | | | | | | | | | | | |
| | Sum | | | | | | | | | | | | | | | | | | | | | | |
| Kagoshima | Summer season | 0 | 0 | 0 | 0 | 27 | 42 | 52 | 69 | 99 | 117 | 159 | 149 | 157 | 147 | 73 | 34 | 22 | 6 | 0 | 0 | 0 | 1153 |
| | Other seasons | 0 | 0 | 0 | 0 | 154 | 146 | 135 | 119 | 73 | 51 | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 700 |
| | Sum | 0 | 0 | 0 | 0 | 181 | 188 | 187 | 188 | 172 | 168 | 176 | 154 | 157 | 147 | 73 | 34 | 22 | 6 | 0 | 0 | 0 | 1853 |
| | Other seasons | | | | | | | | | | | | | | | | | | | | | | |

Table A.14 Cooling season and occurrence time period for each district with regard to tenant stores

(Unit: outdoor air temperature: °C, occurrence time period: h)

| District | Cooling season | During cooling season. Time period during which the temperature of 20 °C or higher occurs (classified into summer season (July 1 to September 30) and other seasons according to electric charge system) | | | | | | | | | | | | | | | | | | | | |
|-----------|-------------------------|--|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| Tokyo | Outdoor air temperature | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
| | Summer season | 0 | 0 | 39 | 44 | 49 | 66 | 90 | 77 | 113 | 145 | 159 | 119 | 91 | 91 | 35 | 11 | 6 | 4 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 147 | 155 | 123 | 96 | 85 | 75 | 47 | 39 | 7 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum | 0 | 0 | 186 | 199 | 172 | 162 | 175 | 152 | 160 | 184 | 166 | 121 | 93 | 92 | 35 | 11 | 6 | 4 | 0 | 0 | 0 |
| Osaka | Outdoor air temperature | 0 | 0 | 10 | 16 | 25 | 44 | 37 | 85 | 123 | 117 | 139 | 125 | 112 | 108 | 108 | 76 | 43 | 14 | 9 | 1 | 0 |
| | Summer season | 0 | 0 | 117 | 162 | 138 | 124 | 113 | 94 | 86 | 65 | 55 | 20 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 127 | 178 | 163 | 168 | 150 | 179 | 209 | 182 | 194 | 145 | 120 | 108 | 108 | 76 | 43 | 14 | 9 | 1 | 0 |
| | Sum | 0 | 0 | 244 | 340 | 301 | 292 | 287 | 279 | 294 | 276 | 261 | 234 | 212 | 216 | 214 | 176 | 86 | 28 | 14 | 10 | 0 |
| Nagoya | Outdoor air temperature | 0 | 0 | 4 | 17 | 41 | 64 | 73 | 127 | 116 | 129 | 116 | 105 | 92 | 83 | 61 | 37 | 39 | 15 | 7 | 7 | 2 |
| | Summer season | 0 | 0 | 67 | 92 | 90 | 90 | 62 | 61 | 55 | 41 | 33 | 13 | 14 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 71 | 109 | 131 | 154 | 135 | 188 | 171 | 170 | 149 | 118 | 106 | 86 | 61 | 37 | 39 | 15 | 7 | 7 | 2 |
| | Sum | 0 | 0 | 138 | 201 | 181 | 224 | 197 | 243 | 226 | 211 | 182 | 127 | 110 | 90 | 61 | 37 | 39 | 15 | 7 | 7 | 2 |
| Sendai | Outdoor air temperature | 0 | 0 | 74 | 103 | 118 | 145 | 146 | 118 | 113 | 99 | 46 | 50 | 30 | 14 | 8 | 4 | 2 | 0 | 0 | 0 | 0 |
| | Summer season | 0 | 0 | 40 | 43 | 44 | 29 | 10 | 19 | 9 | 5 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 114 | 146 | 162 | 174 | 156 | 137 | 122 | 104 | 50 | 53 | 33 | 14 | 8 | 4 | 2 | 0 | 0 | 0 | 0 |
| | Sum | 0 | 0 | 154 | 189 | 206 | 185 | 165 | 141 | 121 | 109 | 54 | 56 | 36 | 18 | 12 | 12 | 2 | 0 | 0 | 0 | 0 |
| Fukuoka | Outdoor air temperature | 0 | 0 | 21 | 26 | 49 | 70 | 63 | 90 | 73 | 83 | 99 | 115 | 136 | 119 | 109 | 72 | 44 | 11 | 0 | 0 | 0 |
