

OH&S Risk Mapping Tool for injury prevention



Occupational health and safety risk mapping tool: Facility/single location

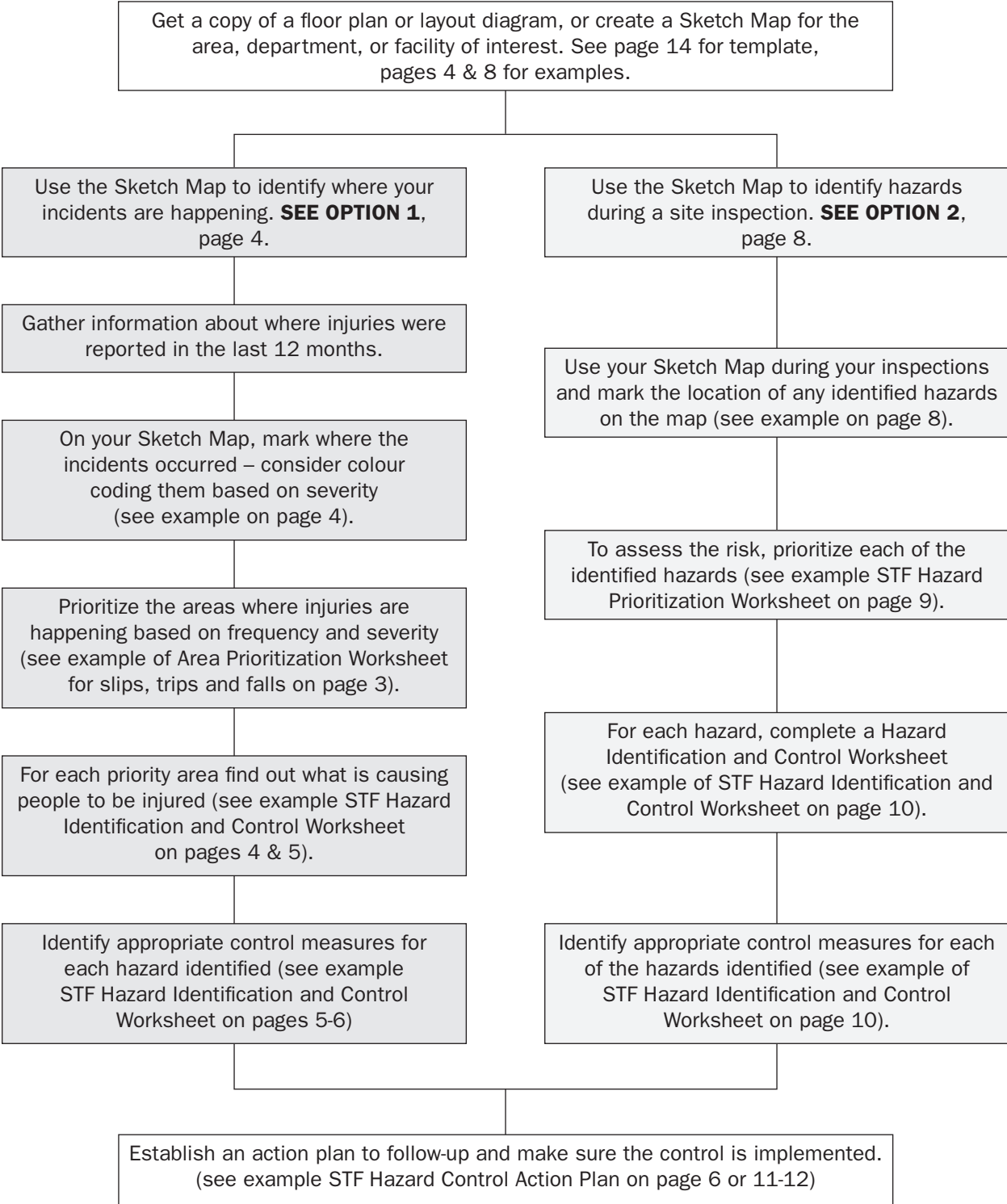
This Occupational Health and Safety Risk Mapping Tool can be used in any workplace or work area and can be very effective in helping reduce injuries at work. Workplace parties (employers, workers, Joint Occupational Health and Safety Committee members, safety representatives, etc.) can use this tool to help identify, assess and control injury hazards in the workplace.

