



<b>Title:</b> Occupational Health	<b>Section: 16</b>	<b>Issue Date: February 2022</b>
<b>Approved by:</b> Walter Spivak, President	<b>Signature:</b> 	<b>Revision Date: NA</b>

**16.1 Policy Statement**

CF is committed to providing a safe and healthy workplace for its employees. Identifying and controlling health hazards in the workplace are essential to maintain the health and safety of our employees.

**16.2 Worker Wellness**

CF recognizes the benefits of a healthy workforce and encourages and supports employees in achieving ownership for their physical, mental, and emotional well-being, resulting in improving overall health and wellness. CF will promote and support healthy worker wellness initiatives in, and outside of work activities.

**16.3 Cold Stress- Hypothermia**

Cold stress or hypothermia can affect construction workers who are not protected against cold. The cold may result naturally from weather conditions or be created artificially, as in refrigerated environments.

Cold is a physical hazard in many construction workplaces. When the body is unable to warm itself, serious cold related illnesses and injuries may occur, leading to permanent tissue damage and even death.

The body tries to maintain an internal (core) temperature of approximately 37 0 C (98.6 0 F). This is done by reducing heat loss and increasing heat production. Under cold conditions, blood vessels in skin, arms and legs constrict decreasing blood flow to extremities. This minimizes cooling of the blood and keeps critical internal organs warm. At very low temperatures, however, reducing blood flow to the extremities can result in lower skin temperature and higher risk of frostbite.

**Standard**

All workers working in hot or cold environments must take all reasonable precautions to ensure that they are not being over exposed to cold and or heat. Wearing personal protective clothing, equipment and drinking water and other fluids will prevent such exposures.

**Mild Hypothermia**

Early sign of hypothermia includes:

- Shivering
- Blue lips and fingers
- Poor coordination



## Moderate Hypothermia

This stage includes:

- Mental impairment
- Confusion
- Poor decision making
- Disorientation
- Inability to take precautions from the cold
- Heart slows down
- Slow breathing

In severe cases, hypothermia resembles death. Patients must be treated as though they are alive.

- Unconsciousness
- Heart slows down to the point where pulse is irregular and/or difficult to find
- No shivering
- No detectable breathing

## First Aid

- Stop further cooling of the body and provide heat to begin rewarming.
- Carefully remove worker to shelter. Sudden movement or rough handling can upset Heart - rhythm.
- Keep worker awake
- Remove wet clothing and wrap worker in warm covers
- Rewarm neck, chest, abdomen and groin – but not extremities
- Apply direct body heat or use safe heating devices
- If the worker is conscious, give a warm sweet drink
- Monitor breathing. Administer artificial respiration if necessary
- Call for medical help or transport the worker carefully to nearest medical facility

## **16.4 Frostbite**

### **Signs and Symptoms**

Frostbite is a common injury caused by exposure to severe cold or by contact with extremely cold objects. Frostbite occurs more readily from touching cold metal objects than from exposure to cold air. This is due to the fact that heat is rapidly transferred from skin to metal. The body parts most commonly affected is the face, ears, fingers, and toes. When tissue freezes, blood vessels are damaged. This reduces blood flow and may cause gangrene.



Frostbite symptoms vary, are not always painful, but often includes sharp, prickling sensation. The first indication of frostbite is that the skin looks waxy and feels numb. Once the tissue becomes hard, the case is a severe medical emergency. Severe frostbite can result in blistering that usually takes about ten days to subside. Once damaged, tissue will always be more susceptible to frostbite in the future.

### **First Aid**

Warm frostbitten area gradually with body heat; DO NOT RUB

Don't thaw hands or feet unless medical aid is distant and there is no chance of refreezing. Body parts are better thawed at a hospital

Apply sterile dressing to blisters to prevent breaking Get medical attention

## **16.5 Personal Protective Equipment (PPE)**

### **Clothing**

Clothing should be selected to suit the temperature, weather conditions (e.g. wind speed, rain), the level and duration of activity and job design. These factors are important to consider so that you can regulate the amount of heat and perspiration you generate while working. If the work pace is too fast or if the type and amount of clothing are not properly selected, excessive sweating may occur. The clothing next to your body will become wet and the insulation value of the clothing will decrease dramatically.

Clothing should be worn in multiple layers, which provides better protection than a single thick garment. Having several layers also gives you the option to open or remove a layer before you get too warm and start sweating or to add a layer when you take a break. Successive outer layers should be larger in size than the inner layer otherwise; the outermost layer will compress the inner layers and decrease the insulation properties of the clothing.

The inner layer should provide insulation and be able to "wick" moisture away from the skin to help keep it dry. Thermal underwear made from polyesters or polypropylene is suitable for this purpose.

The additional layers of clothing should provide adequate insulation for the weather conditions under which the work is being done.

For work in wet conditions, the outer layer of clothing should be waterproof. Where the work cannot be shielded from the wind an easily removable windbreak garment should be used.

Clothing should be kept clean so dirt fill air cells in fibers of clothing and destroys its insulating abilities.

Clothing must be kept dry; remove snow from clothing prior to entering heated shelters. If area is warm enough, perspiration should be allowed to escape by opening the neck, waist, sleeves, and ankle fasteners or by removing the outer layer.



### 16.6 Footwear

All footwear must conform to regulatory requirements.

Felt lined, rubber bottomed, leather topped boots with removable felt insoles are best suited for heavy work in the cold season. Leather boots can be waterproofed with some products that do not block the pores in the leather.

You may prefer to wear one pair of thick bulky socks or two pairs – one inner sock of silk, nylon or thin wool and a slightly larger, thick outer sock. Liner socks made from polypropylene will help keep feet dry and warmer by wicking sweat away from the skin. If work condition permit, have extra socks available so you can dry your feet and change socks during the day. Always wear the right thickness of socks for your boots. If they are too thick, the boots will be tight, and the socks will lose much of their insulating properties when they are compressed inside the boot.

### 16.7 Wind Chill

At any temperature, you feel colder as the wind speed increases. The combined effect of cold air and wind speed is expressed as “equivalent chill temperature” or simply “wind chill” temperature in degrees Celsius or Fahrenheit. It is essentially the air temperature that would feel the same on exposed human flesh as the given combination of air temperature and wind speed.

**Actual Air Temperature  $T_{air}$  (°C)**

Wind Speed $V_{10m}$ (km/h)	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
5	4	-2	-7	-13	-19	-24	-30	-36	-41	-47	-53	-58
10	3	-3	-9	-15	-21	-27	-33	-39	-45	-51	-57	-63
15	2	-4	-11	-17	-23	-29	-35	-41	-48	-54	-60	-66
20	1	-5	-12	-18	-24	-30	-37	-43	-49	-56	-62	-68
25	1	-6	-12	-19	-25	-32	-38	-44	-51	-57	-64	-70
30	0	-6	-13	-20	-26	-33	-39	-46	-52	-59	-65	-72
35	0	-7	-14	-20	-27	-33	-40	-47	-53	-60	-66	-73
40	-1	-7	-14	-21	-27	-34	-41	-48	-54	-61	-68	-74
45	-1	-8	-15	-21	-28	-35	-42	-48	-55	-62	-69	-75
50	-1	-8	-15	-22	-29	-35	-42	-49	-56	-63	-69	-76
55	-2	-8	-15	-22	-29	-36	-43	-50	-57	-63	-70	-77
60	-2	-9	-16	-23	-30	-36	-43	-50	-57	-64	-71	-78
65	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79
70	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-80
75	-3	-10	-17	-24	-31	-38	-45	-52	-59	-66	-73	-80
80	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81

**Frostbite Guide**

Low risk of frostbite for most people
Increasing risk of frostbite for most people within 30 minutes of exposure
High risk for most people in 5 to 10 minutes of exposure
High risk for most people in 2 to 5 minutes of exposure
High risk for most people in 2 minutes of exposure or less



### Work / Warm-up Schedule Guideline

**Note:** This schedule is a guideline only. Site specific conditions, work demands and PPE should be considered while determining exposure and break schedules.

Air Temp. Sunny Sky	No noticeable wind		8 km/h Wind		16 km/h wind		24 km/h Wind		32 km/h Wind	
	Max. Work Period	No. of Breaks								
-26 to -28	Normal	1	Normal	1	75 min.	2	55 min.	3	40 min.	4
-29 to -31	Normal	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
-32 to -34	75 min.	2	55 min.	3	40 min.	4	30 min.	5	<b>Non - Emergency work should cease</b>	
-35 to -37	55 min.	3	40 min.	4	30 min.	5	<b>Non - Emergency work should cease</b>			
-38 to -39	40 min.	4	30 min.	5	<b>Non - Emergency work should cease</b>					
-40 to -42	30 min.	5	<b>Non - Emergency work should cease</b>							
-43 & below	<b>Non - Emergency work should cease</b>									

### Work / Warm-up Schedule for Outdoor Activities

This information applies to moderate - heavy physical work activity in any four-hour period. At the end of the four-hour period an extended break in a warm location is suggested. Warm-up breaks are assumed to provide 10 minutes in a warm environment. These guidelines apply to workers wearing dry clothing.

Note:

- All temperatures are approximate
- Number of breaks: This includes normal break after 2 hours and the number of additional warm-up breaks needed.

Apply the schedule one step lower (towards colder temperatures) for work with limited to no physical activity. For example, at -35C with no noticeable wind the typical schedule would be 3 breaks minimum with a maximum work period of 55 minutes. If the work has limited to no physical activity apply the guidelines one level below at -38C for 4 breaks and maximum work period of 40 mins.



If reliable weather reports are not available, use the following as a guide to estimate wind velocity:

<b>Wind Speed</b>	<b>Guideline / Wind Characteristic</b>
8 km/h (5mph)	Will move a light flag
16 km/h (10mph)	Will fully extend a light flag
24 km/h (15mph)	Will raise a newspaper sheet
32 km/h (20mph)	Will produce blowing / drifting snow

Environment Canada may report a wind chill index. If wind speeds are higher than those identified in the chart, a wind chill of -51C should be used to determine the point at which all non-emergency work should stop.

## **16.8 Working In Hot Environments Policy - Heat Stress Plan**

### **Standard/Policy**

This policy has been developed in recognition of potential problems caused by high temperatures in the work environment. The policy is intended to protect workers from potential adverse effects of overexposure to heat.