| | Summer season | 0 | 0 | 97 | 123 | 103 | 115 | 92 | 41 | 29 | 16 | 15 | 25 | 15 | 9 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 118 | 149 | 152 | 185 | 155 | 131 | 102 | 99 | 114 | 140 | 151 | 128 | 114 | 72 | 44 | 11 | 0 | 0 | 0 |
| | Sum | 0 | 0 | 215 | 272 | 256 | 290 | 247 | 170 | 121 | 115 | 129 | 155 | 167 | 147 | 126 | 72 | 44 | 11 | 0 | 0 | 0 |
| Hiroshima | Outdoor air temperature | 0 | 0 | 11 | 15 | 60 | 77 | 96 | 94 | 126 | 163 | 122 | 118 | 105 | 108 | 51 | 22 | 4 | 2 | 2 | 0 | 0 |
| | Summer season | 0 | 0 | 127 | 138 | 129 | 125 | 98 | 78 | 31 | 17 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 138 | 153 | 189 | 202 | 194 | 172 | 157 | 180 | 124 | 119 | 105 | 108 | 51 | 22 | 4 | 2 | 2 | 0 | 0 |
| | Sum | 0 | 0 | 265 | 291 | 318 | 327 | 317 | 272 | 214 | 197 | 146 | 138 | 110 | 108 | 52 | 24 | 6 | 4 | 2 | 0 | 0 |
| Takamatsu | Outdoor air temperature | 0 | 0 | 15 | 18 | 33 | 51 | 80 | 119 | 119 | 140 | 130 | 122 | 128 | 103 | 89 | 39 | 10 | 0 | 0 | 0 | 0 |
| | Summer season | 0 | 0 | 143 | 157 | 100 | 100 | 80 | 69 | 54 | 48 | 27 | 8 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 158 | 175 | 133 | 151 | 160 | 188 | 173 | 188 | 157 | 130 | 132 | 107 | 89 | 39 | 10 | 0 | 0 | 0 | 0 |
| | Sum | 0 | 0 | 301 | 332 | 233 | 251 | 240 | 267 | 232 | 236 | 184 | 162 | 160 | 114 | 128 | 78 | 10 | 0 | 0 | 0 | 0 |
| Toyama | Outdoor air temperature | 0 | 0 | 16 | 67 | 62 | 81 | 118 | 120 | 148 | 181 | 117 | 92 | 70 | 48 | 25 | 5 | 2 | 0 | 0 | 0 | 0 |
| | Summer season | 0 | 0 | 62 | 67 | 64 | 57 | 53 | 39 | 15 | 20 | 7 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 78 | 134 | 126 | 138 | 171 | 159 | 163 | 201 | 124 | 95 | 76 | 48 | 25 | 5 | 2 | 0 | 0 | 0 | 0 |
| | Sum | 0 | 0 | 140 | 201 | 190 | 215 | 230 | 212 | 217 | 227 | 121 | 102 | 82 | 53 | 25 | 5 | 2 | 0 | 0 | 0 | 0 |
| Maebashi | Outdoor air temperature | 0 | 0 | 62 | 77 | 90 | 73 | 90 | 86 | 113 | 109 | 94 | 73 | 81 | 65 | 50 | 33 | 11 | 8 | 1 | 2 | 0 |
| | Summer season | 0 | 0 | 91 | 95 | 97 | 79 | 77 | 53 | 58 | 40 | 15 | 10 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 153 | 172 | 187 | 152 | 167 | 139 | 171 | 149 | 109 | 83 | 89 | 68 | 50 | 33 | 11 | 8 | 1 | 2 | 0 |
| | Sum | 0 | 0 | 244 | 267 | 274 | 231 | 234 | 211 | 216 | 189 | 124 | 92 | 91 | 73 | 53 | 33 | 11 | 8 | 1 | 2 | 0 |
| Sapporo | Outdoor air temperature | | | | | | | | | | | | | | | | | | | | | |
| | Summer season | | | | | | | | | | | | | | | | | | | | | |
| | Other seasons | | | | | | | | | | | | | | | | | | | | | |
| | Sum | | | | | | | | | | | | | | | | | | | | | |
| Kagoshima | Outdoor air temperature | 0 | 0 | 14 | 13 | 27 | 42 | 52 | 69 | 99 | 117 | 159 | 149 | 157 | 147 | 73 | 34 | 22 | 6 | 0 | 0 | 0 |
| | Summer season | 0 | 0 | 110 | 148 | 187 | 182 | 150 | 127 | 76 | 51 | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 124 | 161 | 214 | 224 | 202 | 196 | 175 | 168 | 176 | 154 | 157 | 147 | 73 | 34 | 22 | 6 | 0 | 0 | 0 |
| | Sum | 0 | 0 | 234 | 309 | 391 | 406 | 352 | 325 | 272 | 218 | 193 | 179 | 172 | 164 | 73 | 34 | 22 | 6 | 0 | 0 | 0 |