How to use the OH&S Risk Mapping Tool

The OH&S Risk Mapping Tool is designed to be used in two ways. First, it can help you identify where and why your employees are being injured. Second, it can be used as a proactive inspection tool to help identify where hazards exist, even if no incidents have yet occurred. The flow chart that follows outlines the basic steps for each option. Detailed information about each step, for both options, can be found in the rest of the document.

Slips, trips and falls are a major cause of injury for Nova Scotia workers. The Sketch Map, Hazard Identification and Control Worksheet, and Hazard Control Action Plan samples in this booklet, while specific to slips, trips and falls, can be adapted to address any cause of injury.

OH&S Risk Mapping Tool Flow Chart



Option 1: Where are your slips, trips, and falls happening and why?

- If you can, get a copy of a diagram that shows the layout of your facility, including outside areas such as parking lots. Many organizations will have an evacuation diagram that could be used for risk mapping. If this is not available, draw a sketch map of the area. Note that the sketch map does not need to be a work of art or even to scale, as long as it represents the workplace affected. For larger facilities, it may be helpful to create a different sketch map for different and/or smaller areas of the facility (e.g. one for each floor, one for the warehouse and one for the office areas, etc.).
- Gather information about where slips, trips and falls were reported in the last 12 months. You can get this from:
 - A review of the past year’s incident reports, near miss reports, incident investigations
 - Talking with workers and asking them if they have had a slip, trip or fall, or a near miss, and where it happened
 - Compare what you learned from the workers with the data from the review of the incident reports, etc.
- Once you have gathered all the information about the past year’s slips, trips, and falls, mark where they happened on the map. Any locations with multiple slip, trip and fall incidents (e.g. ‘hotspots’) will quickly show up on the Sketch Map. See example on page 4.
- Prioritize the areas where slips, trips, and falls are happening based on the frequency and severity of the incident. See an example of a STF Area Prioritization Worksheet – Option 1 below. A blank template version of the worksheet can be found on page 15.