### **Factors Influencing Heat Stress**

The heating balance of the body depends on several factors:

- Air temperature
- Humidity (moisture in the air)
- Radiant heat load (sun, furnaces, molten material, steam etc)
- Physical Activity (how hard the person is working)
- Cooling (by sweat evaporation)
- Body Adjustments (acclimatization and general health)

### **Implementation Criteria**

- The Humidex reaches or exceeds 35
- Environment Canada issues a Humidex advisory (air temperature exceeding 30°C and Humidex exceeding 40)
- Heat Waves (3 or more days of temperatures of 32°C or more)

### **Roles and Responsibilities**

#### Supervisors

- Exercise due diligence for personal safety when assigning work in extreme heat
- Communicate and implement the Heat Stress plan for all workers when criteria warrants and in conjunction with the H&S Department
- Assess job demands and have monitoring and control strategies in place for hot days and hot workplaces



- Ensure Workers are aware of
  - Factors which can predispose them to heat stress
- The warning signs and symptoms of heat stress
  - The measures to be taken to protect against this hazard
- Provide worker information on heat stress hazards, including periodic safety talks on heat stress during hot weather or during work in hot environments.
- Monitor the workplace to determine when hot conditions arise
- Act as a resource for Supervisors and Workers in regards to Working in Hot Environments
- Assist Supervisors in assessing the workplace for potential heat stress hazards and provide advice on control strategies
- Provide assistance and advice on implementing the Heat Stress Policy.
- Investigate and report all heat stress related illness as per H&S Manual Workers
- Be familiar with heat stress hazards, predisposing factors and preventative measures
- Be alert to symptoms in themselves and others.
- Seek advice from their medical practitioner if they have a chronic health condition or are taking medications which may increase the risk of heat stress
- Drink adequate amounts of water regularly to maintain fluid levels and avoid dehydration
- Avoid caffeinated beverages and alcohol when working in hot environments
- Report all occurrences of heat stress related illness to their supervisor immediately

### **Education and Information**

Workers should be instructed regarding working in hot environments. Instruction should include:

- Knowledge of heat stress hazards
- Recognition of risk factors, symptoms and health effects
- Actions to be taken for controlling heat stress
- First aid responses
- Reporting procedures



**First Aid and Emergency Response for Heat Illness**

<b>HEALTH EFFECT</b>	<b>CAUSES</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
Heat Rash	Hot humid environment; plugged sweat glands	Red bumpy rash with itching	Change into dry clothes often and avoid hot environments. Rinse skin with cool water. Keep skin cool and dry.
Sunburn	Over- exposure to the sun	Red, painful or blistering and peeling skin	If the skin blisters, seek medical aid. Use skin lotions and work in the shade.
Heat Cramps	Heavy sweating drains the body of salt.	Painful cramps in arms, legs, or stomach that occur suddenly at work or later at home. Heat cramps are a warning of other more serious heat- induced illnesses.	Move to a cool area; loosen clothing and drink an electrolyte-replacement beverage. If cramps are severe or don't go away, seek medical aid.
Fainting	Fluid loss and inadequate water intake	Sudden fainting after at least two hours of work; cool moist skin; weak pulse	GET MEDICAL ATTENTION. Assess need for CPR. Move to a cool area; loosen clothing; make person lie down; and if the person is conscious, offer sips of cool water. Fainting may also be due to other illness.
Heat Exhaustion	Fluid loss and inadequate salt and water intake causes the body's cooling system to break down.	Heavy sweating; cool, moist skin; body temperature above 38 °; weak pulse; normal or low blood pressure; tired and weak, nausea and vomiting; very thirsty; panting or breathing rapidly; blurred vision	GET MEDICAL ATTENTION. This condition can lead to heat stroke, which can kill; move the person to a cool shaded area; loosen or remove excess clothing; provide cool water to drink; fan and spray with cool water



Heat Stroke	When the body has used up its water and salt reserves, sweating stops and temperature rises. Heat Stroke may occur suddenly or follow heat exhaustion.	High body temperature (above 41 °) and any of the following: the person is weak, confused, upset or acting strangely; has hot, dry, red skin; a fast pulse; headache or dizziness; in later stages, a person may pass out and have convulsions.	CALL EMERGENCY SERVICES. THIS IS AN IMMEDIATE MEDICAL EMERGENCY. PROMPT ACTION MAY SAVE THE PERSON'S LIFE. This condition can kill a person quickly; remove excess clothing; fan and spray the person with cool water; offer sips of water if the person is conscious.
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### Preventing Heat Stress

Where there is a potential for heat stress, control measures must be taken to prevent heat exposure in the work place. Appropriate workplace controls will vary depending on the type of workplace and other factors

#### Administrative Controls

- Assess the demands of all jobs and have monitoring and control strategies in place for hot days and hot workplaces
- Provide annual heat stress training and review during hot weather
- Provide cool drinking water near workers and remind them to drink a cup about every 20 minutes or more to stay hydrated
- Measure humidex and increase the frequency and length of rest breaks as needed
- Assign additional workers or slow down the pace of work
- Encourage workers to start a "buddy system" so people are not likely to notice their own symptoms
- Adjust expectations for workers coming back to work after an absence
- Investigate any heat-related incidents

#### Engineering Controls

- Reduce physical demands of work tasks by utilizing mechanical assistance whenever possible (dollies, carts, lifting devices).
- Organize the work to reduce the pace of activity.
- If possible, postpone strenuous work until a cooler time of the day
- For outside work, ensure that shaded areas are available



- Provide barriers to shield workers from radiant heat exposure.
- For indoor work, provide cooling fans or air conditioning where possible
- Provide air-conditioned rest area where possible
- Rotate workers in and out of hot work areas whenever possible
- Consider cooling vests or other personal cooling equipment

**Protective Clothing**

- Light summer weight clothing should be worn to allow free air movement and sweat evaporation.
- Outdoors, long sleeved shirt and pants are advised
- Air, water or ice cooled clothing should be considered if feasible

**Measuring Heat and Humidity Levels**

A thermal hygrometer is a simple way to measure the temperature and relative humidity in your workplace.

- Select 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).
- Record measurements at intervals if the humidex value is above 30 or if the temperature is above 26° C.
- Read the temperature and humidity from each thermal hygrometer.
- Use the Humidex Value Chart to determine the humidex value and the appropriate work place response.

**Humidex Heat Stress Response Plan**

Temp (in °C)	Relative Humidity (in %)																																
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%														
49																	50																
48	<b>NEVER IGNORE ANYONE'S SYMPTOMS DESPITE YOUR MEASUREMENTS!!!</b>																49																
47	Moderate Work Unacclimatized & Worn Heavy Clothing															Moderate Work Acclimatized & Unacclimatized Work	50	47															
46		<b>Action</b>														50	47	46															
45															50	47	45																
44															49	46	43																
43	<b>45+</b>														<b>50+</b>																		
42	<b>42-44</b>														work with 45 min/hr relief		47-49*																
41	<b>40-41</b>														work with 30 min/hr relief		45-46+																
40	<b>38-39</b>														work with 15 min/hr relief		43-44																
39	<b>34-37</b>														warn for symptoms & extra water		40-42																
38	<b>30-33</b>														alert for symptoms & extra water		36-39																
37	<b>25-29</b>														water as needed		32-35																
36	* for Humidex 45+, heat stress should be managed as per the ACGIH TLV®																50	49	47	45	44	42	40	39	37	35	34						
35																	50	48	47	45	43	42	40	39	37	36	34	33					
34																	50	48	46	45	43	42	40	39	37	36	34	33	31				
33																	50	48	46	44	43	41	40	39	37	36	34	33	32	30			
32																	50	49	48	46	45	44	42	41	40	38	37	36	34	33	32	30	29
31	50	49	48	47	45	44	43	42	40	39	38	37	35	34	33	32	30	29	28	28													
30	48	47	46	44	43	42	41	40	39	37	36	35	34	33	31	30	29	28	27	26	25												
29	46	45	43	42	41	40	39	38	37	36	35	33	32	31	30	29	28	27	26	25													
28	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25														
27	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25																
26	39	38	37	36	35	34	33	33	32	31	30	29	28	27	26	25																	
25	37	36	35	34	33	33	32	31	30	29	28	27	26	25																			
24	35	34	33	33	32	31	30	29	28	28	27	26	25																				
23	33	32	31	31	30	29	28	28	27	26	25																						
22	31	30	30	29	28	27	27	26	25	25																							
21	29	29	28	27	26	26	25																										
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%														



## Heat Stress Acclimatization

Acclimatization – is a gradual process in which the body becomes accustomed to temperature extremes.

Canadian summers are not usually hot enough for Workers doing light work to be considered acclimatized. Workers performing moderate work cannot be assumed to be acclimatized unless they are regularly exposed to significant radiant heat.

### Examples of Work Loads

Category	Examples
Rest	Sitting
Light	Sitting with moderate arm and leg movements Standing with light work at machine or bench while using mostly arms Standing with light to moderate work at a machine or bench including some walking Using a table saw. Driving
Moderate	Walking about with moderate lifting and pushing. Walking on level at 4 mph (6 km/hr) while carrying 5lbs. (3 kg) weight load.
Heavy	Intense arm and trunk work, carrying, shoveling, manual sawing; pushing and pulling heavy loads; walking at a fast pace.
Very Heavy	Very intense activity at fast to maximum pace. Shoveling wet sand

### Action Levels and Response

The Humidex plan is a simplified way of protecting workers from heat stress which is based on the 2007 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 levels, most workers will not experience heat stress.



### Humidex Plan and Action Levels

Applies to unacclimated workers doing moderate work. Never ignore symptoms. Take into account extra clothing or radiant heat conditions when using this guideline

HUMIDEX		ACTION RECOMMENDED
LOW	30-37	Post heat stress alerts Warn for symptoms Drink water
MEDIUM	38-39	Reduce physical activity (e.g. slower pace, more breaks). Recommend work with 15 minutes/hour relief Drink a cup of water every 20-30 minutes
MODERATE	40-41	Further reduce physical activity. Recommend work with 30 minutes/hour relief Drink a cup of water every 15-20 minutes
HIGH	42-44	Severely curtail physical activity Recommend work with 45 minutes/hour relief Ensure sufficient rest and recovery time Drink a cup of water every 10-15 minutes
EXTREME	45+	Hazardous to continue physical activity

**Some Provinces have specific regulations regarding heat stress. Refer to your Provincial occupational health and safety regulations for more information or consult the H&S Department.**

#### Sources

- Health and Safety Ontario, Ministry of Labour
- Infrastructure Health and Safety Association (IHSA)
- Occupational Health Clinics for Ontario Workers (OHCOW)

### 16.9 Sun Exposure

#### Standard

All workers exposed to the sun’s rays must be made aware of the harmful effects it could cause without proper protection.

#### Procedure

Tanning and burning are caused by ultraviolet rays from the sun. These rays cannot be seen or felt, but penetrate the skin and stimulate cells containing a brownish pigment called melanin. Melanin tries to protect the skin by absorbing and scattering ultraviolet rays.



To prevent skin damage caused by the sun review the following:

- Avoid overexposure to ultraviolet light.
- Sun screens contain one or more protective chemicals that absorb and scatter ultraviolet rays. These have a numerical rating system to indicate the specific amount of protection. The numbers, known as Sun Protection Factors (SPF), are listed on the product label. The higher the SPF number, the greater the protection. Although no sunscreen blocks UV radiation 100 percent.
- Sun screens are available in many forms including lotions, creams, gels, sprays, ointments and wax sticks. Besides sun screens use a lip balm with SPF of 15 or higher to protect your lips from sunburn.
- Sun screens should be applied 20 to 30 minutes before going out into the sun to allow time for the sun screen to start working. Apply liberally and reapply every 2 hours to provide maximum effectiveness. Do not use sunscreens to increase the time spent in intense sunlight or in place of protective clothing.
- Clothing provides protection from the sun and does not allow the UV rays to penetrate as easily.

### **16.10 Noise**

#### **Standard**

All workers working in a noisy environment are required to use and wear hearing protection. Audiometric testing may be required based on the specific jurisdiction. If not certain please consult with the H&S Dept.

#### **Procedure**

Noise in excessive amounts is a known health hazard.

- Exposure to excessive noise leads to permanent hearing loss in most cases.
- Employees exposed to noise levels greater than 85 dBA require adequate hearing protection for the hazard.