Table A.15 Cooling season and occurrence time period for each district with regard to offices

(Unit: outdoor air temperature: °C, occurrence time period: h)

| District | Cooling season | During cooling season Time period during which the temperature of 18 °C or higher occurs [classified into summer season (July 1 to September 30) and other seasons according to electric charge system] | | | | | | | | | | | | | | | | | | | | |
|-----------|-------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| Tokyo | Temperature division | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
| | Outdoor air temperature | 22 | 10 | 31 | 36 | 36 | 50 | 70 | 59 | 81 | 107 | 129 | 100 | 77 | 78 | 30 | 9 | 5 | 3 | 0 | 0 | 0 |
| | Summer season | 91 | 101 | 135 | 141 | 99 | 93 | 67 | 62 | 39 | 33 | 6 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 113 | 111 | 166 | 177 | 135 | 143 | 137 | 121 | 120 | 140 | 135 | 102 | 79 | 79 | 30 | 9 | 5 | 3 | 0 | 0 | 0 |
| Osaka | Sum | 2 | 2 | 6 | 11 | 16 | 33 | 30 | 69 | 95 | 87 | 104 | 95 | 91 | 91 | 92 | 65 | 37 | 12 | 8 | 1 | 0 |
| | Summer season | 81 | 90 | 111 | 142 | 120 | 103 | 101 | 81 | 71 | 55 | 47 | 17 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 83 | 92 | 117 | 153 | 136 | 136 | 131 | 150 | 166 | 142 | 151 | 112 | 98 | 91 | 92 | 65 | 37 | 12 | 8 | 1 | 0 |
| | Sum | 9 | 18 | 3 | 11 | 32 | 49 | 46 | 94 | 92 | 98 | 95 | 88 | 77 | 70 | 52 | 32 | 33 | 13 | 6 | 6 | 2 |
| Nagoya | Summer season | 62 | 79 | 92 | 109 | 102 | 81 | 62 | 54 | 48 | 39 | 28 | 11 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 71 | 97 | 95 | 120 | 134 | 130 | 108 | 148 | 140 | 137 | 123 | 99 | 89 | 73 | 52 | 32 | 33 | 13 | 6 | 6 | 2 |
| | Sum | 17 | 23 | 58 | 78 | 96 | 112 | 117 | 93 | 91 | 85 | 39 | 43 | 26 | 12 | 7 | 3 | 2 | 0 | 0 | 0 | 0 |
| | Summer season | 90 | 75 | 75 | 69 | 51 | 33 | 13 | 18 | 11 | 7 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sendai | Other seasons | 107 | 98 | 133 | 147 | 147 | 145 | 130 | 111 | 102 | 92 | 43 | 46 | 29 | 12 | 7 | 3 | 2 | 0 | 0 | 0 | 0 |
| | Sum | 1 | 12 | 16 | 19 | 39 | 51 | 47 | 72 | 56 | 63 | 79 | 85 | 104 | 101 | 93 | 62 | 38 | 9 | 0 | 0 | 0 |
| | Summer season | 124 | 137 | 169 | 162 | 117 | 111 | 85 | 37 | 24 | 12 | 10 | 21 | 13 | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 125 | 149 | 185 | 181 | 156 | 162 | 132 | 109 | 80 | 75 | 89 | 106 | 117 | 109 | 97 | 62 | 38 | 9 | 0 | 0 | 0 |
| Fukuoka | Sum | 6 | 3 | 9 | 12 | 47 | 60 | 71 | 70 | 100 | 126 | 93 | 93 | 89 | 93 | 44 | 19 | 3 | 2 | 2 | 0 | 0 |
| | Summer season | 78 | 97 | 128 | 133 | 124 | 107 | 81 | 66 | 27 | 15 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 84 | 100 | 137 | 145 | 171 | 167 | 152 | 136 | 127 | 141 | 95 | 94 | 89 | 93 | 44 | 19 | 3 | 2 | 2 | 0 | 0 |
| | Sum | 0 | 0 | 11 | 14 | 23 | 36 | 61 | 95 | 91 | 114 | 96 | 92 | 107 | 88 | 76 | 33 | 9 | 0 | 0 | 0 | 0 |
| Hiroshima | Summer season | 75 | 93 | 128 | 144 | 93 | 89 | 61 | 56 | 46 | 41 | 23 | 7 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 75 | 93 | 139 | 158 | 116 | 125 | 122 | 151 | 137 | 155 | 119 | 99 | 110 | 91 | 76 | 33 | 9 | 0 | 0 | 0 | 0 |
| | Sum | 15 | 14 | 12 | 47 | 47 | 61 | 92 | 87 | 112 | 152 | 98 | 77 | 60 | 41 | 21 | 4 | 2 | 0 | 0 | 0 | 0 |
| | Summer season | 107 | 106 | 71 | 74 | 72 | 58 | 52 | 42 | 16 | 17 | 6 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Takamatsu | Other seasons | 122 | 120 | 83 | 121 | 119 | 119 | 144 | 129 | 128 | 169 | 104 | 80 | 65 | 41 | 21 | 4 | 2 | 0 | 0 | 0 | 0 |