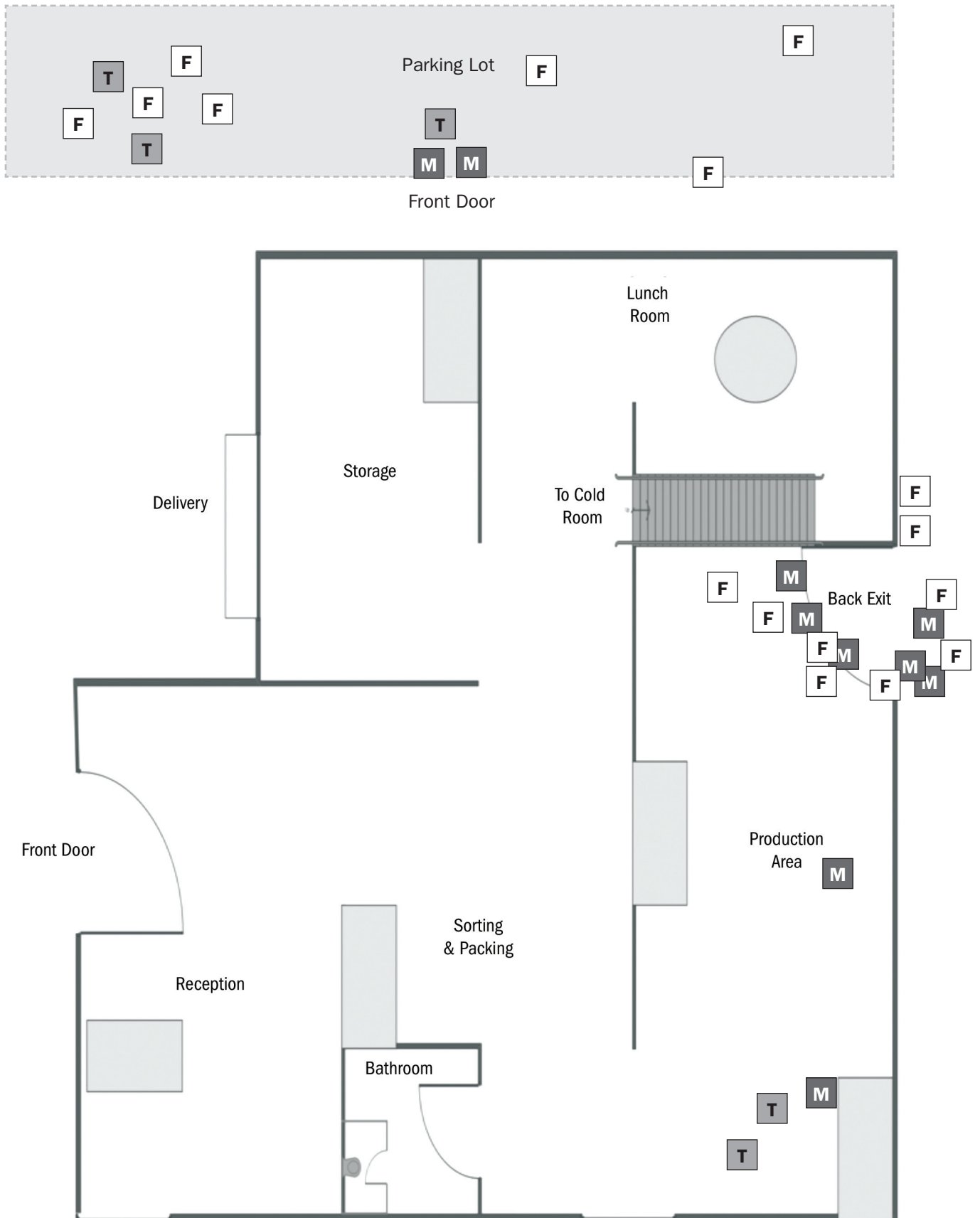
Example of STF Area Prioritization Worksheet – Option 1 for Sketch Map 1 (see page 4)

Area/ Location	Total # of STFs	# Time Loss (TL)	TL Score (# of TL x 10)	# Med Aid (MA)	MA Score (# of MA x 5)	# First Aid or Report Only	FA or RO Score (# of FA or RO x 1)	Total Score (TL Score + MA Score + FA or RO Score)	Priority
Parking Lot	12	3	30	2	10	7	7	47	1
Production Area	4	2	20	2	10	0	0	30	3
Back Exit	16	0	0	6	30	10	10	40	2

- For each area, in order of priority, find out what is causing people to slip, trip, or fall. This is called hazard identification. See an example of a STF Hazard Identification and Control Worksheet on pages 5-6. A blank template version of the worksheet can be found on page 17. This is done by going back to the incident reports and/or incident investigations to determine root causes.
- If there is no incident report, or the incident wasn’t adequately investigated, interview the worker(s) involved to find out what happened. Document the possible causes of the slip/trip/fall (see “STF Inspection Areas with hazards to look for and possible controls” on page 19). Consider taking pictures of the area/hazard if this will help when communicating with others about the need for controls.

STF Sketch Map Example 1

T = Time Loss **M** = Medical Aid **F** = First Aid/Report Only



- The next step is to identify appropriate control measures for each of the slip, trip and fall hazards identified. This information can be found and compiled from the incident investigation forms that were completed for each slip, trip and fall incident that occurred in each priority area. If this information isn't available you should:
 - Consider a variety of approaches to control the identified hazard and, in consultation with appropriate workplace parties (e.g. staff and managers from departments where incidents took place, facilities and/or environmental services, engineering, human resources, etc.), select a preferred control approach. See “STF Inspection Areas with hazards to look for and possible controls” on page 19 for various control ideas.

