

Date Revised:	April 2019	Overall Task Risk Rating:	A
Description:	Activities that require and/or are related to the manual removal of snow on sidewalks, pathways, entrances other areas that are not accessible by equipment.		
Location(s):	Office, Shop, Asphalt Plant, Snow Projects		
Associated Documents: Housekeeping WTS, Hazardous Agents WTS, Traffic Control WTS, Loading and Unloading WTS, Fueling and Refueling WTS, Equipment & Machinery Operation WTS, Equipment Repairs (Blocking) WTS, Snow Maintenance Operations WTS			

RED FLAGS (HOLD WORK UNTIL CORRECTED):

Note:

- If the Worker is under any influence that could affect their ability (drugs, alcohol, fatigue). The worker is not fit for duty.
- Not prepared for working in cold

PERSONAL PROTECTIVE EQUIPMENT (CSA APPROVED)

Head Protection	Foot Protection	High-Vis Protection	Hearing Protection	Hand Protection	Eye Protection	Respiratory Protection	Skin Protection	Face Protection	Fall Protection
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

- Additional PPE may be required based on task specific hazards
- Access to additional winter clothing as described in the safe work practices
- Hearing protection should be worn when noise levels exceed 85 dB. Eye protection when necessary

SAFE WORK PRACTICES (SWP)

General Tools and Equipment Practices:

- If you are not familiar with the safe use of any tools or equipment, ask your Foreman / Superintendent for assistance
- Refer to the owner's manual for safety and maintenance information specific to the tool or equipment
- Ensure powered tools or equipment is shut off before commencing fueling / refuelling
- Use tools designed to allow wrist to stay straight - avoid using hand tools with your wrist bent
- Use the tools or equipment for it's intended use

Inspections:

- Inspect all tools and equipment before use and record pre-use inspections where required for specific pieces of equipment
- Before starting a tool or equipment, ensure guards and safety devices are in place, adjusted and functioning properly
- All exposed moving or rotating parts must be adequately guarded
- Do not make any protective devices or guarding ineffective
- Do not use defective tool or equipment, remove it from use and inform your foreman / superintendent - they will arrange for it to be serviced

Winter Clothing

- Work activity and temperature may vary throughout the day. Dressing in layers allows the worker to add or remove layers as needed. Adjustments to layers should be made prior to work rate or exposure changing to prevent sweating and cooling effects. Generally, three types of layers can be used to increase effectiveness of winter work wear. These are:

Layer	Purpose	Examples
Inner	Absorb moisture and keep it away from the skin.	<ul style="list-style-type: none"> • Thermal underwear (top and pants) • Wool or thermal socks • Glove liners
Insulating	Helps keep a layer of warm air trapped around the body.	<ul style="list-style-type: none"> • Fleece mid-layer (top and pants) • Boot liners
Outer	Keeps dust, dirt, wind, and moisture away from the previous layer. Easily removed to prevent the buildup of body heat.	<ul style="list-style-type: none"> • Balaclava / face mask • Arctic-type parka • Outer wind-block pants • Insulated gloves or mittens • Insulated work boots

- Winter Clothing can be bulky and limit mobility. Over protection may result in unnecessary hazards to workers. Winter clothing must protect against the cold and the hazards of the job task but still allow enough mobility and dexterity to complete the task.
- Base layers paired with outer layers are the best method to protect the skin from cold and moisture. Base layers include inner and insulating layers. The purpose of these layers is to draw moisture away from the body and provide the insulation required for the cold exposure of the work environment.
- Outerwear may provide some insulation but its main purpose is to provide protection from wind, moisture and non-winter hazards that are present due to the job task or work environment
- During cold conditions any skin that is uncovered is susceptible to heat loss and cold exposure. Heat loss will occur from your head proportionate to the percentage of body surface area your head, face and neck comprise. Also frostbite of the nose, ears and cheeks are very common. To prevent frostbite and heat loss, the head, face and neck can be protected using balaclavas, hard hat liners, neck warmers and toques.
- Gloves must be made of material that is suitable for the highest severity job hazard and cold exposure while allowing for enough dexterity to perform the task. Two options may be used to protect against job hazards and the cold: insulated gloves or non-insulated gloves paired with liners. Layering increases warmth of fingers and improves dexterity.
- Winter footwear must provide enough insulation to prevent cold exposure injuries, enough traction for the surface they will be used on and protect against other hazards that may be present due the work task or environment.

