

# SLIP, TRIP AND FALL

## Prevention Handbook



A PUBLICATION OF MINNESOTA COUNTIES INTERGOVERNMENTAL TRUST



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## Section 1

# EMPLOYEE SLIPS, TRIPS AND FALLS: AN OVERVIEW

The National Safety Council provides the following definitions.

**SLIPS:** Where there is too little friction or traction between footwear and walking surface that cause sudden imbalance.

**TRIPS:** When a person's foot collides (strikes, hits) an object causing the individual to lose his or her balance and fall.

## Injuries Can Be Prevented

Slip, trip and fall incidents can happen on walking surfaces in any season but are more frequent in the winter due to ongoing icy and wet conditions. Injuries due to slip and fall incidents are generally in the top five of the most frequently reported workers' compensation claims made by MCIT member employees. In addition, visitors can injure themselves on the same walking surfaces. These injuries can range from simple bruises to broken bones, dislocated joints and severe head and back injuries.

Given the prevalent number and significant costs of claims due to slips, trips and falls, MCIT has developed the Step Wisely program to assist members in developing and implementing strategies to

prevent slip, trip and fall injuries. Although the emphasis of this information is to protect employees from work-related injuries, much of this information can also be used to prevent similar incidents involving the public visiting member buildings and facilities.

## Foster a Positive Safety Culture

A key to incident prevention is a positive safety culture where safety is emphasized and encouraged, and where employees feel empowered to be safety advocates. The MCIT-developed Work Wisely program provides resources to assist members in creating and maintaining a positive safety culture. No-cost materials are available for download at [MCIT.org](http://MCIT.org):

- "Safety Culture: Techniques for Building Positive Organizational Change" handbook
- Get Wise to Safety Villains campaign materials
- "Safety Committee Resource Handbook"



# Prevalence and Costs Among MCIT Members



**30%** of workers' compensation incidents and claims are due to slips and falls

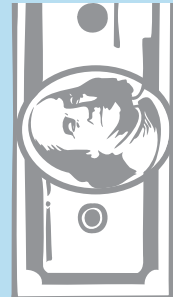


**30%** of claim costs are due to slips and falls

**630** employee slips and falls are reported every year on average



**254** employee injuries due to slip and fall are reported every year on average



**\$1.8 MILLION**

Total cost of reported employee slip and fall injuries every year on average



## Section 2

# WEATHER-RELATED HAZARDS AND PREVENTION STRATEGIES

Minnesota has diverse weather: ice and snow in winter, frost and sleet in spring and fall, and rain in summer. Each of these weather-related variables represents a potential source for slips and falls.

Ice, snow, frost, sleet and rain can cause a reduction in traction between footwear and a walking surface. A reduction in traction can cause the foot to slip in an unintended direction, which can result in a fall.

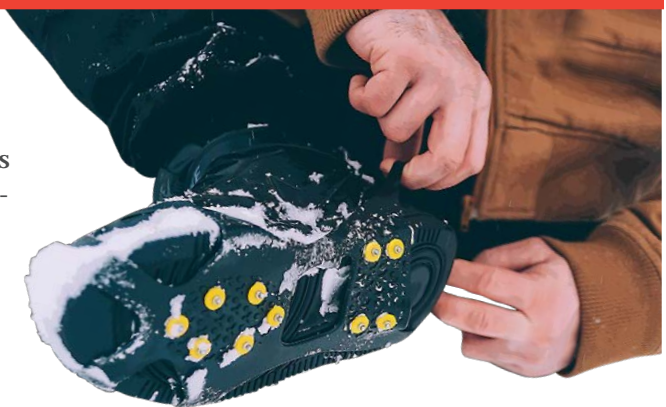
Traction is measured in terms of the coefficient of friction (COF). It takes a COF of 0.4 to 0.5 or better to have excellent traction. Surfaces covered in ice or melting snow can have a COF as low as 0.1 when proper footwear is not worn. Leather-soled shoes (e.g., dress shoes) when damp and slightly warm create a film of moisture between the shoe and the surface. The moisture greatly decreases the COF and increases the chances of hydroplaning and slipping.

A number of sound strategies help reduce weather-related slips and falls. Four key components follow.

## 1. Footwear

Footwear suitable to weather is a key factor in preventing slip and fall accidents. Properly selected footwear can significantly increase the COF in a given situation and decrease slip potential. Encouraging employees to wear suitable footwear for the conditions is a good practice. Employers should be aware, however, that requiring employees to wear certain types of footwear may mean that the employer must bear the cost of providing that footwear.

For people working outside, selecting a work boot with a slip-resistant sole is a good place to start. A local ven-



dor can provide valuable information on the type of sole appropriate to the exposures employees might encounter. For example, the sole needed to deal with oily, wet floors might be different from soles needed to deal with snow. In some extreme cases, regular slip-resistant soles may need to be augmented with slip-on cleats or YakTrax.™ Selecting appropriate add-ons will depend on the exposure and tasks being performed.