Example of STF Hazard Identification and Control Worksheet for Sketch Map Example 1 (see page 4)

Priority	Area/ Location	Hazard	Control
1	Parking Lot	Poor ground conditions in the area where we saw two TL and four FA or RO incidents. Large potholes and broken pavement	<p>Short term solution – Maintenance to fill in potholes and remove large loose pieces of pavement. Include parking lot in monthly inspection process.</p> <p>Long term solution – Include a plan for repaving of parking lot in next year’s capital projects.</p>
		Transition area from parking lot to building ices up in the winter due to poor drainage	<p>Short term solution – Schedule snow clearing, salting/sanding of walking path from parking lot to building 30 minutes prior to business day and ongoing monitoring throughout operational time.</p> <p>Long term solution – Include a plan for regrading path in next year’s capital projects.</p>
		<p>Additional FA or RO incidents were due to:</p> <ul style="list-style-type: none"> • Walking then tripping while texting • Slipping on a chip bag • Startled by a raccoon 	<p>Action as soon as possible – Reinforce the need to pay attention and eyes on task with all employees.</p> <p>Lack of waste bins may be contributing to the littering. Install waste bins and remind staff to use the bins to dispose of trash.</p> <p>Cleaning up the waste and regular removal of the trash should address the raccoon problem.</p>
2	Back Exit	Four of the six medical aid incidents occurred due to the ice build-up on the steps. Rain gutter above back exit is leaking and is dripping onto the steps creating ice.	<p>Action as soon as possible – Inspect gutter and repair if necessary.</p>
		Additional incidents occurred due to mud and water being tracked onto the ceramic tile, creating a slippery walking surface. People are using the area outside the back exit as a smoking area.	<p>Short term solution – Install a boot cleaning mat at the top of the stairs and an antislip surface on the ceramic tile.</p> <p>Medium term solution – Investigate a covered designated smoking area with a gravel path.</p> <p>Long term solution – Create a smoke-free workplace.</p>

Priority	Area/ Location	Hazard	Control
3	Production Area	Three of the reported incidents took place at the entrance of the department where there is a slight grade and raised threshold. Employees carry materials that obstruct their vision.	<p>Short term solution – Reinforce proper material handling procedures including the use of dollies, carts and pallet jacks. Identify the grade and raised threshold with hi-visibility paint.</p> <p>Long term solution – Remove the raised threshold.</p>

- Once the preferred controls have been identified:
 - Establish a plan to follow-up and make sure the control is implemented. See example STF Hazard Control Action Plan For Sketch Map Example 1 below
 - Continue to monitor the area to ensure control measures put in place are working
 - If the control is not working, investigate to determine why not and develop a plan to address the reasons why the control measures are not working
 - Make sure that all staff are made aware that the controls were put in place to reduce slip, trip and fall incidents.

Example of STF Hazard Control Action Plan for Sketch Map Example 1 (see page 4)

Area/ Location	Brief Description of Hazard	Brief Description of Control	Person Responsible	Date to be Completed By	Status
Parking Lot	Large potholes and broken pavement	Maintenance to fill in potholes and remove large loose pieces of pavement.	Bill Wood, Maintenance Manager	June 20, 2016	
		Include parking lot in monthly inspection process.	Judy Smith, H&S Manager; Sam Jones, Facilities Manager	June 1, 2016	
		Plan for repaving of parking lot in next year's capital projects.	Susan Frank, CEO Les Jamison, Director of Eng.	September 30, 2016	

Option 2: Using the tool during inspections to help identify slip, trip and fall hazards

Workplace parties can use this tool to help them identify slip, trip and fall hazards during regular inspections. During inspections, you should look for slip, trip and fall hazards and mark them on your sketch map. See “STF Inspection Areas with hazards to look for and possible controls” on page 19 for a list of things to look for, but don’t be limited by the list.