Cold Stress:

- Frostbite and hypothermia are caused by exposure to severe cold or by contact with extremely cold objects (i.e. metallic objects)
- Once damaged, tissues will always be more susceptible to future frostbite
- Controls include wearing several layers of warm clothing with a waterproof and wind-resistant outer layer and use the Buddy System
- Frostbite Signs and Symptoms are sharp, prickling sensation, skin looks waxy and feels numb
- Hypothermia Signs and Symptoms are shivering, blue lips and fingers, lack of coordination, drowsiness
- If you think someone has signs of cold related illnesses, inform the foreman / superintendent, move the person to a warm area, remove wet clothing, warm affected area gradually, seek medical attention in severe cases

Training:

- Employee Orientations (including roles, responsibilities, applicable workplace task standards, WHMIS, etc.)
- Workers exposed to, or required to work with WHMIS controlled products/material, must be trained in WHMIS accordingly
- Only trained, authorized personnel are allowed to operate or perform maintenance (or do repairs) on tools or equipment
- Only operate tools and equipment that you are authorized and trained to use
- Every worker who may be required to use fire extinguishing equipment shall be trained in its use

Personal Protective Equipment:

- Workers on construction projects must wear, at a minimum, head, foot, eye and high visibility protection
- Full face protection is required when completing tasks that may cause debris / objects to dislodge or become airborne
- Workers must adhere to all requirements of legislated regulations when handling specific designated substances
- Workers must wear all PPE listed in specific materials MSDS / SDS

Environment Canada Wind Chill Chart

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

where
 T_{air} = Actual Air Temperature in °C
 V_{10m} = Wind Speed at 10 metres in km/h (as reported in weather observations)

Notes:

1. For a given combination of temperature and wind speed, the wind chill index corresponds roughly to the temperature that one would feel in a very light wind. For example, a temperature of -25°C and a wind speed of 20 km/h give a wind chill index of -37. This means that, with a wind of 20 km/h and a temperature of -25°C, one would feel as if it were -37°C in a very light wind.
2. Wind chill does not affect objects and does not lower the actual temperature. It only describe how a human being would feel in the wind at the ambient temperature.
3. The wind chill index does not take into account the effect of sunshine. Bright sunshine may reduce the effect of wind chill (make it feel warmer) by 6 to 10 units.

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	

JOB HAZARD AND RISK ANALYSIS		RISK RATING SYSTEM
		A High risk of injury or equipment / property damage. B Medium risk of injury or equipment / property damage. C Low risk of injury or equipment / property damage.
TASK HAZARDS	TASK CONTROLS	RATING
<ul style="list-style-type: none"> Lack of proper PPE 	<ul style="list-style-type: none"> Workers must wear the required PPE set out in its SDS Ensure all workers are trained in the PPE that they require 	B
<ul style="list-style-type: none"> Forceful exertions – lifting, pushing of snow 	<ul style="list-style-type: none"> Use mechanical equipment to remove snow from entrances, sidewalks and paths when and were possible Use a light weight shovel, appropriate to the task, ensuring handle is long enough so as not to stoop 	C
<ul style="list-style-type: none"> Struck by Equipment / Vehicles 	<ul style="list-style-type: none"> Ensure all workers are wearing required PPE Workers working near traffic areas must remain vigilant and aware of traffic conditions and the movement of vehicles 	A
<ul style="list-style-type: none"> Awkward Postures – Twisting & reaching 	<ul style="list-style-type: none"> Use tools only for their intended purposes Push snow with appropriate shovel rather the lifting If need to throw snow, take smaller amounts for easy lift and turn feet to the direction of throw – do not twist at the waist 	C
<ul style="list-style-type: none"> Repetitive Vibrations & Musculoskeletal Injuries 	<ul style="list-style-type: none"> When possible, use low vibration tools and equipment Maintain tools and equipment properly Minimize exposure time and frequency of vibrations 	B
<ul style="list-style-type: none"> Cold Stress 	<ul style="list-style-type: none"> Wearing several layers of warm clothing with a waterproof and wind-resistant outer layer including gloves to reduce skin chaffing and hat or balaclava Use the Buddy System – watch for signs of cold related illnesses in your co-workers If you think someone has a cold related illness, inform the foreman / superintendent, move the person to a warm area, remove wet clothing, warm affected area gradually, seek medical attention in severe cases 	A
<ul style="list-style-type: none"> Slips and trips due to icy conditions 	<ul style="list-style-type: none"> Appropriate non-slip footwear Apply de-icing materials as necessary 	C
<ul style="list-style-type: none"> Dehydration 	<ul style="list-style-type: none"> Drink water as necessary to maintain hydration 	C