Noise exposure guideline for work related activities at the operator position are:

Radial Saw 10" Steel Blade	90-95
Cut-Off Saw 8" Steel Blade	85 -95
Hand Grinder 6" Stone	101-105
Jackhammer 80 Lb	96-100
Chipping Air Hammer	106-110
Metal Cut-Off Saw 12" Fibre	111-115
Arc Welding	96-100
Automatic Welding	96-100
Explosive Actuated Tools	Over 115
Sandblasting	96-100
Jumping Jack	111-115
Electric Drill	85 or under
Portable Grinder	90-95
Crawler Loader	101-105



Rubber Tire Loader	96-100
Compressor (250 CFM)	101-106
Compressor (250 CFM) Silenced	less than 85
Compressor (900 CFM)	106-110
Compressor (900 CFM) Silenced	less than 85

**Points to Remember**

- Clean plugs or muffs to prevent ear infection
- Hearing protection makes it easier to converse in a noisy area
- Dry cotton batten is no protection against noise
- Wax impregnated cotton batten and ear plugs with metal inserts DO NOT WORK
- Muffs are more effective than plugs
- Plugs come loose if you talk or chew
- Hypo-allergenic ear plugs are available to those who require it

**16.11 Hazardous Substances – Procedure Format**

**Standard**

Managers shall request from the H&S Department a written procedure when the workforce may be exposed to a designated substance.

**Procedure**

**Note:** Check with local jurisdictions on designated substances written procedures shall include:

1. Name of the designated substance.
2. Known health hazards.
3. Engineering controls, work practices, hygiene practices and facilities to control work exposure to the substance.
  - a. Note: If you are regularly working extended hours (more than 8hrs) for the day or shift contact the H&S Department ensure acceptable exposure limits are not exceeded.
4. Methods and procedures to monitor the concentration of the substance in workplace air.

**Workers' Records**

Workers' records of exposure to the substance shall include:

1. Worker's name
2. Worker's date of birth
3. Worker's occupation
4. Respiratory equipment used
5. Monitoring results

Workers' records must be maintained by the employer and be available upon request by each worker's physician.



## **16.12 Procedure for Cleaning up and Disposal of Bio-Hazardous Waste**

### **Standard**

This procedure has been developed to protect employees when there has been exposure to bio-hazardous waste.

### **Definition**

Bio-hazardous waste includes any infectious waste, or potentially infectious substance such as blood or other human waste. Blood and human waste have the potential to spread infectious diseases like Hepatitis B, C and HIV. Even though uninfected blood is relatively safe to clean, all blood spills should be treated as infected.

### **Procedure**

On a job site where bio-hazardous waste is discovered and could present a hazard to a worker this procedure may be followed.

#### **Discovery of Bio-Hazardous Waste**

- **Restrict Access** - Restrict access to the area by using barrier tape or other physical separation. Only authorized staff or service providers will be allowed to enter the restricted area.
- **Notification** – Notify the supervisor, who will notify the H&S department to determine if the clean-up process will be completed internally, or if an external service provider is required.

#### **Clean-up and Disposal**

- **Personal Protective Equipment: Protection** - An individual who cleans up blood and bodily fluid spills must wear personal protective equipment (PPE). Gloves, Disposable Tyvek Suit, masks or face shields are all acceptable and appropriate personal protective equipment to wear for exposure to blood and bodily fluids. A good practice is to double glove and wear an N-95 Mask.
- **Barrier** - Creating a barrier around the waste prevents it from spreading and contains it so that it can be cleaned. Barriers can be made of any absorbent material such as kitty litter, dirt, sand, sawdust or salt.
- **Disinfect** - Health hazards still exist even after the waste has been removed. Disinfecting the area is an important step. The supervisor will ensure the appropriate disinfecting product is used for the bio-hazardous waste. This will typically be bleach based cleaners. All cleaning tools should go through a disinfecting process or should be disposed of in appropriate biohazard waste containers or packaging.
- **Broken Objects** - Never pick up broken objects such as glass bottles by hand. It is strongly advisable for employees to use mechanical means to pick up all
  - broken glassware. Use forceps, tongs, brooms and dustpans.
- **Disposal** - Never throw away broken glassware or sharp substances into general receptacles. Discard these items into "Sharps" containers or sealed, closable, puncture-resistant containers labeled with caution signs.



Ensure all disposable material is double bagged, and disposed of as per local requirements pertaining to bio-hazardous waste. Ensure everything has at least a double layer of containment, and is labeled with Biohazard Tag. Inform Personal at Waste Management what they are to receive so they can also take appropriate precautions.

A good practice is for all cleaning areas to have a Biohazard Kit made available to workers.

**A Biohazard kit may include:**

- 1 Labeled Sealed HD Bag (or 5 Gal bucket) with Seal to show it has not been opened.
- 20 4x4 Absorbent pads,
- 10 lb. Sack of kitty litter or other absorbent product.
- 3 Tyvek Suits
- 3 prs. Goggles
- 1 box Nitrile or Latex Gloves
- 6 prs. Booties
- 1 Roll of Red Tape with Caution Tags
- Roll of Duct Tape
- 4 Laminated Biohazard Tags
- 1 Sharpie Marker
- 10 Garbage Bags,
- 6 N-95 Masks
- 3 Face Shields

Note: Kit contents should reflect the anticipated hazards based on site specific conditions.

### **16.13 Bio-Hazardous Waste - Syringes**

**Standard**

This procedure has been developed to assist employees when discarded syringes are discovered on the project.

**Procedure**

On a job, site where discarded syringe/needle is discovered in a work area and may pose a hazard to a worker this procedure will be followed.

1. Determine if the location of the discarded syringe will pose a hazard to a worker on the site.
2. If the syringe will not pose a hazard to a worker, it will be covered or guarded and the supervisor will be notified.
3. If the syringe may pose a hazard to a worker, the supervisor will be notified immediately.



## Supervisor

Upon notification, the supervisor will:

1. Contact the owner of the work area for further instruction on the handling and disposal of bio hazardous waste
2. Notify CF H&S Department to advise of the existence of biohazardous waste on the project.
3. Should the owner or owner's representative be unable to provide adequate procedures on the handling and disposal of the syringe, the supervisor or person designated by the supervisor will;
  - a. Refer to and follow the Sharps Procedure

Do not dispose of bio hazardous waste with regular garbage.

Should any worker suffer a wound involving bio hazardous waste, they should seek medical attention promptly. Advise H&S Department immediately.

### **16.14 Procedure for Handling and Disposal of Sharps**

#### **Objective**

To reduce the risk of infection or injury by ensuring the safe disposal of sharps

#### **Definition**

Sharps are objects used for medical purposes that can penetrate the skin such as discarded needles or syringes with needles attached. These injuries can allow infections to enter the body. Infectious diseases such as Hepatitis B or C, HIV or Tetanus can enter this way.

#### **Primary Risk Areas**

Some work areas will have higher risk for discovery or exposure to sharps, for example; manholes, pipe clean outs, outfall areas when flushing sewer lines , removing pipe plugs, demolition/renovation (particularly hospitals/clinics etc) or clearing/surface preparation for excavation in out of the way locations/parks where litter from drug use may be a factor.

#### **Supervisors**

Should be able to assess and identify the potential for needle stick hazards in the workplace. Treat all needles as potentially contaminated or infectious.

#### **Basic Prevention**

- Workers should not put their hands in places they cannot see unless they are protected by puncture proof gloves. (see Glove Program)
- Do not work where there is insufficient light to see sharps or other hazards.
- When disposing of sharps, workers must use a portable sharps disposal kit: consisting of puncture resistant disposable gloves, tongs or pliers (made of



material that is compatible with chlorine) and a labeled Sharps Container for the disposal of discarded needles).

- The container should be rigid walled and puncture resistant: A commercial Sharps Container is preferred. (see picture).
- Workers who could potentially be exposed should be trained on the safe disposal of needles or other sharps, inspection of the sharps container and clean up requirements.
- The potential for exposure to sharps should be identified on the JSA or FLRA card and reviewed with the crews prior to commencing work.
- All workers should be made aware of the location of the sharps response kit prior to commencing work.

### **Procedure for Disposing and Transportation of Sharps**

- When disposing of sharps, bring the container to the needle – do not carry the needle over to the container.
- Use an appropriate implement (e.g. tongs or pliers) and wear disposable, puncture resistant gloves to handle sharps.
- Place the container for sharps disposal on a flat surface as close as possible to the needle. Open the lid of the container.
- Using the tongs, pick up the needle by the blunt end (plastic fitting). Holding the needle-sharp tip down and away from your body, put the needle in the container for sharps disposal. If there is more than one needle, pick them up one at a time.
- Close the container securely.
- Remove gloves by peeling them back from the top so they are inside out, then dispose.
- Wash hands with soap and water or if not available use hand sanitizer with 60% alcohol or better.

### **Pre-Use Checks, Transportation and Disposal**

Before using a Sharps container – ensure that the container

- Is not punctured
- Is not filled above the “full” line. **DO NOT overfill.**
- Is not leaking or cracked
- Closable lid is in good condition
- Once the Sharps container is full, or when deemed necessary, the securely closed container shall be disposed of by taking it to a hospital, pharmacy or special bio-waste collection site that disposes of the used containers.
- While in transport the sharps container must be securely stored away where there is no danger of it being damaged or dislodging in transport.

## **Response in the Event of Injury / Exposure**

- Any employee who receives an injury from a needle or other sharp should be treated using first aid measures. Note: Any needle stick injury should be allowed to bleed freely.
- The injured worker should seek medical attention directly.
- All needle stick injuries must be reported immediately to H&S Department and subsequently to the appropriate agency as required (e.g. Ontario – WSIB).

## **Sharps Containers**



## **Sharps Response Kit - Equipment Needed**

Puncture resistant disposable gloves (always have several pairs available), Commercial Sharps Container, Tongs, Bleach, Hand Sanitizer with minimum 60% alcohol.

## **Cleanup Procedures**

All tongs or pliers should be thoroughly washed with a solution of 9 parts water one part Chlorine (Bleach), rinsed in clean water and stored in a clean dry container.

## **16.15 Hazardous Substances**

### **Standard**

Managers shall be aware of the existence of hazardous substances in the workplace and shall ensure compliance with pertinent regulations.

### **Procedure**

#### Definition of Hazardous Substances

Hazardous substances are defined biological, chemical, or physical agents in the workplace known to have adverse effects on human health and safety. These substances have legal status and are attached to legal exposure limits.



At date of issue, the following substances are legally designated as "controlled":

- Acrylonitrile
- Asbestos
- Benzene
- Coke Oven Emissions
- Isocyanates
- Lead
- Mercury
- Silica
- Vinyl Chloride
- Asbestos on construction projects and repair operations

Workers may be exposed to other hazardous substances (physical, chemical and biological). Workers and Supervisors should take appropriate measures to reduce, substitute, control or eliminate these hazards. Examples of such hazardous substances are formaldehyde, cadmium, chromium, coal tar, nickel, styrene, cold, heat, and noise.

Exposure means: inhaled, ingested, absorbed, injected. Contact the H&S Department for assistance.

### **16.16 PCBs – General Information**

#### **Standard**

Workers involved in the handling of PCBs shall be familiar with their characteristics and the necessary safety precautions and training.