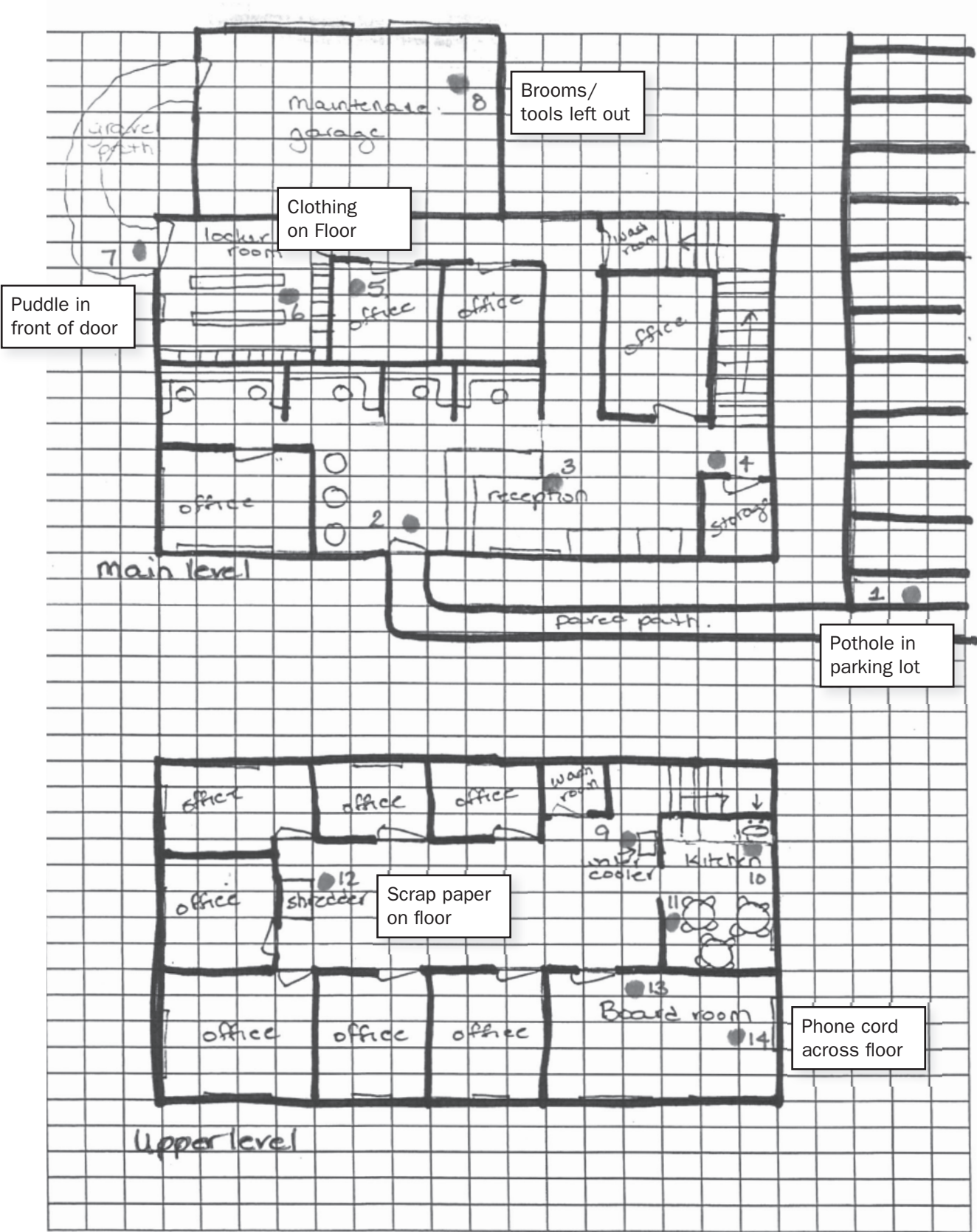
- If you can, get a copy of a diagram that shows the layout of your facility, including outside areas such as parking lots. Many organizations will have an evacuation diagram that could be used for risk mapping. If this is not available, draw a sketch map of the area (See STF Sketch Map Example 2 on page 8). Note that the sketch map does not need to be a work of art or even to scale, as long as it represents the workplace affected. For larger facilities, it may be helpful to create a different sketch map for different and/or smaller areas of the facility (e.g. one for each floor, one for the warehouse and one for the office areas, etc.)
- Once you have your sketch map, use it during your inspection(s) of your facility, department or work area. When you have identified a STF hazard, mark down its location on the sketch map (E.g. use a red marker to indicate the location on the map), and then write a short note to identify what the hazard(s) is.
- Before moving on, you should assess the risk associated with each of the identified hazards and prioritize them. This will allow you to plan for the implementation of controls based on the level of risk associated with the hazards. For each of the STF hazards you have identified on the sketch map, answer yes or no to each of the four points in the STF Hazard Simple Risk Assessment process described below. In each of the worksheet’s rows, write in the area and identified hazard and then answer yes or no to each point. The more ‘yeses,’ the higher the priority. See the example STF Prioritization Worksheet – Option 2 on page 9.

