DRYDEN

POLICY & PROCEDURE

SECTION: HUMAN RESOURCES **NO: HR-HS-22**

Date:

REFERENCE: Health and Safety **November 24, 2020**

Next Review Date:

November 2022

TITLE: HEAT RELATED ILLNESS

1.0 POLICY

1.1 The City of Dryden is committed to providing a healthy and safe work environment for all employees. As part of the Health & Safety Program this policy and procedure will:

(a) Protect all employees and contractors from overexposure to heat while working in hot environments at a City of Dryden workplace;

(b) Promote awareness of heat related illness and educate on the early warning signs and subsequent treatment; and,

(c) Reduce the risk of illness, injury, or fatality from heat related disorders and illness (hyperthermia) at City of Dryden workplaces.

2.0 DEFINITIONS

2.1 As used in this policy, the following terms shall have the meaning as indicated:

Heat Cramps – a heat-induced condition that causes heavy sweating that drains a person's body of fluids and salt. This results in painful cramps in the arms, legs and/or stomach which occur suddenly at work or later at home. Heat cramps are the early symptoms of more serious heat related illnesses.

Heat Exhaustion – a heat-induced condition that results in a body temperature over 38°C and may cause any of the following:

(a) Heavy sweating

(b) Cold, pale, and clammy skin

(c) Fast, weak pulse

(d) Nausea or vomiting

(e) Muscle cramps

(f) Tiredness or weakness

(g) Dizziness

(h) Headache

(i) Fainting (passing out)

Heat Rash – a heat-induced condition when the skin's sweat glands are blocked, and the sweat produced cannot get to the surface of the skin to evaporate. This looks most often like red clusters of small blisters that look like pimples on the skin (usually on the neck, chest, groin, or in elbow creases). Medical treatment may be required if the area becomes infected.

Heat Related Illness/Stress – a heat-induced condition when the body is unable to cool itself by sweating. Several heat-induced illnesses such as heat exhaustion or heat stroke can occur and can result in death. Heat**-**related illness is the result of your body gaining heat faster than it can cool itself down.

Heat Stroke – the most severe, is a heat-induced condition that results in a high body temperature and causes any one of the following:

(a) High body temperature

(b) Hot, red, dry, or damp skin

(c) Fast, strong pulse

(d) Headache

(e) Dizziness

(f) Nausea

(g) Confusion

(h) Losing consciousness (passing out)

(i) **This condition is life threatening. Seek immediate medical attention.**

Hyperthermia - occurs when the body's heat-regulation system becomes overwhelmed by outside factors, causing a person's internal temperature to rise. This is the term used to refer to heat related conditions that result in an abnormally high internal temperature.

Sunburn – overexposure to the sun that results in red, painful, or blistering and peeling skin.

3.0 PROCEDURE

3.1 To reduce heat exposure Management will:

(a) Identify and assess the demands of all jobs for hot work environment and heat stress;

(b) Control heat at its source through the use of insulating and reflective barriers;

(c) Reduce hot temperature and humidity in enclosed buildings through air cooling systems;

(d) Provide air-conditioned rest areas in enclosed City facilities;

(e) Provide cool work areas, where possible;

(f) Reduce the physical demands of work through mechanical assistance (e.g. hoists, lift-tables);

(g) Schedule strenuous work to cooler times of day;

(h) Increase the number of rest breaks for workers that may be needed due to heat conditions;

(i) Ensure workers have easy access to a cool drinking water source and remind workers to drink one cup of water every 15-20 minutes on hot days;

(j) Provide canopies or cabs on vehicles and heavy equipment; Provide all outside workers with sunscreen, sun safety glasses, and either hard hats or wide brim hard hats;

(k) Train workers to recognize the signs and symptoms of heat related illnesses; and

(l) Follow the Humidex Based Heat Response Plan (Occupational Health Clinics for Ontario Workers) which is included with this policy.

3.2 To reduce heat exposure Workers should:

(a) Rest regularly, use shaded areas for breaks whenever possible;

(b) If working outside, wear light, loose clothing that allows for free air movement and sweat evaporation; and wear lighter colours that reflect heat vs. absorbing it. Block sun if possible;

(c) Drink enough water to replace fluids lost through sweating. On hot days, two glasses of water before starting work and one glass every 15-20 minutes while working;

(d) Recognize the signs and symptoms of heat-related conditions and if experiencing any, report them to their supervisor immediately. Monitor yourself and coworkers;

(e) Avoid caffeinated or high sugar drinks or heavy meals;

(f) Be aware that personal protective equipment or clothing can increase the risk of heat stress; and,

(g) Use cooling fans or air conditioners where possible.