| | Sum | 18 | 26 | 47 | 57 | 71 | 57 | 69 | 70 | 87 | 87 | 71 | 59 | 69 | 69 | 56 | 43 | 28 | 9 | 7 | 1 | 2 |
| | Summer season | 75 | 65 | 85 | 90 | 91 | 75 | 69 | 46 | 52 | 34 | 13 | 9 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 93 | 91 | 132 | 147 | 162 | 132 | 138 | 116 | 139 | 121 | 84 | 68 | 76 | 59 | 43 | 28 | 9 | 7 | 1 | 2 | 0 |
| Toyama | Sum | 52 | 77 | 83 | 104 | 105 | 71 | 68 | 52 | 51 | 34 | 29 | 15 | 10 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Summer season | 17 | 20 | 17 | 19 | 21 | 15 | 9 | 15 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 69 | 97 | 100 | 123 | 126 | 86 | 77 | 67 | 56 | 34 | 29 | 15 | 10 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum | 3 | 3 | 10 | 11 | 21 | 30 | 40 | 53 | 71 | 91 | 116 | 117 | 135 | 126 | 63 | 29 | 19 | 5 | 0 | 0 | 0 |
| Maebashi | Summer season | 69 | 87 | 131 | 147 | 184 | 167 | 131 | 108 | 65 | 44 | 15 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 72 | 90 | 141 | 158 | 205 | 197 | 171 | 161 | 136 | 135 | 131 | 121 | 135 | 126 | 63 | 29 | 19 | 5 | 0 | 0 | 0 |
| | Sum | | | | | | | | | | | | | | | | | | | | | |
| | Summer season | | | | | | | | | | | | | | | | | | | | | |
| Sapporo | Other seasons | | | | | | | | | | | | | | | | | | | | | |
| | Sum | | | | | | | | | | | | | | | | | | | | | |
| | Summer season | | | | | | | | | | | | | | | | | | | | | |
| | Other seasons | | | | | | | | | | | | | | | | | | | | | |
| Kagoshima | Sum | | | | | | | | | | | | | | | | | | | | | |
| | Summer season | | | | | | | | | | | | | | | | | | | | | |
| | Other seasons | | | | | | | | | | | | | | | | | | | | | |
| | Sum | | | | | | | | | | | | | | | | | | | | | |

Table A.16 Heating season and occurrence time period for each district with regard to independent stores

(Unit: outdoor air temperature: °C, occurrence time period: h)

| District | Heating season | During heating season | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|-------------------------|---|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|----|----|----|----|
| | | Time period during which the temperature of 14 °C or lower occurs [classified into winter season (December 1 to March 31) and other seasons according to gas charge system] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature division | Outdoor air temperature | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| Tokyo | November 21 to April 11 | -16 | -15 | -14 | -13 | -12 | -11 | -10 | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Osaka | November 11 to April 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nagoya | November 10 to April 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sendai | October 25 to April 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fukuoka | November 12 to April 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hiroshima | November 11 to April 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Takamatsu | November 14 to April 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toyama | October 22 to April 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maebashi | October 17 to April 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sapporo | Not covered | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Other seasons | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kagoshima | November 20 to March 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum | Sum | 1500 | 209 | 1709 | 1485 | 218 | 1703 | 1512 | 287 | 1799 | 1569 | 592 | 2161 | 1466 | 168 | 1634 | 1546 | 309 | 1855 | 1519 | 250 | 1769 | 1559 | 652 | 2211 | 1554 | 503 | 2057 | | | | |