#### **Procedure**

- PCB means polychlorinated biphenyls, manmade chemicals manufactured on a large scale from 1929 until 1977.
- PCBs are very stable, non-corrosive, relatively non-flammable, and insoluble in water and have low vapour pressures.
- PCBs are excellent in insulating and thermal properties.
- Common past uses:
  - Carbonless copying paper
  - Heat exchange fluids
  - Hydraulic fluids
  - In electrical transformers and capacitors
- "Askarel" is a generic term for PCBs used in electrical insulating liquids. Under arcing conditions, askarel produces a non-combustible hydrogen chloride gas with lesser amounts of combustible gases. Hydrogen chloride gas may threaten life even during short – term exposure.
- Identification of PCBs in Capacitors:
  - Practically ALL liquid - dielectric AC power capacitors manufactured between 1930 and 1977 contain PCBs
  - PCB capacitors manufactured after 1978 are often marked "No PCBs"
  - Capacitors containing WEMCOL, FARADOL 100, DIELEKTRO II, or DPO do not contain PCBs; assume that all others DO contain PCBs
  - Capacitors are usually hermetically sealed
- Common Brand Names for PCBs:



Apiolio	Elemex	Phenochlor
Aroclor	Eucarel	Pydraul HY
Asbestos	Fenclor	Pyralene
Chlophen	Hyvol	Pyranol
Chlorextol	lor	Pyroclor
Chlorinol	Inerteen	Saf-T-Kuhl
Diactor	Kanechlor	Santotherm FR
DK (decachlorodiaphenyl)	Montar	Sovol
Dykanol	No-flamol	Therminol FR HT

- Health Effects of PCBs:
  - Enter human tissue by: inhalation, absorption or ingestion
  - Everyone is exposed to PCBs through the food chain
  - There is no evidence that low levels of exposure to PCBs is harmful to health
  - Workplace exposure to PCBs has been virtually eliminated
  - Fires involving PCBs may produce furans and dioxins which are toxic
  - Brief exposures to small amounts of PCBs are not a serious health concern
  - It is not known whether PCBs are carcinogens (the scientific community is divided on the issue).
- Identification of PCBs in Transformers:
  - Any transformer that was manufactured in North America WITH a conservator tank was NOT designed to use PCBs and probably contains mineral oil
  - A transformer's nameplate, attached to the outside of the transformer casing, which has the designation O, ONS, ONAN, ONWF or any label beginning with O, is filled with mineral oil
  - A transformer's nameplate which has the designation beginning with L, such as LNAN, LNAF, and LNWF etc. is filled with non-flammable or flame retardant liquid. MOST of these L transformers, manufactured before 1979, are PCB transformers
  - Environment Canada has developed a voluntary labeling system for PCB containers. These labels resemble a WHMIS / Hazard Communication label and have PCB in bold letters.
  - Hydrogen chloride gas may threaten life even during short-term exposure.

## **PCBs – Personal Protective Equipment**

### **Standard**

All workers involved in the handling of PCBs shall wear the prescribed personal protective equipment.

### **Procedure**

The following precautions are mandatory when handling PCBs:

- Gloves (any of these):



- Butyl Rubber
- Neoprene
- Nitrile Rubber
- Polyvinyl Alcohol (PVA)
- Viton
- Saranex
- Teflon
- NEVER work with bare hands when handling PCBs.
- If temperature exceeds 55°C (131°F) and there is the risk of vapour escaping into the air, use self-contained breathing apparatus (SCBA) or supplied air respirators.
- If temperature does not exceed 55°C (131°F) and there is no risk of inhaling vapours (such as with hermetically sealed capacitors) no respiratory apparatus is required.
- If temperature does not exceed 55°C (131°F) and there is the risk of vapours escaping into the air (such as with transformers, tanks etc.) use full-face mask with organic vapour canisters.
- When handling PCBs, do not smoke, eat or drink before completely washing your hands and face.
- Dispose of protective equipment by placing it in the same container as the PCB waste when operation is completed.

### **DO NOT ATTEMPT TO CLEAN PROTECTIVE EQUIPMENT FOR REUSE.**

- If trichlorobenzene (a solvent) is present in the PCB apparatus, use a full-face mask with organic vapour canisters.
- If the possibility of PCB contact with body parts exists, wear coveralls composed of one of the materials listed under gloves. Rubber or PVA shoes or boot covers are recommended.
- One Class C 10 lb CO<sub>2</sub> fire extinguisher shall be located within 3 m (10') of the work area when PCB facilities are being handled.

### **PCBs – Waste Storage**

#### **Standard**

Various legislative publications such as, "Manual for the Management of Wastes Containing Polychlorinated Biphenyls (PCBs)" will be the reference documents for the acceptable means of PCB waste storage.

#### **Procedure**

- The responsibility for PCB removal and storage is the owner/manager of the facility.
- CF is not authorized to transport PCB waste on public property or roadways.



- CF is not authorized to attempt to destroy PCB waste.
- The responsibility for the safe storage of PCB waste is the responsibility of the owner.

### **16.17 Lead**

#### **Standard**

The supervisor in consultation with the H&S Department will ensure that all necessary measures and procedures are taken to prevent worker exposure to Lead.

#### **Routes of Entry**

Lead may affect the health of workers if it is in a form that may be inhaled (i.e. airborne particles) or ingested.

Shortly after lead is inhaled or ingested, it can enter the bloodstream and travel to soft tissues (such as the liver, kidneys, lungs, brain, spleen, muscles, and heart). After several weeks, most of the lead moves into your bones and teeth and can be stored there for a long time.

Early signs of lead poisoning includes:

- Tiredness
- Irritability
- Muscle and joint pain
- Headaches
- Stomach aches and cramps

Harmful effects can follow a high exposure over a short period of time (**acute poisoning**), or long-term exposure to lower doses (**chronic poisoning**).

Workers that are exposed to lead may require additional health assessments and surveillance as per the jurisdiction. Consult with the H&S Department for specific programs and obligations.

#### **Workplace Exposure and Monitoring**

Work activities involving lead will be designed to ensure workers are not exposed beyond the occupational exposure limits for the jurisdiction.

Clients, or property owners, are obligated to inform CF representatives of any existing hazardous materials, including lead in the workplace. This information should provide the details as to the amount and locations of lead in the workplace. This information will be required to determine worksite specific procedures for the handling, disturbance or removal of the lead or lead containing products.

In the event a worker suspects an unidentified product to contain lead, protect the area and contact your supervisor immediately.



Where work involving lead or lead containing products occurs, a monitoring process such as air sampling or particulate measurement will be required to monitor exposure levels. The specific monitoring process will be workplace specific.

### **Symptoms of Acute Lead Poisoning**

Includes a metallic taste in the mouth and gastrointestinal symptoms such as vomiting, abdominal cramps, constipation, and diarrhea.

### **Symptoms of Chronic Lead Poisoning**

Are more difficult to recognize because they are similar to many common complaints. However, severe chronic poisoning can lead to more characteristic symptoms, such as a blue line on the gums, wrist drop (the inability to hold the hand extended), severe abdominal pain and pallor.

Lead can also cause serious damage to a number of systems in the body including the blood, kidneys, gastro-intestinal, nervous and reproductive systems

General measures and procedures are suggested for all work with lead:

- Washing facilities consisting of a wash basin, water, soap and towels should be provided and workers should use these washing facilities before eating, drinking, smoking or leaving the project
- Workers should not eat, drink, chew gum or smoke in a work area

Dust and waste should be cleaned up at least daily and placed in a container that is:

- Dust tight
- Identified as containing lead waste
- Cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before being removed from the work area
- Removed from the workplace frequently and at regular intervals
- The work area should be inspected at least daily to ensure that the work area is clean
- Compressed air or dry sweeping should not be used to clean up any lead-containing dust or waste from a work area or from clothing

### **Dust Control Measures**

Enclosed Work Areas:

- The enclosure should be inspected for defects by a competent person;
- Defects should be repaired before any work that would generate lead-containing dust is carried out within the enclosure.
- Air exhausted from an enclosed work area should pass through a dust collector

Burning, Welding or High Temperature Cutting of a Material with a Lead-Containing Coating:

- Local exhaust ventilation should be used where there is burning, welding or high temperature cutting of a material that has a lead-containing coating,
- The air velocity at any point in front of or at the opening of the ventilation hood should be sufficient to overcome opposing air currents and capture the



contaminated air by causing it to flow into the hood.

- The air velocity at the source of the lead dust, fumes or mist should be at least 0.5 meters per second.

Air discharged from the local ventilation system should pass through a HEPA filter and be routed out of the workplace in a way that will prevent the return of the contaminants to the workplace.

**Note:** If local ventilation is not practicable, an appropriate respirator should be used. Please consult your H&S Department.

### **Removal of Lead-Containing Material with Power Tools**

Where lead-containing material is being removed with power tools, the generation of airborne dust should be controlled by:

- An effective general or local exhaust ventilation system if the operation is carried on indoors
- If a general or local exhaust ventilation system is not practical, an appropriate respirator should be used.

### **Personal Protective Equipment**

Please contact your H&S Department for assistance and selection of the appropriate PPE.

## **16.18 Silica**

Silica can be found in many forms on a construction project. In aggregates, concrete, cement products and other materials.

### **Standard**

The supervisor in consultation with the H&S Dept. will ensure that all necessary measures and procedures are taken to prevent worker exposure to Silica.

### **Health Effects of Silica Exposure**

Crystalline silica may be harmful following high exposure levels received over a period, ranging from a few weeks to years or after long-term exposures to lower levels.

The prolonged inhalation of air born dust containing crystalline silica may result in silicosis, a disease characterized by progressive fibrosis of the lungs. Silicosis is marked by shortness of breath and impaired lung function.

Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans

In order for silica to be a hazard, silica-containing dust particles that are small enough to be inhaled (i.e. air born,) must get into the air.

Workers that are exposed to silica beyond the occupational exposure limits may require additional health assessments and surveillance as per the jurisdiction. Consult with the H&S Department for specific programs and obligations.



### Dust Control Measures

- The generation of airborne silica-containing dust should be controlled with a mechanical ventilation system, wetting, or the use of a dust collection system.
- If it is not practical to use mechanical ventilation, respiratory protections may be used. Please consult your health and safety department for guidance and assistance
- If compressed air is being used to remove silica-containing dust outdoors, workers within 25 meters of the work area who may be exposed to the dust must either be removed from the path of the dust cloud or provided with respirators

### Indoor Operations

- If sandblasting is being conducted indoors and persons other than those doing the sandblasting may be exposed to silica-containing dust, the sandblasting area should be separated from the rest of the project by an enclosure that will confine the dust within the sandblasting area.
- Appropriate signage identifying the silica hazard should be posted.

### Outdoor Operations

- If sandblasting is being conducted outdoors and persons other than those doing the sandblasting may be exposed to silica-containing dust, the work area should be identified by ropes or barriers located at least 25 meters from the sandblasting area, to prevent entry by workers not directly involved in the operation.
- If it is not possible to locate the ropes or barriers at least 25 meters from the sandblasting operation other control measures such as barricades and enclosures should be implemented.
- This will ensure that the sandblasting area is separated from the rest of the project by an enclosure that will confine the dust within the sandblasting area.