3.3 Managers will ensure that the following actions are taken should workers develop any of the following heat-related symptoms or illnesses:

3.3.1 Heat Cramps:

(i) Rest in a cool area;

(ii) Loosen clothing to allow blood flow to affected areas; and

(iii) Drink cool water sprinkled with salt if possible.

3.3.2 Heat Exhaustion and Heat Stroke:

(i) Call 911 and obtain medical attention immediately;

(ii) Move worker to a cool shaded area and if possible, have them lie down;

(iii) Loosen or remove outer or tight clothing;

(iv) Fan and cool worker with cool water via sponges and/or spray; and,

(v) If conscious, give worker cool drinking water, sprinkled with salt if possible.

Any heat-related conditions must be investigated and reported as per City of Dryden Incident Investigation Policy & Procedure HR-HS-08.

History			
Approval Date:	December 19, 2011	**Approved by:**	By-law 3930-2011
Review Date:	August 11, 2014	**Approved by:**	By-law 4225-2014
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Review Date:	November 24, 2020	**Approved by:**	CAO
Review Date:		**Approved by:**	

Heat – Related Illnesses

WHAT TO LOOK FOR	WHAT TO DO
HEAT STROKE	
• High Body Temperature • Hot, red, dry, or damp skin • Fast, strong pulse • Headache • Dizziness • Nausea • Confusion • Losing consciousness (Passing Out)	• Call 911 right away – heat stroke is a medical emergency • Move the person to a cooler place • Help lower the person's temperature with cool cloths or a cool bath • Do not give the person anything to drink
HEAT EXHAUSTION	
• Heavy sweating • Cold, pale, and clammy skin • Fast, weak pulse • Nausea or vomiting • Muscle cramps • Tiredness or weakness • Dizziness • Headache • Fainting (passing Out)	• Move to a cool place • Loosen your clothes • Put cool, wet cloths on your body or take a cool bath • Sip water **Get medical help right away if:** • You are throwing up • Your symptoms get worse • Your symptoms last longer than 1 hour
HEAT CRAMPS	
• Heavy sweating during intense exercise • Muscle pains or spasms	• Stop physical activity and move to a cool place • Drink water or a sports drink • Wait for cramps to go away before you do any more physical activity **Get medical help right away if:** • Cramps last longer than 1 hour • You're on a low-sodium diet • You have heat problems
SUNBURN	
• Painful, red, and warm skin • Blisters on the skin	• Stay out of the sun until your sunburn heals • Put cool cloths on sunburned areas or take a cool bath • Put moisturizing lotion on sunburned areas • Do not break blisters
HEAT RASH	
• Red clusters of small blisters that look like pimples on the skin (usually on the neck, chest, groin, or in elbow creases)	• Stay in a cool, dry place • Keep the rash dry • Use powder (like baby powder) to sooth the rash

Humidex Based Heat Response Plan

What is it?

- The Humidex plan is a simplified way of protecting workers from heat stress which is based on the 2009 ACGIH Heat Stress TLV® (Threshold Limit Value®) which uses wet bulb globe temperatures (WBGT) to estimate heat strain. These WBGT's were translated into Humidex.
- The ACGIH specifies an action limit and a TLV® to prevent workers' body temperature from exceeding 38°C (38.5°C for acclimatized workers). Below the action limit (Humidex 1 for work of moderate physical activity) most workers will not experience heat stress. Most healthy, well-hydrated, acclimatized workers not on medications, will be able to tolerate heat stress up to the TLV® (Humidex 2 for moderate physical activity). Between Humidex 1 and Humidex 2, general heat stress controls are needed and above Humidex 2 job-specific controls are needed.
- **Note:** in the translation process some simplifications and assumptions have been made, therefore, **the plan may not be applicable in all circumstances and/or workplaces** (follow steps #1-5 to ensure the Humidex plan is appropriate for your workplace).