Table A.17 Heating season and occurrence time period for each district with regard to tenant stores

(Unit: outdoor air temperature: °C, occurrence time period: h)

| District | Heating season | During heating season | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|----------------|--|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--|
| | | Time period during which the temperature of 12°C or lower occurs [classified into winter season (December 1 to March 31) and other seasons according to gas charge system] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature division | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | |
| Outdoor air temperature | -16 | -15 | -14 | -13 | -12 | -11 | -10 | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | |
| Tokyo | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 16 | 35 | 52 | 98 | 91 | 150 | 195 | 191 | 154 | 146 | 142 | 96 | 0 | 0 | 1375 | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 8 | 17 | 11 | 0 | 0 | 45 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 16 | 35 | 52 | 98 | 92 | 151 | 197 | 193 | 157 | 154 | 159 | 107 | 0 | 0 | 1420 | |
| Osaka | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 16 | 38 | 49 | 63 | 83 | 121 | 127 | 147 | 187 | 146 | 161 | 122 | 82 | 0 | 0 | 1347 | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 6 | 4 | 8 | 14 | 0 | 0 | 39 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 16 | 38 | 49 | 63 | 84 | 121 | 127 | 150 | 190 | 152 | 165 | 130 | 96 | 0 | 0 | 1386 | |
| Nagoya | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 7 | 18 | 49 | 46 | 82 | 101 | 113 | 133 | 150 | 134 | 171 | 123 | 111 | 87 | 83 | 0 | 0 | 1414 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 6 | 4 | 11 | 22 | 29 | 27 | 25 | 0 | 0 | 132 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 7 | 18 | 49 | 46 | 83 | 102 | 115 | 137 | 156 | 138 | 182 | 145 | 140 | 114 | 108 | 0 | 0 | 1546 | | |
| Sendai | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 9 | 16 | 31 | 91 | 113 | 165 | 146 | 148 | 162 | 126 | 136 | 103 | 97 | 75 | 52 | 27 | 32 | 0 | 0 | 1534 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 5 | 19 | 18 | 32 | 39 | 52 | 44 | 42 | 44 | 47 | 35 | 0 | 0 | 381 | | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 9 | 16 | 31 | 92 | 114 | 167 | 151 | 167 | 180 | 158 | 175 | 155 | 141 | 117 | 96 | 74 | 67 | 0 | 0 | 1915 | | |
| Fukuoka | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 30 | 32 | 47 | 84 | 97 | 136 | 152 | 153 | 154 | 143 | 144 | 112 | 0 | 0 | 1295 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 5 | 7 | 9 | 8 | 18 | 0 | 0 | 51 | | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 30 | 32 | 47 | 85 | 98 | 138 | 152 | 158 | 161 | 152 | 152 | 130 | 0 | 0 | 1346 | | |
| Hiroshima | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 12 | 17 | 35 | 51 | 65 | 80 | 110 | 102 | 150 | 166 | 176 | 180 | 145 | 115 | 68 | 0 | 0 | 1475 | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 6 | 11 | 5 | 17 | 23 | 38 | 32 | 0 | 0 | 159 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 12 | 17 | 35 | 51 | 66 | 82 | 111 | 108 | 161 | 171 | 193 | 203 | 168 | 153 | 100 | 0 | 0 | 1634 | |
| Takamatsu | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 18 | 40 | 65 | 93 | 110 | 142 | 163 | 154 | 156 | 135 | 138 | 115 | 104 | 0 | 0 | 1437 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 7 | 17 | 25 | 18 | 26 | 34 | 0 | 0 | 131 | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 18 | 40 | 65 | 93 | 110 | 143 | 166 | 161 | 173 | 160 | 156 | 141 | 138 | 0 | 0 | 1568 | | |
| Toyama | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 19 | 67 | 82 | 129 | 154 | 110 | 101 | 121 | 133 | 131 | 112 | 122 | 97 | 59 | 54 | 38 | 0 | 0 | 1531 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 7 | 12 | 27 | 38 | 60 | 48 | 76 | 68 | 0 | 0 | 343 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 19 | 67 | 82 | 129 | 154 | 110 | 102 | 127 | 140 | 143 | 139 | 160 | 157 | 107 | 130 | 106 | 0 | 0 | 1874 | | |
| Maebashi | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 11 | 29 | 57 | 75 | 105 | 125 | 147 | 161 | 156 | 141 | 116 | 91 | 71 | 48 | 0 | 0 | 1501 | | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 9 | 12 | 21 | 47 | 35 | 36 | 56 | 48 | 0 | 0 | 267 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 11 | 29 | 57 | 75 | 105 | 126 | 149 | 170 | 173 | 177 | 188 | 151 | 127 | 127 | 96 | 0 | 0 | 1768 | | |
| Sapporo | Winter season | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Other seasons | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Sum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kagoshima | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 12 | 18 | 27 | 49 | 63 | 69 | 84 | 133 | 119 | 99 | 121 | 108 | 106 | 0 | 0 | 1013 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 2 | 5 | 3 | 5 | 4 | 9 | 3 | 0 | 0 | 35 | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 12 | 18 | 28 | 49 | 64 | 71 | 86 | 138 | 122 | 104 | 125 | 117 | 109 | 0 | 0 | 1048 | |

