HEAT EXTREME_OUTDOOR – INDOOR
Heat Exhaustion, Prevention

The Occupational Health and Safety Act does not define maximum temperatures for any workplace. Under the General Duty Clause of the Occupational Health and Safety Act, the Ministry of Labour has developed guidelines to deal with heat stress and assist employers in meeting their obligations. MOL guidelines are intended for use in workplaces where heat stress can be brought on where high heat is generated through a process or where work is physically demanding. Heat stress can also be brought on by a combination of higher humidity and ambient temperatures.

Some individuals are more susceptible to heat stress including seniors and children less than 15 years of age. Heat stress can also be brought on from children wearing excessive heavy clothing and from playing sports or from prolonged physical exertion.

DEFINITIONS

Heat Stress: Refers to an increase in the body's core temperature. This could be due to a number of variables, including; air temperature, humidity, radiant heat and the humidex. If a person is experiencing heat stress a series of health complications can develop, including; heat rash, heat cramps, heat exhaustion, or heat stroke.

Heat stress can happen when hot, humid conditions and physical activity overcomes your body's natural cooling system. You might suffer cramps and fainting, or even serious heat exhaustion and heat stroke.

Heat stress is primarily affected by 4-primary environmental factors including:

1. Humidity
2. Radiant heat,
3. Air temperature, and
4. Air movement

Humidex: Refers to the perceived temperature base on a combined measurement of air temperature and humidity.

INDICATORS OF HEAT STRESS

Heat rash:
A heat-induced condition characterized by a red, bumpy rash with severe itching

Heat cramps:
A heat-induced condition characterized by painful cramps in the arms, legs or stomach which can occur at work or later at home. This condition can be a warning of other more serious heat-induced illnesses

Heat exhaustion:
A heat-induced condition characterized by sweating, cool moist skin, body temperature over 38C, weak pulse, and normal or low blood pressure

Heat stroke:
A heat-induced condition characterized by high body temperature (41C) and any one of the following:

- weakness, confusion, emotional upset and strange behaviour
- hot, dry, red skin

- fast pulse
- headaches and dizziness

In the later stages, a person may pass out and have convulsions. If not recognized and addressed, this condition can result in death.

In response to the continued hot weather inside and outside of schools, a Hot Weather Action Plan (HWAP) is required to be proactive for heat stress prevention.

You should activate your HWAP when the following conditions occur:

1. When heat waves occur – during 3 consecutive days of temperatures of 32 degrees or higher;
2. When the humidex reaches or exceeds 35 degrees;
3. When there is a smog alert combined with higher temperatures; and
4. When there is an Environment Canada Humidex advisory – ambient air temperatures exceeding 30 degrees and humidex exceeds 40 degrees

INDOOR / OUTDOOR CONDITIONS

Heat stress plans to deal with hot humid weather should be in place from May 1 to September 30 of each year per the Ontario Ministry of Labour Heat Stress Guidelines.

Principals/Supervisors should have the temperature and humidity of the actual workplace measure whenever hot and humid weather is a concern in order to obtain the relative humidity of the workplace. Thermal hygrometers for measuring temperature and humidity can be purchased at most hardware stores.

During hot/humid days, it is recommended to consume a minimum of 1-cup of water for every 20 to 30 minutes of physical activity. Principals/Supervisors are responsible to ensure that water is available for staff and students.

Each May, Principals/Supervisors should review with staff the Heat Stress Hazards from the Ontario Ministry of Labour's Guideline for Heat Stress. A copy of the chart should be placed on the H&S bulletin board at each workplace.

Fans provide air movement which can increase the rate at which sweat evaporates, thus cooling the body. However, when relative humidity is above 70%, very little evaporation occurs.

To keep classrooms and schools cool, the Principal and teachers are encouraged to keep lights and computers turned off (when possible), use fans in classrooms (where available), keep open doors and windows, if there are air conditioned areas in the school, such as the library and if possible, rotate groups of students into those rooms throughout the day.