### Enclosures

The following requirements should be met:

- Entry ways in the enclosure should be equipped with air locks, overlapping door tarps or doors;
- All openings and joints in the enclosure should be completely sealed;
- The air pressure within the enclosure should be negative relative to the outside;
- The air velocity within the enclosure shall be appropriate and pass each work;
- The escape of abrasive and debris from the enclosure should be controlled at air make-up points by the use of baffles, louvers, flap-seals and filters.

If the enclosure is located outdoors, these additional requirements should be met:

- The enclosure should be made of windproof materials that are impermeable to dust;
- The enclosure should be supported by a structure that prevents more than minor movement of the enclosure.

**Dust Control Measures**

If an enclosure is used to protect other workers on the project from silica exposure, air exhausted from the enclosure should pass through a dust collector that can remove the particulate matter from the air at the volume and velocity at which it is moving.

**Respirators**

A worker operating an electric, pneumatic or gas powered cutting device in dry mortar, concrete or similar material or sandblasting will wear approved respiratory protection. For respirator selection, care, use and fit testing please consult with your H&S Department.

**Clean-up**

When an indoor sandblasting operation is completed, dust and waste should be cleaned up and removed by vacuuming with an HEPA-filter-equipped vacuum and wet sweeping or wet shoveling.

**Personal Protective Equipment Code of Practice for Silica Dust**

All employed will wear appropriate respiratory protection when exposed to airborne hazards that are determined to exist at the crusher plant site, in particular but not limited to, silica dust. The optimum functional protection for silica dust has been determined to be 3m 1620 or 8210-8511.

- Proper training in use and maintenance of the equipment must be received by employees.
- Masks must be fitted for proper wearing and employees must be trained in how to fit and wear appropriate mask.
- Employees will be tested to ascertain baseline exposure to each particular airborne hazard. Special consideration will be given to any employee with preexisting sensitivity, disease, allergies or medical condition. Subsequent on-going testing will be done to ascertain high risk cases for health degradation.
- Discard filter masks after shift usage and start shift with a clean mask.
- All employees that are required to work in areas considered high dust areas or the work that is required will increase the amount if dusts are required to wear dust masks.
- Management and workers will conduct their work so as to minimize the amount of exposure to it in the following but not limited to manners:
  - Setup equipment to minimize dust carried by prevailing winds to the workers if possible.
  - Shorten the amount of time to do a task in a dust area as much as possible.
  - Try to do cleanup on plant shut downtimes.
  - Clean equipment and power units towers as much as possible to remove dust (wear mask to do this) use cab filters.
  - Leave dust covered work clothes at work to minimize taking it home.



- Company supplied clothes that are contaminated should stay at work and be laundered from there.
  - Use water sprayed systems and other methods to cut down on dust as much as possible.
  - Maintain belt flashing and screens and conveyors as much as possible to eliminate sand and dust build-up around the equipment from spillage and debris.
  - Shorten the drop distance of material coming off conveyors and screen decks as much as possible so transfer points do not contribute to dust.
  - Close doors on power/tower shacks and make sure doors and windows seal properly to keep interiors dust free.
  - Use air conditioning where possible to keep doors and windows sealed.
  - Rotate workers on jobs to minimize exposure.
- Post signs indicating silica dust is present in the high dust areas considered restricted and correct Personal Protective Equipment is required?

### **16.19 Animal and Insect Bites**

#### **Standard**

All workers who are exposed to possible animal bites, insect bites, and insect stings need to be aware of the necessary precautions to be taken.

#### **Procedure**

Animal bites can be frightening, and in some cases, are medical emergencies. The most common bites are from household pets, with dogs, and cats causing the most. Dogs are more likely to bite than cats; however, cats are more likely to cause infection. Bites from non-immunized animals and wild animals carry the risk of rabies. Rabies is more common in raccoons, skunks, bats, and foxes than in cats and dogs.

- Determine if the outside pet shows signs of aggressive behavior and is on a leash.
- If the pet is determined to be aggressive, contact the home owner and ask for the pet to be placed inside of the house until the work has been completed. This will allow you to focus, and be more efficient on the job. Do not attempt to complete the work if no home owner is available to control the pet. Never leave your comfort zone.
- Cats typically mind their own business and will watch from a distance. Dogstend to be more curious. Large dogs can knock a human to the ground. Never approach an animal that is in the process of eating.

#### **Bites**

In some cases, the bite will not break the skin but may cause damage to underlying tissue and joints. If the skin is broken, there is the additional possibility of infection as well to tendons and nerves. Dogs have powerful jaws and can cause crushing injuries to muscles, tendons, ligaments, and nerves.



Signs of an infection includes:

- Warmth around the wound
- Swelling
- Pain
- A pus discharge
- Redness around the puncture wound
- An inability to bend or straighten the finger
- A loss of sensation over the tip of the finger

### **First Aid**

- Don't put the bitten area into your mouth! You will just be adding the bacteria in you.
- If the bite breaks the skin, treat it as you would a minor wound. Use soap and water or an antiseptic, or alcohol and cover it with a clean bandage.
- Get tetanus immunization as soon as possible.
- If the bite creates a deep puncture or the skin is badly torn and bleeding, apply pressure to control the bleeding and get medical attention right away.

### **Wild Animals**

- If you are bitten by a wild animal or snake, seek medical attention immediately.

### **Insect Bites**

#### **What is West Nile Virus?**

West Nile virus is a mosquito-borne virus contracted by mosquitoes that feed on the blood of infected birds. The mosquito then passes the virus to a human host.

#### **Avoiding Mosquito Bites**

- Use insect repellent on exposed skin when you go outdoors. Use an insect repellent such as those with Deet, or oil of lemon eucalyptus.
- Get double protection by wearing long sleeves during peak mosquito biting hours, and spray repellent directly onto your clothes.
- Remove standing water that may be present around the jobsite.

### **Insect Stings**

Nearly everyone has been stung by an insect at one time or another. It is an unpleasant experience that people hope not to repeat, but for the most people the pain is only temporary.

When the sting is caused by a honey bee, the stinger remains in the skin when the insect leaves because the stinger is barbed.

- Remove the stinger as quickly as possible because venom continues to enter the skin for about 45 to 60 seconds.



- Press hard down on your skin with your fingernail and scrape along the sting. If you don't have fingernails, find something else to assist you.
- If the stinger can be removed within 15 seconds of the sting, the severity of the sting is reduced.
- After the stinger is removed, wash the wound.

**NOTE: WASP AND HORNETS DO NOT LEAVE THEIR STINGERS IN YOU, SO THEY CAN STING REPEATEDLY.**

A small percentage of the population is allergic to wasp or bee stings. If you suspect that you or a family member might be allergic, go to a physician for testing.

Signs and Symptoms:

- Itchiness and hives over the whole body
- Nausea, vomiting, diarrhea
- Lightheadedness
- Swelling of the eyelids, lips, or tongue
- Difficulty breathing
- Rapid heart beat
- Loss of consciousness or seizures

People who are sensitive to stings should wear a Medic Alert Bracelet and carry an EpiPen containing preloaded Adrenaline. Be advised that even after an EpiPen has been administered, immediate emergency medical treatment is still necessary.

How to avoid being stung:

- Keep lids on trash cans at all times
- Pay close attention to rotting logs or bushes.
- Inspect trees prior to working in close proximity
- Honeybees live in hives in old trees and are often found in clover
- Wasps nest in sheltered places, such as eaves trough, shrubs, or wood piles.
- Hornets' nest in bushes or high in trees
- Yellow Jackets nest under logs or rocks or in the ground and may emerge through a small hole in the ground.

### **16.20 Bed Bugs**

Bedbugs are small, wingless insects that feed on the blood of people and animals while they sleep. They are easily moved from room to room on infested objects. Bedbugs cannot easily climb metal or plastic surfaces and cannot fly or jump.

Adult bedbugs can be as long as 10 mm. They have an oval, broad, flat body and a short, broad head. Adult bedbugs are brown but darken to a blood red colour after feeding. Bedbugs prefer locations where they can hide easily and feed regularly, like sleeping areas. Their flattened bodies allow bedbugs to hide in extremely small locations: under wallpaper, behind picture frames, in electrical outlets, inside box springs, in mattress pads and in night tables.



A bedbug bite can take as long as 14 days to appear, depending on the person. While bites can happen anywhere on the skin, they are often found on the face, neck, arms, legs and chest.

Some people do not react at all to the bites, while others may have small skin reactions. In rare cases, some people may have severe allergic reactions. To avoid infection, try not to scratch the bites and keep the bite sites clean. Using antiseptic creams or lotions, as well as antihistamines, may help. Talk to your health care provider for advice.

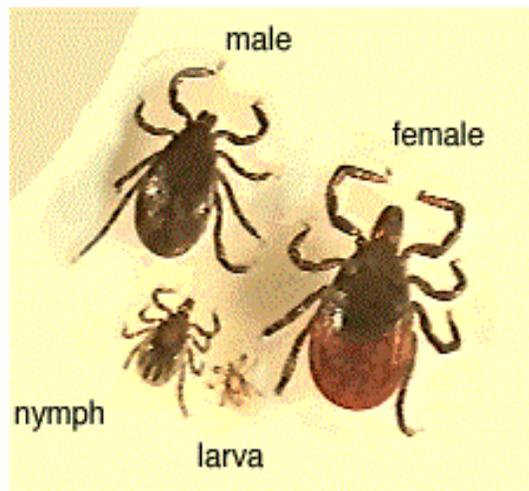
Bed bugs are not known to spread disease however, infestations can be very difficult to eradicate.

Bedbugs can easily hide in luggage, clothing and other personal items, so taking a few precautions while travelling is a good way to keep them from coming home with you.

- Do a complete inspection of the room before bringing luggage or other items in.
- **Do not** put your luggage on the bed. Place your luggage on a tile floor (like in the bathroom), away from any upholstered (soft) surfaces or on the luggage stand once you have examined it.
- Inspect the sleeping area. Slowly lift up each corner of the mattress and examine the crease and tufts of the mattress and box spring, behind the headboard and the wall behind the bed, the pillows, bed coverings and bed skirt, the bed frame and legs. If you see one bed bug, there are likely to be many. Other signs that bed bugs are present includes tiny black spots on linens or furniture (excrement) and piles of light brown skin casings.
- Use a flashlight to inspect the inside of the closet, paying special attention to any cracks or crevices.
- If you find signs of bedbugs, notify the front desk and ask for another room, or stay somewhere else. If you change rooms in the same hotel, make sure your new room is not next to the possibly infested room.

If your work takes you into private homes or areas where bed bugs may be present, use the following common sense precautions.

- Seal any cloth duffels or tool bags in large white garbage bags. After leaving the residence, brush off all clothing. Change clothing immediately after work and wash and dry on high heat.
- Before bringing luggage into your home, place it on a hard surface away from any places bedbugs could crawl to and hide, and check it carefully.
- Unpack your clothing and check personal items (like hairbrush and cosmetic case).
- Wash all clothing and fabric items in hot water, regardless of whether you wore them or not.
- Dry non-washable items in the clothes dryer on the highest heat for 30 minutes.
- Vacuum your luggage. Throw out the vacuum bag in a sealed garbage bag right away. Wash any vacuum cleaner brush or nozzle attachments you used in hot water with detergent. For a bag less vacuum cleaner, empty the dust collector into a garbage bag, detergent.