NOTE: If you find a STF hazard during your inspection that you can do something about, then you should! You must, however, make note of the hazard on the sketch map so that you can assess the risk for the hazard and implement a control to reduce the risk of slips, trips and falls for workers.

STF Hazard Simple Risk Assessment

- The STF hazard has been previously identified (e.g. during past inspections, reported by workers, etc.)
- Control measures have not been put into place to prevent the hazard from occurring or to reduce the risk associated with the hazard
- Workers exposed to hazard during regular operations/work
- The hazard is known to have contributed to STF related incidents

STF Sketch Map Example 2



Example of STF Hazard Prioritization Worksheet – Option 2 for Sketch Map 2 (see page 8)

Area/ Location	Hazard	Previously Identified (Y/N)	Control Measures not in place (Y/N)	Exposed during regular operations (Y/N)	Previous STFs (Y/N)	Total Score (# of Y)	Priority
Parking	Potholes	Y	Y	Y	Y	4	1
Locker Room	Clothing on floor	Y	N	Y	Y	3	2
Gravel Path	Puddle	N	N	Y	N	1	4
Garage	Tools/ Brooms	Y	N	Y	N	2	3
Upper Level	Water on floor at cooler	Y	N	Y	N	2	3

- For each of the identified hazards, begin to complete the STF Hazard Identification and Control Worksheet – enter the priority number for each hazard and provide a more complete description for each of the hazards identified, in each location.
- The next step is to identify appropriate control measures for each of the slip, trip and fall hazards identified. If the hazard has contributed to known STF incidents, the related incident investigation forms should provide some information about possible control measures. If this information isn't available you should:
 - Consider a variety of approaches to control the identified hazard and, in consultation with appropriate workplace parties (e.g. staff and managers from departments where incidents took place, facilities and/or environmental services, engineering, human resources, etc.), select a preferred control approach. See “STF Inspection Areas with hazards to look for and possible controls” on page 19 for various control ideas.
- Enter the recommended STF hazard controls into the STF Hazard Identification and Control Worksheet. See the STF Hazard Identification and Control Worksheet Example for Sketch Map Example on page 10.

NOTE: If you find a STF hazard that has been previously identified, and where a control measure has been implemented, **but** STF incidents are still occurring, you should make it a priority to review the control measure to find out why it isn't working.

Example of STF Hazard Identification and Control Worksheet for Sketch Map 2 (see page 8)