CONTROLS:

When there is a potential for exposure to heat stress, control measures must be taken to prevent heat exposure in the workplace. These include engineering controls, administrative controls and protective clothing. Selection of appropriate workplace controls will vary, depending on the type of workplace and other factors.

Some measures may include:

Engineering controls

- Reduce physical demands of work task through mechanical assistance (hoists, lift–tables, etc.)
- Control the heat at its source through the use of insulating and reflective barriers (e.g. insulate furnace walls)
- Exhaust hot air and steam produced by operations
- Reduce the temperature and humidity through air cooling
- Provide cool, shaded work areas
- Provide air–conditioned rest areas
- Increase air movement if temperature is below 35°C (e.g. use fans)
- Utilize building automation systems (BAS) regulate indoor air temperatures

Administrative and work practice controls

The employer should:

- Assess the demands of all jobs and have monitoring and control strategies in place for hot days and hot workplaces
- Increase the frequency and length of rest breaks
- Schedule strenuous jobs to cooler times of the day
- Provide cool drinking water near workers and remind them to drink a cup about every 20 minutes, or more frequently, to stay hydrated
- Caution workers to avoid direct sunlight
- Assign additional workers or slow down the pace of work
- Make sure everyone is properly acclimatized
- Train workers to recognize factors which may increase the risk of developing a heat related illness and the signs and symptoms of heat stress and start a “buddy system” since people are not likely to notice their own symptoms
- Investigate any heat–related incidents
- Trained First Aid providers should be available and an emergency response plan should be in place in the event of a heat related illness.
- Pregnant workers and workers with a medical condition – or those taking certain medications – should discuss with their physicians about working in the heat

Protective clothing

- Light summer clothing should be worn to allow free air movement and sweat evaporation
- If working outdoors, wear light-coloured clothing, preferably long-sleeve shirt and pants, and cover the head to prevent exposure to direct sunlight
- In a high radiant heat situation, wearing reflective clothing to shield radiant heat may help
- For very hot environments, consider air, water or ice–cooled insulated clothing
- Vapour-barrier clothing, such as chemical protective clothing, greatly increases the amount of heat stress on the body. Extra caution such as heat strain (physiological) monitoring is necessary, if vapour-barrier clothing is worn

Protective Measures for Students

- Indoor or outdoor modified recesses and lunch hours
- Consider use of shady areas in the schoolyard
- Consider use of fans in portables and classrooms or relocate to cooler areas of the school such as library or gymnasiums
- Habitual drinking of water to both hydrate and re-hydrate and avoid carbonated drinks with sugars and caffeine that will encourage dehydration
- Encourage light summer clothing and avoid wearing synthetic fabrics

RESOURCES:

The following resources provide information and resources that can be used for all school staff, including: heat stress guide, heat stress tool, teaching & learning ideas for hot days, information about how to best use building and school grounds, etc.

1. Environment Canada developed the UV Index (website) to inform employees about the strength of the sun's UV (ultraviolet) rays. UV rays can cause sunburns, eye cataracts, skin aging and skin cancer: http://www.ec.gc.ca/uv/default.asp?lang=En&xml=DCF1C20A-B3E1-4751-8B8F- EB670888D0AE

2. Environment Canada UV Index: Poster Attachment (A)

3. Extreme Temperature: Poster Attachment (B)

4. Sun Exposure: Fact Sheet Attachment (C)

5. Heat Stress Awareness: Guide Attachment (D)

6. Heat Stress Awareness: Tool Attachment (E)

7. City of Toronto: Hot Weather Response Plan Attachment (F)

8. Individual School Board Policy: Heat Stress

ADDITIONAL INFORMATION:

Here are some communication ideas to become proactive and mitigate the potential for heat stress in the workplace by using various communication tools such as:

1. Collaborate with Local Public Health
2. Send Email to School Staff at beginning of the year to raise awareness
3. Publish in monthly Health and Safety Newsletter
4. Provide Heat Stress Fact Sheet
5. Publish on School Board Social Media
6. Develop Heat Stress H&S Video
7. Announce and Post the Daily UV Index: www.weatheroffice.gc.ca