### **16.21 Black Legged Tick Bites (Lyme Disease)**

Ticks usually live in woods or tall grasslands. Ticks infected with bacterium can spread disease when they feed on blood from the host. Ticks cannot fly - they hang onto small bushes or tall grasses and are usually found close to the ground. They wait for an animal or person to pass near them and when the animals or person make contact, the ticks attach themselves to the skin to feed.

In Canada, there are two species of ticks known to transmit Lyme disease:

- The western blacklegged tick, which is known to be established in parts of southern British Columbia; and
- The blacklegged tick (often called a deer tick), which is known to be established in parts of southern and eastern Ontario, southeastern Manitoba and Nova Scotia.

These ticks vary in size and colour, depending on their age and whether they have been feeding. Before feeding, they are about 3-5 mm in length, and are red and dark brown in colour. Young ticks in the pre-adult stages are smaller and lighter-coloured. When they are full of blood, adult le ticks can be as large as a grape.

#### **Risk of Exposure to Lyme Disease**

The risk of exposure to Lyme disease is highest in the regions (listed above) where blacklegged and western blacklegged ticks are established. However, migratory birds can carry these ticks to other parts of Canada and it is believed that the ticks may be establishing themselves in areas that are not identified yet.

The risk of contact with ticks begins in early spring when the weather warms up and lasts through to the end of fall. Ticks may also be active in winter in areas with mild temperatures (4°C and above) and no snow.

There is no evidence that Lyme disease can spread from person-to-person. Although cats and dogs can get Lyme disease, there is no evidence that they can pass the infection to people.

## Signs and Symptoms of Lyme Disease

Tick bites are usually painless and most people do not know they have Signs and symptoms of Lyme disease vary greatly from person to person.

In the first stage, one of the first signs of infection is a circular rash, often referred to as a "bull's eye" rash because it will have rings spreading from the bite site.



Additional symptoms include:

- Fatigue
- Chills
- Fever
- Headache
- Muscle and joint pain
- Swollen lymph nodes



As the disease progresses, chronic symptoms may develop. Fatalities from Lyme disease are rare.

Lyme disease can be difficult to recognize, and it has been confused with other diseases. It is important for people to consult with their doctor if they feel it is possible that they have Lyme disease.

## Treating Lyme Disease

Lyme disease can be treated effectively with antibiotics. A full recovery is more likely when treatment begins in the early stages of the disease. Undiagnosed Lyme disease which develops into chronic illness can be difficult to treat.

## Protection from Tick Bites

- Wear protective clothing to prevent ticks from attaching to your skin. Wear long sleeve shirts that fit tightly around the wrist, and long-legged pants tucked into your socks or boots.
- Use insect repellents containing DEET to repel ticks. Apply to both clothes and skin. Always read the label and follow instructions for use.
- If possible, avoid contact with low bushes and long grasses.
- Wear light coloured clothing to help you to find the ticks more easily.
- Check for ticks on and under clothing, especially after being in areas where ticks may live.
- A daily skin inspection greatly reduces the risk of infection as ticks may take several hours to two days to attach to the skin and feed. Check areas including armpits, in and around hair, navel, groin, and behind the ears and knees.



- Wash clothes promptly and put them in the dryer with heat to help kill any ticks that may remain.
- Carefully remove ticks found attached to the skin. Gently use fine pointed (needle-nose) tweezers to grasp head and mouth parts of the tick as close to the skin as possible. Pull slowly to remove the whole tick. Try not to squash or crush the tick this can help bacteria to get into the body.
- Keep the tick for testing by placing it in a small sealed container or double zip lock bags. Place a moist paper towel or tissue with the tick to help keep it alive. Dead ticks can be tightly sealed in rubbing alcohol. Bring the tick to your doctor.
- Wash affected area with soap and water or disinfect (with alcohol or household antiseptic) after removing ticks.
- Know how to identify ticks, and know the signs and symptoms of Lyme disease.
- Contact a doctor immediately if you have an illness that resembles Lyme disease.

## **16.22 Molds**

### **Standard**

All employees should be aware of Molds and the effects of exposure.

Molds are microorganisms that produce thousands of tiny particles called spores as part of their reproductive cycle. Mold colonies are usually visible as colourful, woolly growths. They can be virtually any colour. When disturbed by air movement or handling, molds release their spores.

- Molds can be found almost anywhere.
- Molds usually originate from outside sources such as soil and vegetation.
- Molds prefer dark, moist environments and can grow at room temperature on various construction materials including wallpaper, particleboard, ceiling tiles, drywall, and plywood.

### **Exposure**

- Construction workers can be exposed to toxic spores when working on buildings with some sort of water damage from flooding, plumbing leaks, or leaks in the structure itself.
- In buildings with water damage or ongoing moisture problems, certain types of molds may reproduce to higher than normal levels and potentially cause health effects. *Stachybotrys chartarum* is of particular concern because it can be found in large colonies and can cause adverse health effects.
- *Stachybotrys chartarum* appears as small black patches and grows well on water-soaked cellulose material such as wallpaper, ceiling tiles, drywall, and insulation containing paper.
- In addition, construction personnel working in water-damaged buildings may be exposed to other types of toxic molds such as *Fusarium*, *Aspergillus*, and *Penicillium*.



### Contact and Symptoms

- Not all exposed workers will develop symptoms.
- Once released, toxic spores known as mycotoxins must come into contact with the skin or be inhaled before symptoms can develop.
- Exposure to toxic Molds may irritate skin, eyes, nose, and throat, resulting in allergy-like symptoms such as difficulty in breathing, runny nose, and watery eyes.
- Others symptoms have been reported such as fatigue and headache and asthmatic attacks.
- Toxic Molds must be removed. However, special control measures must first be implemented to prevent worker exposure and the spread of mold from one area to another.
- Personal Protective Equipment must be used as directed. Consult the H&S Department.

**Note:** If mold is discovered in a workplace the control and removal lies with the owner. Contact the H&S Department for further assistance.

### **16.23 Animal Droppings - Histoplasmosis**

#### Standard

Use the following procedures for excavation in ground soils suspected of containing droppings from chickens, pigeons, and bats. Inhaling dust from droppings can cause serious lung infection called histoplasmosis.

#### Material & Equipment

- Half mask respirator
- High efficiency particulate aerosol (H.E.P.A.) filters
- Disposable coveralls
- Disposable work gloves
- Disposable boot covers
- Duct tape
- Water

#### Procedure

1. Establish a work area protection zone.
2. In areas not suspected of containing the droppings of chicken's etc., normal excavation methods should be used.
3. Where work is to be performed in an area suspected of containing the droppings of chicken's etc., the following personal protective equipment must be worn:
  - a. Hard hat
  - b. Safety boots
  - c. Eye protection
  - d. Disposable coveralls



- e. Disposable boot covers
  - f. Half mask respirator with H.E.P.A. filters,
  - g. Disposable work gloves.
4. After putting on the personal protective equipment, and before commencing work, test the respirator for proper fit and seal the pant & sleeve cuffs of coveralls with duct tape.
  5. When possible, moisten the ground with water prior to excavation.
  6. Upon completion of the work, bag the coveralls, boot covers, gloves, and H.E.P.A. filters and discard.
  7. Wash respirator and place it in a sealed container for future use.
  8. Rinse hand tools with water prior to storage.

**Note:** Use of compressed air tools should be limited to reduce the risk of airborne particles including histoplasmosis spores which are inhaled as dust into the lungs.

### **16.24 Man-Made Vitreous Fibers (MMVF)**

Man-made vitreous fibers (MMVF) or synthetic vitreous fibers (SVFs) are a class of insulating materials. They are made primarily from glass, rock, slag or clay.

#### **Standard**

All workers handling or installing Man-Made Vitreous Fibers must take all reasonable precautions to ensure that they are not being exposed. Wearing personal protective clothing and equipment will prevent such exposures.

#### **The Three General Categories**

Fiber Glass:

- Glass Wool,
- Continuous Filament

Mineral Wool:

- Rock Wool,
- Slag Wool.

Re-factory Ceramic Fibers:

- Pure Oxides
- Kaolin.

#### **Where Used**

Fiberglass

- Fiberglass is produced in two basic forms, wool fibers and textile fibers.
- Thermal insulation,
- Noise-control (acoustic) products,
- Linings for air-handling ducts,



- Pipe insulation,
- Air filters,
- Homes
- Refrigerators

### Mineral Wool

- Mineral wool includes rock or stone wool and slag wool.
- Materials are sprayed with lubricating oils and binders to reduce dustiness (mineral wool generally contains a very high ratio of nonfibrous particles, or shot) and fiber breakage.
- Mineral wool applications are very similar to those of glass wool-thermal insulation, including fire protection, and acoustic insulation.

### Refractory Ceramic Fiber

- Refractory ceramic fiber (RCF) is formulated to help control heat flow in high-temperature, industrial situations.
- Kaolin clay based products, for which the clay is obtained by mining.
- Blends of alumina, silica, and refractory oxides (e.g. chromous and zirconia oxides)
- High-purity products that are a blend of purified alumina and silica and other materials.
- Used in high-temperature, industrial environments.
- Blankets are used as furnace and kiln liners
- Backup insulation to refractory brick, as soaking pit covers
- Annealing welds
- Loose RCF is used as a filler in packing voids and in expansion joints

## Health Effects

### Skin Irritation

SVFs may irritate the skin. This irritation is a mechanical reaction to sharp, broken ends of fibers that rub or become embedded in the outer layer of the skin and does not appear to be an allergic response. Typically, irritation does not persist and can be relieved by washing exposed skin gently with warm water and mild soap.

### Upper Respiratory Tract Irritation

If large amounts of airborne fine fiber are released and improper work practices permit inhalation of the fibers, some workers may experience temporary upper respiratory irritation.



### Preventative Exposure Measures

- Whenever possible, SVF products should be engineered and designed to limit their release of airborne dust.
- Manufacturing processes and engineering controls should be used to minimize airborne dust in the work environment.
- Approved respiratory protection and clothing that covers the skin as much as possible when handling or installing SVFs.
- Refer to MSDS for additional information.

### **16.25 Ergonomics (Workplace)**

#### **Standard**

Ergonomics is the study of the interaction between work and people. Workers in many jobs are at risk for musculoskeletal disorders due to hazards or risk factors in the workplace. An MSD (Musculoskeletal Disorder) is an injury or disorder that occurs over time as a result of repetitive, forceful or awkward body movements or static or awkward postures. These activities can over time result in injury to the muscles and joints.

#### **Musculoskeletal Disorders**

Musculoskeletal Disorder (MSD) is also known as Cumulative Trauma Disorder (CTD) and Repetitive Stress Injury (RSI). An MSD can damage muscles, tendons, and nerves of the neck, shoulder, forearm, hands, legs and back. Damage can also occur in other parts of the body. An MSD can cause pain, weakness, numbness or difficulty in grasping objects. Examples include Back Pain, Carpal Tunnel Syndrome, Bursitis, Trigger Finger, Tendonitis and Rotator Cuff Disorder.

#### **Symptoms of an MSD**

- Pain
- Swelling, inflammation
- Numbness or tingling sensation
- Decreased movement of a joint
- Stiffness of body part
- Symptoms worsen with time

#### **Risk Factors of an MSD**

##### Awkward or Static Posture (Prolonged or Frequent)

An awkward body posture is any change from a neutral position e.g. bending, stooping, twisting, reaching above the shoulders, reaching behind and bending the wrist forward, backward or side to side.