Humidex 1	Response	Humidex 2
25 – 29	supply water to workers on an "as needed" basis	32 – 35
30 – 33	post Heat Stress Alert notice; encourage workers to drink extra water; start recording hourly temperature and relative humidity	36 – 39
34 – 37	post Heat Stress Warning notice; notify workers that they need to drink extra water; ensure workers are trained to recognize symptoms	40 – 42
38 – 39	work with 15 minutes relief per hour can continue; provide adequate cool (10-15°C) water; at least 1 cup (240 mL) of water every 20 minutes worker with symptoms should seek medical attention	43 – 44
40 – 41	work with 30 minutes relief per hour can continue in addition to the provisions listed previously;	45 – 46*
42 – 44	if feasible, work with 45 minutes relief per hour can continue in addition to the provisions listed above.	47 – 49*
45 or over	only medically supervised work can continue	50* or over

Humidex calculator: http://www.ohcow.on.ca/edit/files/general_handouts/heat-stress-calculator.html

***at Humidex exposures above 45, heat stress should be managed as per the ACGIH TLV®**

Humidex 1, General Controls: General controls apply to unacclimatized workers and safety talks, encouraging adequate fluid replacement, permitting self-limitation of exposure, encouraging watching out for symptoms in co-workers, and adjusting expectations for workers coming back to work after an absence. NOTE: clothing and radiant heat must also be taken into account when using this guideline (see steps #1-5).

Humidex 2, Job-Specific Controls: Job-specific controls include engineering controls to reduce physical job demands, shielding of radiant heat, increased air movement, reduction of heat and moisture emissions at the source, adjusting exposure times to allow sufficient recovery, and personal protective equipment that provides for body cooling.

Humidex Based Heat Response Plan

Step #1: Training

- the Humidex plan by itself cannot guarantee that workers will not be affected by heat stress. It is absolutely essential that workers learn to recognize the early signs and symptoms of heat stress and know what to do to prevent them!
- if at all possible, workers need to be able to alter their pace of work, rest breaks, and fluid intake in response to early symptoms (240 mL every 20 minutes).
- the ideal heat stress response plan would let workers regulate their own pace by "listening to their body" without need for measurements.

Step #2: Adjust for Clothing

- evaporating sweat is the primary way the body gets rid of excess heat build-up, therefore, the best clothing is the kind that makes it easiest for sweat to evaporate. The Humidex plan assumes regular summer clothes (light shirt & pants, underwear and socks and shoes).
- for workers who wear cotton overalls on top of summer clothes one should add 5° Humidex (roughly equal to 3°C WBGT) to the workplace Humidex measurement.
- for different clothing configurations, estimate correction factor by comparing them with cotton overalls (e.g. gloves, hard hat, apron, protective sleeves might be equivalent to a little less than half the evaporation resistance as overalls so add 1° or 2° Humidex).
- If clothes do not allow sweat evaporation (encapsulated suits) heat stress should be managed by monitoring vital signs (see ACGIH TLV®)

Step #3: Select a Measurement Location

- split the workplace into heat stress zones and put a thermal hygrometer in each zone.
- identify a representative location within the zone where measurements can be taken (if you want to base your actions on a single reading, select the highest heat stress zone).

Note: the Humidex Heat Stress Response Plan is **based on workplace measurements not weather station or media reports** (temperatures inside buildings **do not** usually correspond with outdoor temperatures)

Step #4: Measure Workplace Humidex

- a thermal hygrometer (usually $10-$50 at hardware or office supply stores) is a simple way to measure the temperature and relative humidity in your workplace
- once you have the temperature and humidity, use the table above to determine the corresponding Humidex value and the appropriate heat stress prevention response (remember to adjust for clothing (step #2) and radiant heat (step #5))
- measurements should be recorded at least hourly if the Humidex is above 30° or temperature above 26°C

NEVER IGNORE ANYONE'S SYMPTOMS NO MATTER WHAT THE HUMIDEX!

Step #5: Adjusting for Radiant Heat

- for outdoor work in direct sunlight between the hours of 10 am and 5 pm, add 2-3º (pro-rate according to percentage cloud cover) to your Humidex measurement
- for indoor radiant heat exposures, use common sense to judge whether the exposure of concern involves more or less radiant heat than direct sunlight and adjust the 2-3º correction factor appropriately

This procedure is subject to any specific provisions of the Municipal Act, or other relevant legislation or Union agreement.