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# APPARENT TEMPERATURE HEAT INDEX AND THE EFFECTS OF HEAT

*Source: Ergodyne 2013 catalogue (http://www.ergodyne.com)*

| | Air temperature (forecasted daily high) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| °C | 21 | | 24 | | 26 | | 29 | | 32 | | 35 | | 38 | | 41 | | 43 | |
| °F | 70 | | 75 | | 80 | | 85 | | 90 | | 95 | | 100 | | 105 | | 110 | |
| **Relative humidity** | °C | °F | °C | °F | °C | °F | °C | °F | °C | °F | °C | °F | °C | °F | °C | °F | °C | °F |
| **0%** | 18 | 64 | 21 | 69 | 23 | 73 | 25 | 78 | 28 | 83 | 30 | 87 | 33 | 91 | 35 | 95 | 37 | 99 |
| **10%** | 18 | 65 | 21 | 70 | 24 | 75 | 26 | 80 | 29 | 85 | 32 | 90 | 35 | 95 | 38 | 100 | 41 | 105 |
| **20%** | 18 | 66 | 22 | 72 | 25 | 77 | 27 | 82 | 30 | 87 | 34 | 93 | 37 | 99 | 41 | 105 | 44 | 112 |
| **30%** | 19 | 67 | 23 | 73 | 25 | 78 | 28 | 84 | 32 | 90 | 35 | 96 | 40 | 104 | 45 | 113 | 51 | 123 |
| **40%** | 20 | 68 | 23 | 74 | 26 | 79 | 29 | 86 | 34 | 93 | 38 | 101 | 43 | 110 | 50 | 122 | 58 | 137 |
| **50%** | 21 | 69 | 24 | 75 | 27 | 81 | 31 | 88 | 35 | 96 | 42 | 107 | 49 | 120 | 57 | 135 | 66 | 150 |
| **60%** | 21 | 70 | 24 | 76 | 27 | 82 | 32 | 90 | 38 | 100 | 45 | 114 | 56 | 132 | 65 | 149 | | |
| **70%** | 21 | 70 | 25 | 77 | 29 | 85 | 34 | 93 | 41 | 106 | 51 | 124 | 62 | 144 | | | | |
| **80%** | 22 | 71 | 25 | 78 | 29 | 86 | 36 | 97 | 45 | 113 | 58 | 136 | 69 | 157 | | | | |
| **90%** | 22 | 71 | 26 | 79 | 31 | 88 | 39 | 102 | 50 | 122 | 66 | 150 | 77 | 170 | | | | |
| **100%** | 22 | 72 | 26 | 80 | 33 | 91 | 42 | 108 | 56 | 133 | 74 | 166 | | | | | | |

| Index | Warning | Risks | Advice |
|---|---|---|---|
| **Under 27** | None | | |
| **27-32** | Caution | Fatigue. Working without adequate break times may lead to heat cramps. | Take basic preventive measures to protect workers from the effects of heat and of dehydration. |
| **32-40** | Extreme caution | Heat cramps and exhaustion. Working without adequate break times may lead to heat stroke. | Ensure that workers take adequate protective measures. Increase awareness of the dangers of heat. |
| **41-54** | Danger | Heat stroke and exhaustion are highly likely. Working without adequate break times may lead to heat stroke. | Take strong protective measures to protect workers from the effects of heat. |
| **54 and higher** | Extreme danger | Rapid onset of heat stroke. | Avoid working outdoors. Take aggressive protective measures against the effects of heat. |

The temperature perceived by an individual depends on the ambient air temperature as well as the relative humidity. In the United States, these two factors are used to calculate the **Heat Index**. In Québec, the CSST uses a similar calculation when determining **heat stress limits.**

**WARNING:** These values are calculated using the ambient air temperature in the shade, so the listed values are **valid only in the shade**. The heat index for exposure to sunlight **is always higher** than the listed values, and it may be as much as **8°C (15°F) higher.**

Environment Canada and Canada's National Centre for Occupational Health and Safety remind the public that meteorological forecasts do not always reflect the meteorological conditions of a particular work site (construction site, dark roof, etc). With this table, it is possible to estimate the local Heat Index with a shaded **thermometer** and a **hygrometer.**

It is vital to keep properly hydrated. The CSST recommends to **not drink more than 1.5 liters of water** per hour.