##### Repetition

Performing the same motion for too often, too quickly or for too long a period causes stress to joints and muscles. This type of work results in muscle and joint fatigue and can result in injury.



### Contact Stress

If the force required for completing the work overloads the muscles, joints and other soft tissues it can cause injury. Excessive force can be created by; long reaches, lifting heavy weights, improper gripping and excessive contact such as carrying a heavy coil of cable over one shoulder.

### Local or Hand/Arm Vibration

Risk depends on level and frequency of vibration, length of exposure and whether awkward postures are involved.

### Cold Temperatures

Flexibility is decreased, muscles do not work as efficiently. There is decreased blood flow to the muscles and joints.

### Hot Work Environments

Can lead to muscle fatigue due to dehydration and errors in how work is performed.

### Work Organization and Work Methods

Refers to work pacing, worker rotation and scheduling, potential complacency or monotony of tasks, physical and mental demands of the task, level of training and supervision.

## **Implementing Controls**

### General Principles

1. Use handling equipment when possible
2. Avoid lifting loads on or near the floor
3. Minimize working near the floor level
4. Move small weights often rather than heavy weights once
5. Regularly stretch muscles
6. Rotate workers to share monotonous, demanding or repetitive tasks

## **Specific Controls**

### Hand Tools

- Choose tools with vibration reducing features
- Choose tools that are lighter and reduce hand torque and kickback
- Make sure tools are balanced and do not require extra muscular effort
- Choose tools with triggers that allow for multiple fingers
- Inspect and maintain tools regularly. Replace old worn tools.

### Pushing and Pulling

- Make sure handles on carts are adjustable to allow for different worker heights
- Use larger wheels on carts to reduce push or pull forces
- Design work to avoid having to push or pull material up slopes or in crowded spaces
- Push rather than pull carts



### Heavy, Frequent and Awkward Lifting

- Use mechanical aids to lift, lower objects/material
- Keep loads close to the body
- Split large loads into smaller loads
- Plan lifting activities including clearing paths of obstacles and paying attention to good housekeeping

### Fixed or Awkward Postures

- Adjust height of adjustable work stations
- Use anti-fatigue matting
- Place materials at suitable heights and bring closer to the actual work activity area to avoid long reaches
- When working in cramped positions, allow time to stretch and change position.
- If possible use devices for overhead work.

### Repetition

- Implement job rotation
- increase variety of activities
- includes flexibility and encourage micro breaks

### Contact Stress

- Change or modify equipment
- Use PPE i.e. knee pads, padded gloves
- Change or modify work practice or work space to reduce contact with sharp or hard edges, surfaces.

### Cold Temperatures

- Ensure workers wear appropriate outdoor clothing including well fitting, insulated gloves
- Store tools in warm area if possible while not using
- Provide breaks in warm areas
- Provide portable heating if practical
- Encourage workers to stay hydrated

### Warm Temperatures

- Rotate workers to allow for cooling breaks
- Encourage workers to stay hydrated

### Work Organization and Work Methods

- Allow rest/recovery from demanding/repetitive tasks
- Provide work variability
- Ensure work pace and demands are appropriate
- Provide training on MSDs, hazards and controls



## **Ergonomics for the Office Environment**

Ergonomics can be defined as fitting the job to the worker. All workers are not the same size and everyone has different tolerances and limits. Ergonomics is applied to the design of workstations, work processes, equipment, and tools to fit the worker in order to minimize risk factors that may lead to musculoskeletal injury.

### **Proper Workplace and Workstation Design**

A properly designed workplace helps the worker maintain good body posture and minimizes forces on the body. The workstation should be appropriate for the job and fit the worker's body size and shape.

### **Standing at Work**

Generally the work surface should be at elbow height with the work placed in front of the worker so there is no need to twist or reach. Use of a footrail or footrest allows the worker to shift some of their body weight and rest muscles and joints. Anti-fatigue mats may provide cushioning for hard floors.

### **Sitting at Work**

Chair, desk, computer, or a workbench all affects the worker's body position. The chair should be adjustable so that feet rest comfortably on the floor or on a footrest. Arrange workstation to allow proper back support. (I.e. position keyboard or monitor closer to user). Arm rests should be adjusted to support the forearms and prevent hunching.

### **"Ideal" Sitting Posture for Computer Work:**

- Wrists: Naturally straight position; not bent up, down, or from side to side
- Elbows: Bent between 90° and 100° (right angle), close to your body and supported if possible
- Shoulders: Relaxed (not slouched or raised)
- Neck: Facing forward and not looking up, down, or to either side
- Hips: Bent around 90° with your thighs roughly parallel to the floor
- Low Back: Supported to maintain its natural curve
- Knees: Bent at about 90° with enough space between the back of your knees and the chair to place your fist
- Feet: Placed flat on the floor or supported by a footrest.

### **Preventing MSD's in the Office**

- Workers should stand up and get away from the desk and/or computer regularly throughout the day.
- Muscles work best when the body joints are in "neutral" positions. Workers should not remain in any one position (seated or otherwise) for long periods of time.
- Getting up and walking around, even short distances, throughout the day helps to reduce stress by improving circulation in the muscles and the spine.
- Micro-breaks are useful to allow muscles and joints a rest. Other daily tasks, such as filing and delivering, can be done while taking a break away from the computer.



### Chair Position

- Adjust the backrest so the low back support contacts the curve in the back and gives support in that area.
- Adjust armrests so that elbows can rest comfortably on the rests, and shoulders are level and relaxed
- Lower the seat pan so feet rest comfortably on the floor.
- Chair height should be adjusted to allow for typing comfortably with “ideal” wrist and arm positions. A footrest can be used if feet do not rest flat on the floor after chair adjustment.

### Keyboard and Mouse

- Keyboard and mouse should be slightly below elbow level and close to the body. The mouse should be right beside the keyboard, and in front of the mousing hand.
- To reduce stress on the hand, try to use the mouse with the opposite hand. This reduces the stress placed on one arm and frees the dominant hand to perform other tasks.
- Try moving the arm and shoulder rather than only the hand when mousing.

### Monitor and Document Holder

- Document holders help keep papers vertical or angled so the neck does not have to bend to read them.
- The document holder should be the same distance from the eyes as the computer screen.
- The monitor and keyboard should be directly in front of the worker.
- The top of the monitor and document holder should be around eye level when sitting comfortably.
- The monitor should be about arm’s length away at a comfortable reading distance.
- The monitor should be angled slightly up toward the eyes. Angling the monitor up too high can increase glare.
- Eyesight naturally falls about 20° down from the horizontal, the top of the screen should be placed around eye level. Line of sight should naturally fall to the middle of the screen.
- If the worker wears bifocals or trifocals, it's especially important to properly adjust monitor height. Tilting the head back to view the screen through the lower portion of the glasses could lead to muscle fatigue in the neck and back. Instead, try lowering the monitor.



## **16.26 Back Care**

### **Standard**

Construction work puts physical stress on the body. About half of the back injuries are attributed to lifting excessive weight or lifting incorrectly and the rest are the result of slips, trips and falls. Most back injuries are the result of everyday wear and tear rather than a single traumatic event.

### **Procedure**

Exercise Program to protect your spine, the muscle supporting your back must be both strong and flexible. A pre-work stretching program is recommended. Warming up prepares your body for the physical work ahead and helps minimize the risk of injury.

The three essentials are **Warm-up, Workout, and Cool-Down**.

**Remember – Check with your doctor before starting any exercise program.**

- Workplace Posture
  - Maintaining a proper posture is the most critical part of good back care. Using our muscular system to control posture minimizes the effects of everyday wear and tear on our spine. Any position held too long is not good for your back. Aches and pains from prolonged working postures are our body's way of warning you to change position. If these warnings are continuously ignored, you will be vulnerable to low back injury.
- Lifting
  - A weight that is too heavy, lifting in awkward position, twisting your body while lifting, or doing excessively heavy work are all common causes of low back problems. When lifting plan your move, size up the load and make sure your path is clear or get help if needed or use other material handling equipment if possible.
- Material Handling Equipment
  - Different types of equipment have been designed and manufactured to lift and move loads of various shapes, sizes, and weights. This equipment can not only save time and labor – it can save your back.
- Hoisting or Moving Heavy Loads
  - Special equipment is often required to hoist or move heavy loads manually. Devices from simple levers and rollers to more complicated chain hoists and derricks can handle loads that would otherwise be difficult to move. The mechanical advantage afforded by this equipment reduces the manual effort involved as well the risk of back injury.



## **16.27 Sanitation, Lunchroom and Hygiene**

### **Standard**

Adequate sanitation and hygiene facilities shall be provided at all workplaces as required by legislative standards. Consult the H&S Department.

### **Procedure**

The constructor/prime contractor shall ensure that adequate sanitation and hygiene is available.

- Washroom and cleanup facilities shall be readily available and used as per the regulatory requirements in your area.
- Women and men shall have separate facilities.
- Wash-up facilities with clean water, soap and individual towels shall be available nearby on all projects. If no water is available, waterless soap is satisfactory.
- A reasonable supply of fresh potable drinking water shall be supplied. Disposable cups shall be made available.
- Lunchrooms shall be kept in a clean, tidy condition. Your vehicle may be your lunch area.
- Care should be taken to ensure that work coveralls and other clothing do not contaminate the lunch room area.
- Perishable foods must not be allowed to accumulate in lunch rooms.
- Lunch room fridges and microwaves must be used for food use only.
- Proper hand hygiene should be encouraged in order to control the spread of illness such as common colds, flu's and gastro-intestinal infections. Using soap and lathering up is very important (rinsing hands in water only is not as effective. Hands should be washed for a minimum of 20 seconds - longer if the hands are visibly soiled. When there is no soap or water available, waterless hand cleaning sanitizers may be used. These solutions should be 60% alcohol or better.
- Proper sneeze/cough etiquette i.e. coughing or sneezing into your sleeve or into a tissue will also help control spread of illness in the workplace.

**Note:** When handling controlled products please consult the Material Safety Data Sheets for cleanup procedures.



## **16.28 High Bacteria from Lakes, Rivers and Standing Water**

### **Standard**

Workers who work near or close proximity to Lakes and Rivers that contain high levels of Bacteria must take all reasonable precautions to prevent exposure.

### **Procedure**

All workers who are required to work near or adjacent to water bodies that are known to have high concentration levels of bacteria during various construction activities must be aware of the potential health effects and risks to unprotected exposure to water.

The owner must disclose if there are any contaminants and if required conduct surface water sampling and provide a chemical data analysis.

Typically water that contains high levels of bacteria also generally contains contamination such as E coli, as well as pathogens such as giardia and cryptosporidium. Health effects can include:

- Diarrhea
- Irritation of upper respiratory tract
- Eye, nose or throat infection
- Skin ailments

Swallowing the water is the primary source of exposure to disease-causing microorganisms. However they may also enter through the ears, eyes, and nose or through broken skin.

The following procedures must be followed:

- Workers must avoid/eliminate unprotected contact with the water.
- This also includes tools and material that have come in contact with the water. Tools and equipment must be power washed using a water truck if it is exposed to the water or diluted in a solution mixed with bleach and water.
- If workers must contact the water or if equipment that has contacted the water they must be protected by some or all of the following personal protective equipment. Water proof rain suits, rubber gloves, eye protection, Tyvek suits and rubber safety boots.