Priority	Area/ Location	Hazard	Control
1	Parking lot	1 – Potholes in parking lot	<p>Short term solution – Maintenance to fill in potholes and remove large loose pieces of pavement. Include parking lot in monthly inspection process.</p> <p>Long term solution – Include a plan for repaving of parking lot in next year’s capital projects.</p>
2	Main Level (office)	2 – Mat wrinkled at entrance	<p>Short term solution – Straighten mat.</p> <p>Long term solution – Investigate alternative mat options or means to keep the mat from wrinkling.</p>
2	Main Level (office)	4 – Supply material stored in hall	<p>Action as soon as possible – Put supplies in storage room and reinforce the need to put supplies in storage room with staff.</p> <p>Long term solution – Investigate why materials are not being put into storage room and take steps to address them.</p>
2	Locker Room	6 – Employee’s clothing left on benches and on floor	<p>Action as soon as possible – Remove clothing from floor and reinforce with employees the importance of having them properly store their clothing in lockers or on hooks provided.</p>
2	Upper level	11 – Garbage on floor near lunch tables in kitchen	<p>Short term solution – Post signage to remind users of the facilities to clean up any mess or spills.</p> <p>Long term solution – Investigate why garbage is not being properly disposed of and take steps to address the issue.</p>
2	Upper level	12 – Scrap bits of paper on floor near shredder	<p>Short term solution – Clean up area. Provide a broom and dust pan to sweep up any loose paper. Post signage to ensure area is clean after use.</p> <p>Long term solution – Investigate why scrap paper is being left on the floor (e.g. is it a shredder design issue) and take steps to address the issue.</p>

- Once the preferred controls have been identified:
 - Establish a plan to follow-up and make sure the control is implemented. See example STF Hazard Control Action Plan for Sketch Map Example 2 on page 11.
 - Continue to monitor the area to ensure control measures put in place are working.
 - If the control is not working, investigate to determine why not and develop a plan to address the reasons why the control measures are not working.
 - Make sure all staff are made aware that the controls were put in place to reduce slip, trip and fall incidents.

Example of STF Hazard Control Action Plan for Sketch Map Example 2 (see page 8)

Area/ Location	Brief Description of Hazard	Brief Description of Control	Person Responsible	Date to be Completed	Status
Parking Lot	Large potholes and broken pavement	Maintenance to fill in potholes and remove large loose pieces of pavement	Bill Wood, Maintenance Manager	June 20, 2016	
		Include parking lot in monthly inspection process	Judy Smith, H&S Manager Sam Jones, Facilities Manager	June 6, 2016	
		Plan for repaving of parking lot in next year's capital projects	Susan Frank, CEO Les Jamison, Director of Eng.	September 30, 2016	
Main Level (office)	Mat wrinkled at entrance	Straighten mat	John Franko, JOSHC member	June 1, 2016	Completed during inspection
		Investigate alternative mat options or means to keep the mat from wrinkling	Judy Smith, H&S Manager Sam Jones, Facilities Manager	June 30, 2016	
Main Level (office)	Supply material stored in hall	Put supplies in storage room	Cindy Teal, Receptionist	June 1, 2016	
		Investigate why materials are not being put into storage room and take steps to address the issue	Sam Jones, Facilities Manager	June 30, 2016	
Locker Room	Employee's clothing left on benches and on floor	Hang up clothing from floor	John Franko, JOSHC member	June 1, 2016	Completed during inspection
		Deliver safety talk to employees about proper storage of clothing in lockers or on hooks	Sam Jones, Facilities Manager	June 1, 2016	
Upper level	Garbage on floor near lunch tables in kitchen	Post signage to remind users to clean up any mess or spills	Sam Jones, Facilities Manager	June 1, 2016	
		Investigate why garbage is not being properly disposed of and take steps to address the issue	Sam Jones, Facilities Manager	June 30, 2016	

Area/ Location	Brief Description of Hazard	Brief Description of Control	Person Responsible	Date to be Completed	Status
Upper level	Scrap bits of paper on floor near shredder	Clean up area	John Franko, JOSHC member	June 1, 2016	Completed during inspection
		Provide a broom and dust pan to sweep up any loose paper. Post signage to ensure area is clean after use	Sam Jones, Facilities Manager	June 30, 2016	
		Investigate why scrap paper is being left on the floor and take steps to address the issue	Bill Wood, Maintenance Manager	June 30, 2016	

Further help and information

<http://www.worksafeforlife.ca/Home/Safety-Initiatives/Slips-Falls>

https://ccohs.ca/oshanswers/safety_haz/falls.html

<http://www.wsps.ca/Information-Resources/Topics/Slips,-Trips-and-Falls.aspx>

<https://www.worksafe.vic.gov.au/safety-and-prevention/health-and-safety-topics/slips-trips-and-falls>