Table A.18 Heating season and occurrence time period for each district with regard to offices

(Unit: outdoor air temperature: °C, occurrence time period: h)

| District | Heating season | During heating season Time period during which the temperature of 10°C or lower occurs [classified into winter season (December 1 to March 31) and other seasons according to gas charge system] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|-------------------------|--|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|------|------|------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | |
| Tokyo | Temperature division | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | |
| | Outdoor air temperature | -16 | -15 | -14 | -13 | -12 | -11 | -10 | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 14 | 27 | 42 | 73 | 67 | 108 | 141 | 138 | 101 | 92 | 0 | 0 | 0 | 0 | 811 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Osaka | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 12 | 31 | 37 | 51 | 60 | 89 | 93 | 110 | 141 | 106 | 123 | 0 | 0 | 0 | 0 | 811 | | |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 12 | 31 | 37 | 51 | 60 | 89 | 93 | 110 | 141 | 106 | 123 | 0 | 0 | 0 | 0 | 857 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 12 | 31 | 37 | 51 | 60 | 89 | 93 | 110 | 141 | 106 | 123 | 0 | 0 | 0 | 0 | 857 | | |
| Nagoya | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 5 | 13 | 35 | 33 | 62 | 73 | 85 | 103 | 120 | 103 | 136 | 93 | 81 | 0 | 0 | 0 | 0 | 947 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 3 | 1 | 3 | 6 | 0 | 0 | 0 | 0 | 20 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 5 | 13 | 35 | 33 | 62 | 73 | 85 | 103 | 120 | 103 | 136 | 93 | 81 | 0 | 0 | 0 | 0 | 968 | | |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 8 | 11 | 23 | 61 | 87 | 129 | 115 | 114 | 128 | 101 | 113 | 82 | 81 | 63 | 44 | 0 | 0 | 0 | 0 | 1164 | | |
| Sendai | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 10 | 14 | 25 | 27 | 33 | 21 | 19 | 12 | 0 | 0 | 0 | 0 | 167 | | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 8 | 11 | 23 | 61 | 87 | 129 | 115 | 114 | 128 | 101 | 113 | 82 | 81 | 63 | 44 | 0 | 0 | 0 | 0 | 1328 | | |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 8 | 11 | 23 | 62 | 87 | 129 | 118 | 124 | 141 | 126 | 140 | 115 | 102 | 82 | 56 | 0 | 0 | 0 | 0 | 716 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 21 | 26 | 34 | 59 | 73 | 95 | 106 | 100 | 98 | 95 | 0 | 0 | 0 | 0 | 0 | |
| Fukuoka | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Hiroshima | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 21 | 26 | 34 | 59 | 73 | 95 | 106 | 100 | 98 | 95 | 0 | 0 | 0 | 0 | 716 | | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 21 | 26 | 34 | 59 | 73 | 95 | 106 | 100 | 98 | 95 | 0 | 0 | 0 | 0 | 716 | | |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 14 | 27 | 39 | 52 | 62 | 87 | 79 | 110 | 123 | 138 | 145 | 113 | 0 | 0 | 0 | 1001 | |
| Takamatsu | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 13 | 26 | 51 | 69 | 87 | 111 | 126 | 129 | 123 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 985 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toyama | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1132 |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 | 53 | 63 | 97 | 123 | 82 | 78 | 95 | 107 | 102 | 92 | 97 | 80 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 9 | 14 | 11 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 | 53 | 63 | 97 | 123 | 82 | 78 | 95 | 107 | 102 | 92 | 97 | 80 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1179 |
| Maebashi | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 13 | 26 | 51 | 69 | 87 | 111 | 126 | 129 | 123 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 1083 | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 |
| | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1149 |
| | Winter season | 1 | 1 | 2 | 3 | 3 | 5 | 14 | 13 | 38 | 42 | 67 | 84 | 99 | 123 | 87 | 104 | 112 | 126 | 112 | 64 | 61 | 27 | 16 | 10 | 13 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 1240 | |
| Sapporo | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 21 | 27 | 38 | 38 | 38 | 59 | 55 | 49 | 58 | 61 | 45 | 0 | 0 | 0 | 0 | 0 | 497 | |
| | Sum | 1 | 1 | 2 | 3 | 3 | 5 | 14 | 13 | 38 | 42 | 67 | 84 | 99 | 123 | 87 | 110 | 134 | 153 | 150 | 102 | 99 | 87 | 71 | 59 | 71 | 71 | 47 | 0 | 0 | 0 | 0 | 0 | 1736 | |
| | Winter season | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 9 | 14 | 20 | 38 | 43 | 51 | 61 | 93 | 89 | 73 | 90 | 0 | 0 | 0 | 0 | 0 | 586 | |
| | Other seasons | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Kagoshima | Sum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 9 | 14 | 21 | 38 | 43 | 51 | 61 | 94 | 90 | 75 | 92 | 0 | 0 | 0 | 0 | 593 | | |