All PPE that is exposed to the water must not leave site without being decontaminated by power washing with clean water first. This will prevent transporting contaminated clothing home. PPE must be cleaned as necessary and hanged to dry.

- There will be no smoking, chewing gum, eating or drinking during work that is within close proximity to the creek.



- Before coffee break, lunch, end of shift and using the toilet facilities all workers are required to wash their hands thoroughly with soap and clean water and use disinfectant solution to prevent absorption, ingestion and contact with the body.
- There must be a wash station situated within a reasonable distance. The station must include: a labeled container with clean water, pump dispenser of liquid soap, pump dispenser of disinfectant solution (hand sanitizer), rolls of paper towels and a garbage bin.
- Warning signs must be posted along the water indicating “high levels of bacteria use proper PPE and hygiene”.
- If there are any concerns or further assistance is required please contact the H&S Department.

### **16.29 Hand-Arm-Vibration**

#### **Standard**

All employees exposed to tools that vibrate need to be aware of **Hand-Arm-Vibration Syndrome (HAVS)** and the effects.

Hand-Arm-Vibration is the transfer of vibration from a tool to a worker’s hands and arms. The level of Hand-Arm-Vibration is determined by measuring the acceleration of the tool or object grasped by the worker.

Hand-arm vibration syndrome is a disease that involves circulatory disturbances, sensory and motor disturbances and musculoskeletal disturbances.

#### **Exposure**

Daily exposure to hand and arm vibration by workers who use vibrating tools powered by compressed air, gasoline or electricity (eg. powered hammers, jackhammers, chisels, chainsaws, sanders, grinders, riveters, breakers, drills, compactors, sharpeners and shapers) can cause physical damage to the hands and arms.

#### **Symptoms**

- Bluish discoloration (cyanosis) of the skin of fingers and hands.
- Whitening (blanching) of fingertips after cold or damp exposure (known as Raynaud’s phenomenon).
- Numbness, with or without tingling happens, before, during or after blanching.
- Attacks, more common in winter, but eventually may occur year round.
- Palms of the hands are rarely affected.
- Sense of touch and pain perception reduced, sometimes forever.
- Decreased grip strength, and inability to sustain muscle power.

**Prevention:**

Reducing the incidence of HAVS requires numerous actions. Some recommendations to prevent HAVS are:

- Provide adequate rest breaks away from vibrating tools (e.g. Reduce exposure hours, decrease the number of days exposed to vibrating tool by job rotation).
- Follow manufactures instructions on proper use of equipment. (e.g. Do not remove hand grips on grinders).
- Design tools to minimize vibration.
- Design tools to keep hands warm (e.g. Heated handles, relocate air vents).
- Use ergonomic design to reduce grip force, awkward posture, etc.
- Perform routine medical checks of those at risk. Record all signs and reported symptoms.
- Warn workers of health risks.

**NOTE:** There is no therapy at present for neurological symptoms other than removal from vibration exposure, but improved circulation may help with nerve recovery.

**16.30 Poison Ivy**

What causes poison ivy's allergic reaction? – The reaction is caused by Urushiol which is the resin / oil found on poison ivy, oak and sumac plants. The oil can only be transferred by physical contact and is not airborne.

Poison Ivy is an example of occupational allergic contact dermatitis which is an allergic response to skin contact with some allergy-causing material. Allergic dermatitis can also occur in other places on the body that did not come in contact with the allergy-causing material.

**Symptoms**

Signs of poison ivy (allergic contact dermatitis) includes redness of the skin, blisters, scales or crusts. These symptoms may occur within a few hours of contact or up to 48 hours.

**Protection**

Protective clothing such as sleeves and gloves should be worn to aid in the prevention of skin contact.

**Contact with Poison Ivy**

Anyone coming into contact with poison ivy should wash the contaminated areas of the skin with soap and water.

Be cautious not to touch or rub other areas of the body such as the eyes prior to First Aid.

**Procedure**

1. Complete a FLRA (Field Level Risk Assessment) to determine if the above hazard exists.
2. Use the enclosed pictures to identify the plants in your work area.
3. If plants are present wear Tyvek sleeves and rubber gloves.
4. Ensure that while wearing these items you do not touch your face or exposed skin.
5. After the job has been completed, dispose of sleeves and rubber gloves in a garbage bag.

**Identification**

Poison Ivy is commonly confused with other plants. Here are the key differences to look for to distinguish poison ivy from its look alike:

**Poison ivy**

- Three divided leaves
- Center leaflet on a longer stalk
- White, waxy berries along the stem
- Leaves alternate on the stem
- Erect shrub or climbing vine

**Fragrant sumac**

- Three divided leaves
- Center leaflets not on a stalk
- Red, fuzzy berries at the end of stem
- Erect shrub

## How to Identify Poison Ivy

Poison Ivy is often confused with another woody vine, Virginia Creeper (*Parthenocissus quinquefolia*). Notice how much bigger and lighter coloured the tendrils of Virginia Creeper are compared to the aerial roots of Poison Ivy. Both the vines shown below are about as big around as your thumb, and were growing on the same tree.



Poison Ivy (don't touch!)



Virginia Creeper (OK to touch)

The fruits of Poison Ivy are grapelike clusters of tiny, white, pumpkin-like seeds with an off-white or pale yellow rind. The photo below was taken in mid-November and shows that the rind dries out and flakes off eventually. The fruits also contain urushiol, but that does not stop the birds from eating them! Flickers and other woodpeckers are fond of them, along with sapsuckers, thrushes, pheasants and quail. The rind provides food to the birds while the seeds usually pass on through their gut unharmed and, in this way, birds are the agent for dispersal of Poison Ivy seeds.



## Poison Ivy Berries

Poison Ivy has compound leaves. That is, each leaf is made up of distt parts, called leaflets. In this case, there is one leaflet at the end of the leaf stalk (or petiole) and two leaflets opposite each other below the first. This is called a trifoliate pattern. The two lower leaflets have very short stalks and are often shaped like mittens, with a lobe on one side.

The shape, colour and texture of the leaflets are highly variable. These shown on the right have fairly smooth margins, but others may have rounded teeth or lobes.





### **16.31 Fatigue Management**

Fatigue is a state of being tired. It can be caused by long hours of work, long hours of physical or mental activity, inadequate rest, excessive stress and combinations of these factors. The signs, symptoms and affect fatigue has on workers varies from one person to the next; however, fatigue may affect the individual worker's ability to perform mental and physical tasks.

Some work environment or industries require extended hours of work which has the potential to expose employees to fatigue related hazards.

Fatigue is not hours of service; it is a complicated combination of many factors and it is manageable.

#### **Fatigue Program (FMS)**

The purpose of the FMS is to ensure that management, supervisors, and workers understand what fatigue is, how to recognize it, and how to proactively deal with it in the workplace. An effective FMS will include awareness of and response to fatigue issues in the workplace.

#### **Policy**

CF recognizes that fatigue is a factor that may affect a worker's ability to perform mental and physical tasks.

It is the policy of CF that it will train to the best of its ability, all management and supervisory personnel to recognize and respond to the signs and symptoms that might impair the worker's performance due to fatigue. The supervisor will be responsible to make changes to work requirements if fatigue impairment signs are evident. All concerns should be communicated to management and changes documented, reviewed and followed-up. It is the responsibility of all workers to conduct themselves at work and in their lifestyle in such a manner that they present themselves each day for work in a fit and unimpaired/unfatigued condition.

#### **Roles & Responsibilities**

##### Management

- To ensure the FMS is implemented throughout CF
- Provide the necessary information about fatigue
- Provide instruction and training
- Communicate employer expectations
- Monitor the effects of extended work hours
- Support employees who are experiencing concerns with fatigue
- Assist and advise line supervisors
- Investigate any problems and/or concerns



- Inspect the workplace and review FMS with employees
- Review the FMS Supervisors
- Ensure all crew members understand the FMS
- Conduct safety meetings discussing fatigue and the FMS
- Promote the FMS
- Ensure tasks are performed in safe and healthy manner
- Be aware of the possible risks associated with extended hours and/or consecutive days of work
- Give workers as much notice as possible if extended hours are anticipated
- Observe and record how individuals respond to extended hours
- Recognize symptoms of fatigue
- Get feedback from individual crew members and the crew as a whole
- Take prompt action if a risk develops
- Relay information to and from management & employees
- Report any FMS problems, concerns and/or issues

### Employees

- Actively participate in FMS awareness
- Recognize symptoms of fatigue
- Promptly report any fatigue-related concerns
- Report any individual medical or personal situations which may have an effect on fatigue
- Should get proper rest during time off
- Identify personal stress and seek assistance if required

### **Hazard Assessment**

Fatigue is considered a potential hazard and should be a consideration when developing work schedules, plans and hazard assessments.

### **Practices**

#### Preventative Methods for Dealing with Fatigue

- Inform all workers of the FMS
- Minimize extended hours of work when possible
- Schedule rest days
- Assess and control hazards and risks
- Provide information and assistance
- Recognize individual and crew fatigue
- Give as much advance notice of extended hours as possible
- Define whether the work is urgent or not



- Ensure crewmembers have access to food and water
- Take short and frequent breaks
- Solicit short-term help to minimize the need for extended hours
- Have crewmembers rotate and perform various functions of short duration during extended hours
- Perform complex tasks earlier in the shift, if possible
- After a long day, possibly start later the next day
- Utilize the buddy system to facilitate fatigue awareness in the field
- Account for employees returning from sickness, absences and/or modified work as there is the potential for an earlier onset of fatigue
- In conjunction with employees, identify health problems which may affect an employee's ability to work extended hours ie. diabetes
- In remote locations consider travel time to and from work
- Develop a method to track which employees are working extended hours and monitor

### **Awareness**

Employees may be required to take part in FMS Awareness training, which will consist of review of some or all of the following aspects, depending upon the employee's responsibilities.

- What is fatigue?
- Signs, symptoms and consequences of fatigue
- Roles and responsibilities
- Preventative methods
- Reporting procedures
- Monitoring methods
- Program review processes

### **Monitoring Methods**

- Management/supervisors to monitor days off/consecutive days of work
- Management/supervisors to monitor crew's hours of work
- Management/supervisors to determine the need for extended hours
- Management/supervisors are to monitor crews when working extended hours, for fatigue- related concerns
- Managers/supervisors are to address crewmember concerns regarding working extended hours
- Management is to monitor supervisor-employee relationships
- Ensure everyone is aware of FMS



### **FMS Review**

- Periodically review FMS Policy and Procedures
  - New employee orientations
  - Annual safety meeting (with analysis from year-end)
  - Hazard assessments and Tool Box Meetings
  - By request
- Compare ratio of crews working extended hours to those who are not
- Review and determine the reason and factors for working extended hours
- Perform and review employee/supervisor 'Extended Hours of Work' survey
- Review the effectiveness of the FMS Awareness program
- Review the factors affecting the need for extended hours

### **Discuss possible alternatives to extended hours of work**

### **Jurisdictional Requirements**

Some jurisdictions and industries have specific legislation and guidelines regarding fatigue management that must be adhered to when developing a work schedule. These regulations or guidelines shall typically state the maximum amount allowable hours worked per day and the minimum rest period between shifts.

Please consult with the H&S Department for further information regarding fatigue management guidelines.