Slips, trips and falls: The importance of floor cleaning Information Sheet (Slips, trips and falls 2) MISC691 HSE 2005 Web version only at www.hse.gov.uk/pubns/web/slips02.pdf

Preventing slips, trips and falls at work Leaflet INDG225 (rev1) HSE Books 2005 (single copy free or priced packs of 15 ISBN 978 0 7176 2760 8) Web version: www.hse.gov.uk/pubns/indg225.pdf

STF in Healthcare <http://www.cdc.gov/niosh/docs/2011-123/pdfs/2011-123.pdf>

STF in Construction <http://www.hse.gov.uk/construction/safetytopics/falls.htm>

STF in Trucking <http://nsts.ca/winters-coming-so-are-slips-trips-and-falls/>

STF in Manufacturing <http://www2.worksafebc.com/Portals/Manufacturing/InjuryPreventionResources.asp?ReportID=35255>

Appendix





STF Area Prioritization Worksheet – Option 1

Area/ Location	Total # of STFs	# Time Loss (TL)	TL Score (# of TL x 10)	# Med Aid	MA Score (# of MA x 5)	# First Aid or Report Only	FA or RO Score (# of FA or RO x 1)	Total Score (TL Score + MA Score + FA or RO Score)	Priority

STF Hazard Prioritization Worksheet – Option 2

Area/ Location	Hazard	Previously Identified (Y/N)	Control Measures Not in Place (Y/N)	Exposed During Regular Operations (Y/N)	Previous STFs (Y/N)	Total Score (# of Y)	Priority (1-4)

STF Hazard Identification and Control Worksheet

Area/Location	Hazard	Control

STF Hazard Control Action Plan

Area/ Location	Brief Description of Hazard	Brief Description of Control	Person Responsible	Date to be Completed	Status

STF Inspection Areas with hazards to look for and possible controls

Areas to inspect	Possible Hazards	Possible Controls
Machinery/ Equipment	<ul style="list-style-type: none"> • Oil/fluid leaks • Scrap material on floor 	<ul style="list-style-type: none"> • Clean up spill • Apply absorbent material • Cordon off area to control traffic • Repair machinery to fix leak • Remove scrap material • Provide proper waste receptacle
Inside Walking Surfaces	<ul style="list-style-type: none"> • Wet floor • Frayed or lifted carpets • Cords across walkways 	<ul style="list-style-type: none"> • Clean up spills • Tape down carpet • Remove carpet • Reroute cords • Secure cords
Outside Walking Surfaces	<ul style="list-style-type: none"> • Potholes • Ice/snow 	<ul style="list-style-type: none"> • Fill in potholes • Clear ice and snow • Provide salt/sand
Steps/Stairs	<ul style="list-style-type: none"> • Missing/broken hand rails • Improper height of rise • Slippery surface • Broken or damaged stair treads 	<ul style="list-style-type: none"> • Repair/replace hand rail • Rebuild stairs to proper run and rise • Apply antislip surface • Repair broken stair treads
Clothing/Footwear	<ul style="list-style-type: none"> • Inadequate treads 	<ul style="list-style-type: none"> • Ensure proper tread and footwear type for the job being performed • Annual footwear inspection to identify inadequate tread
Furniture	<ul style="list-style-type: none"> • Bottom file drawers left open 	<ul style="list-style-type: none"> • Close drawers when not being used
Behaviour	<ul style="list-style-type: none"> • Walking with loads that impair vision • Rushing • Failure to use three points of contact 	<ul style="list-style-type: none"> • Do not carry loads that you are unable to see over – carry smaller loads or use a cart • Give yourself enough time to complete a task to avoid the need to rush • When entering or exiting vehicles or equipment, maintain three points of contact at all times
Housekeeping	<ul style="list-style-type: none"> • Walkways cluttered with stored materials • Tools not stored properly • Trash/debris in walkways 	<ul style="list-style-type: none"> • Store material properly to allow for clear walking paths • Everything in its place and a place for everything • Remind people to use proper waste bins

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