Annex B (normative)

Material, structure and performance concerning electric safety

B.1 Scope This Annex specifies the material, structure and performance concerning electric safety of those which are not covered by **JIS C 9335-2-40** among the gas heat pumps specified in the text.

B.2 Material

a) **Material in general** The material used for a gas heat pump shall conform to each term of the following.

- 1) The main parts shall be made of metal and other suitable materials, and shall be highly durable.
- 2) The material of each part shall endure the temperature in normal use.
- 3) The electrical insulator and thermal insulator shall sufficiently endure the temperature of the part which contacts or is close to this, and shall be little hygroscopic, except the hygroscopic thermal insulator in which there is no possibility that danger arises in normal use.
- 4) The electrical insulator used for the part which arc may reach shall not generate deterioration such as detrimental deformation, detrimental insulation degradation by arc.
- 5) Iron and steel (except stainless steel) shall be made to be appropriately protected from rust by the application of plating, coating, oil baking and others, except the part to be used in which there is no possibility that danger arises.
- 6) For the material of enclosures used outdoors (including outside of wall), metal which does not easily rust, metal which is protected from rust, synthetic rubber, ceramics, etc. or synthetic resin in which abnormalities such as a blister, a crack, a crazing are not generated when it is naturally cooled after being left for 1 h in air at a temperature of $80\text{ °C} \pm 3\text{ °C}$ shall be used, except the material of enclosure in which there is no possibility that it is structurally subjected to direct sunshine exposure and infiltration of rainwater.
- 7) For the material of the terminal screw for power cables, copper, copper alloy, stainless steel or iron or steel (except stainless steel) to which the plating conforming to the following tests is applied shall be used.
 - 7.1) Immerse the test piece into a suitable solvent for 10 min and remove all oils.
 - 7.2) After the procedure of **7.1**), immerse it into the 10 % water solution of ammonium chloride specified in **JIS K 8116** (temperature of $20\text{ °C} \pm 5\text{ °C}$) for 10 min and then take out, shake off drops of water without drying, and then put it into a container containing saturated steam of a temperature of $20\text{ °C} \pm 5\text{ °C}$ for 10 min.