SAFE JOB PROCEDURES (SJP)
<p>Pre-Task Commencement:</p> <ol style="list-style-type: none"> Gather, inspect and wear the required PPE for the task - (additional high-visibility PPE must be worn when working in low visibility conditions). Replace any damaged or defective PPE as required Ensure controls are in place prior to commencing work so risks are mitigated / eliminated Determine what equipment / machinery / tools and material, are required for the completion of the task Faulty tools or equipment must not be used Locate and ensure you are familiar with the operation of the snow removal tools and equipment. Do not modify any tool or equipment in any way. Do not use tool or equipment if it is damaged. Immediately report any damages to your supervisor. Ensure that you have access to water before, during and after the snow shoveling. Dress in layers where possible and be aware of the wind chill! Stretch your muscles focusing on your upper body.

11. Select the proper shovel for your size. Ideally the shovel should come up to your chest. A shovel with a curved handle is best. Remember that a push style shovel is not intended for lifting.

During Task:

1. Inspect and don all personal protective equipment and warm winter clothing.
2. Use the mechanical equipment to remove all snow from the entrance ways, sidewalks and paths first.
3. Use light weight shovel, appropriate to the task, ensuring handle is long enough so you don't have to stoop.
4. Push snow with appropriate shovel designed for this if practical, rather than lifting the snow.
5. If needing to throw snow, push close to area. Take smaller amounts that you can easily lift and turn your feet to the direction you're throwing - don't twist at the waist.
6. Try to use safe body mechanics. For shoveling, these include:
 - a wide stance, a wide grip on the shovel, and trying to keep your back straight and upright;
 - bending the knees and hips when lifting rather than rounding your back forward;
 - take small steps to turn to avoid twisting your back especially when carrying loads;
 - forcefully twisting with a load greatly increases the stress on your back and shoulders.
7. Alternate your hands periodically to break up the same movement.
8. Be extremely cautious throughout this procedure, it is very easy to slip on the snow and ice. Take small steps and walk slowly.
9. Pace yourself. Take frequent micro breaks to stretch your back if you are shoveling for long periods.
Caution: DO NOT shovel for several hours straight. Stop every 30-60 minutes to stretch and warm up. The colder the weather the more breaks that are required. Shoveling for long periods of time can cause back injuries, muscle strains, frost bite and hypothermia.
10. Take breaks as required and replace fluids lost due to dehydration, maintain an easy pace in order not to become fatigued and experience energy loss.
11. Once snow has been cleared, spread salt or other de-icing agent on the area, where appropriate.

Pushing the snow:

- Push the snow from the center to the sides and then lift it.
- Push the snow with a wide blade shovel and lift and throw with a smaller blade shovel.

Snow scoops:

- Push the scoop, pulling it will cause strain to the back and neck.
- Do not lift the scoop, pushing it forward quickly and stopping, or tilting it gently will allow the snow to slide out. Do not use your knees to help push and lift the scoop.
- Keep your arms at a 90-degree angle to the handle.
- If the snow is wet or packed, do not fill the scoop as this will make it harder to handle.

Lifting the snow:

- Do not reach- always move your feet. Keep your feet at hip width apart and the shovel close to your body. The throw height should not exceed 4 feet or a distance of 3 feet. Avoid awkward throwing postures.
- Squat with your legs apart, knees bent and back straight.
- Lifts with your legs...do not bend at your waist.
- Scoop small amounts of snow into the shovel and walk to where you want to dump it.
- Do not hold a shovelful of snow with your arms outstretched - it puts too much weight on your spine.

Shoveling stairs:

- Avoid twisting to access the snow or throwing it to the side or over the shoulder
- Stand lower than the step that you are shoveling and pull the snow towards you. Repeat this until you reach the bottom step
- Scoop and lift the snow or push the snow to the disposal area.

Task Completion:

1. Ensure all workers are accounted for
2. Ensure all equipment / machinery / tools are maintained and stored appropriately in the designated locations
3. Implement any housekeeping or maintenance as required