- 7.3) After the procedure of **7.2)**, make it dry for 10 min in air at a temperature of $100\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$, and at this time there shall be no indication of corrosion on its surface.
 - 8) For the material of the terminal for grounding, copper or copper alloy, stainless steel or the substance which is equivalent to or superior to these in mechanical strength and does not easily rust shall be used.
 - 9) The material of the body and its part shall not be harmful to a human body.
 - 10) The thermal insulation material or sound absorbing material used for the periphery of an electric heating device shall be fire-resistant.
- b) **Conductive material** The conductive material shall conform to the following.
- 1) For the knife-edge and tooth rest of a connector and a circuit breaker, copper or copper alloy shall be used.
 - 2) For the part except **1)**, copper, copper alloy, stainless steel, or iron or steel (except stainless steel) to which the plating conforming to the test specified in **B.2 a) 7)** is applied, or those at least equivalent thereto in electric, thermal and mechanical stability shall be used, except the part which requires iron or steel to which the plating is not applied or elasticity and the other parts which are unavoidably used structurally and in which there is no possibility that danger arises.
- c) **Fuse and fuse-attaching part** The fuse and the fuse-attaching part shall conform to the following.
- 1) The material of a fuse element shall not deteriorate easily.
 - 2) The material of a fuse-attaching terminal shall have hardness which gives no trouble of attachment.

B.3 Structure

- a) **General** The structure of a gas heat pump shall conform to each item of the following.
- 1) There shall be no possibility that danger arises in normal use, and a shape shall be correct, assembly shall be good and actuation shall be smooth.
 - 2) For those with a remote-operation mechanism, the power circuit shall not be able to be closed by the operation other than that using a body switch, a controller, etc. except those in which there is no possibility that danger arises.
 - 3) For those which are used by putting on a floor without installation works or piping works and of which the mass of the body is 40 kg or less, overturning shall not occur at an angle of inclination of 10° (15° for those equipped with an electric heat device) in normal use, except those of which the mass of the body exceeds 40 kg and which do not overturn when a force of 100 N is added from every location of the body (except a bottom face).
 - 4) For those which are used by mounting on the building material, mounting shall be able to be performed easily and strongly.

- 5) For the part among metal covers or boxes which arc may reach when a switch opens or closes, the electric insulation of arc resistance shall be applied.
- 6) For the part which may cause danger such as burning of components, exposure of live parts due to moisture absorption, the moisture-resistant treatment shall be performed.
- 7) For the movable part which people may touch in normal use, the appropriate protective frame or protective net shall be attached so that there is no possibility of easily touching, except the movable part of a gas heat pump which is unavoidably used functionally with the movable part exposed, or the movable part in which there is no possibility that danger such as electric shock, injury arises when the movable part is touched.
- 8) For the body of which the part is attached or detached, the work shall be able to be performed certainly and safely.
- 9) For the switch which the user operates, the opening and closing operation of the switch shall be marked on the conspicuous place according to characters, symbols or colour, except the switch on which the marking is difficult to perform.
- 10) For the enclosure, the crazing, crack and other abnormalities which may cause danger such as electric shock, fire shall not be generated when the weight of 0.25 kg in mass with the sphere of a radius of 10 mm of which the surface where polyamide processing is performed with a hardness of Rockwell hardness R100 is made to vertically fall once from a height of 20 cm, or when the impulsive force of $0.5 \text{ Nm} \pm 0.05 \text{ Nm}$ is applied once by the shock testing machine shown in figure B.1, except the indicating lamp, fuse holder and others similar to these which are exposed to the external surface of the body and those protective covers of which the surface area is 4 cm^2 or less and do not protrude by a length of 10 mm or more from the surface of the enclosure of the body.
- 11) For the controller separated from the body (except that fixed to a wall, a pole, etc. in normal use), there shall be no possibility that danger such as electric shock, fire arises when the controller is made to fall on the central part of the 30-mm-thick lauan board with a flat surface placed on the concrete floor three times from a height of 70 cm.
- 12) When the peak voltage between live parts which differ in polarity or between the live part and the non-live metal part which people may touch exceeds 600 V, the mark such as "CAUTION HIGH VOLTAGE" shall be indelibly marked on the neighboring place or on the conspicuous place of the enclosure.
- 13) For the gas heat pump with the enclosure made of a synthetic resin (except that which needs translucency or transparency and that which functionally needs flexibility, mechanical strength, etc.), with the square flat part with 9 cm^2 or more of the external surface of the enclosure (for that without the square flat part with 9 cm^2 or more in the enclosure, the test piece obtained by cutting off the square of 3 cm in one side length with an