For people working inside but having to venture outside intermittently, a few strategies can be followed:

1. Wear rubber slip-ons to provide traction to leather-soled shoes. The slip-ons can also protect shoes against moisture.
2. When slip-ons will not work, such as in the case of high heels, employees could wear weather appropriate shoes outside and change into a separate pair of shoes for inside the office.

One item to consider is to provide an area for employees to store their overshoes or boots when they are not being worn.

## 2. Free Hands

When navigating sidewalks, parking lots or stairs in slick conditions, it is important to keep hands as free as possible to help maintain balance and hold rails.

Carrying materials in shoulder bags or in carts helps keep hands free and allows a clear view of the path ahead. Employers should consider providing employees with shoulder bags or carts when their jobs require them to carry materials to and from work.



## 3. Take Your Time

A major factor in causing weather-related slips and falls is walking too fast for the conditions. Even with proper footwear, rushing can cause falls.

The best strategy is for employees to allow adequate travel time to get to where they are going. Employers should remind employees of this and that being late is better than rushing and not getting there at all!



## 4. Maintain Walkways

Employers can help diminish slip and fall potential by working with the facilities staff to develop and implement a maintenance schedule to ensure that snow and ice are removed from walkways as soon as possible. Then, use intermittent inspections to safeguard against refreezing or new accumulation.

The inspection process should also be used to monitor slick areas caused by rain runoff and frost accumulation. Runoff from drains and downspouts that pools in walkways and near entrances is dangerous. It is best to reroute runoff away from these areas.

Another strategy is for employers to encourage employees to report hazards they find promptly. It is important to have a reporting procedure and that employees know about it.

Keeping a log book of when maintenance is performed can assist with staying on schedule, maintaining compliance with Occupational Safety and Health Administration (OSHA) standards, and with defense in case of a third-party liability injury claim. Note in the log the date, time, location and any actions taken. See next page for a log book example.







### Section 3

# WALKING SURFACE IRREGULARITIES

People typically slip, trip and fall because the walkway conditions they encounter are different from what they expect. Therefore, small defects in the walking surface can become a big nuisance.

## Changes in Elevation

Abrupt changes in elevation can catch toes and cause falls. Common hazards are:

- Heaved sidewalks or other pavement
- Potholes
- Cracked pavement
- Cracked or missing tiles

To manage these hazards, building owners should regularly inspect sidewalks, parking lots and floors. Then, develop controls, depending on risk, such as:

- Marking hazards (with bright paint for example)
- Temporarily closing the walkway
- Barricading the area

As soon as is practical, repairs should be made to remove the hazard.

## Camouflaged Hazards

If changes in elevation are not readily recognized by people, they are likely to trip or lose their balance and fall. To prevent this, facility managers should make hazards noticeable with visual cues. Two examples of camouflaged trip and fall hazards follow.

1. **Camouflaged parking curb:** Painting parking curbs contrasting colors to the pavement increases the likelihood that people will see curbs.
2. **Camouflaged steps:** Add visual cues with handrails, potted plants, contrasting colors between stair treads and the lower level floor.





**PROBLEM:** The uneven sidewalk creates a tripping hazard.



**SOLUTION:** The sidewalk section was repaired and leveled.



**REDUCE RISK:** Cones draw attention to dips in the sidewalk until repairs can be made.



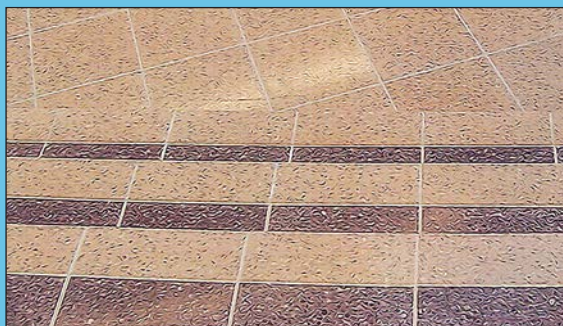
**REDUCE RISK:** Bright paint identifies large cracks.



**PROBLEM:** The parking curb is painted the same color as the pavement and isn't noticeable.



**SOLUTION:** Contrasting parking curbs help prevent tripping.



**PROBLEM:** The steps and floor blend together.



**SOLUTION:** Railings help people identify the change in elevation, as well as providing a mechanism to maintain balance when using the steps.



## Section 4

# STAIRS

The basic task of climbing and descending stairs accounts for numerous falls each year that result in injury. This section identifies the causes associated with stairwell falls and what strategies can be used to prevent them.

## Using Stairs Safely

The primary cause of stairwell slips and falls is the loss of balance. Here are some points employers should teach employees about when taking the stairs:

- Slow down going up or down stairs. Ensure a firm footing on each tread before taking the next step.
- Use the railing to help maintain balance.
- Keep eyes on the path. Distractions can cause missteps.
- Do not carry items in arms that obstruct the view of the steps. Not only can people misstep, but they will be unable to use the railing to catch themselves.
- Consider the effect of footwear: high heels, flip flops and slides can impede balance while climbing stairs.



## Stair Construction

The rise (height) and run (depth) of stairs should be uniform for each step in a flight of stairs. An irregularity from one step to the next is unexpected and can cause a person to lose his or her balance and fall. Stairways must meet building codes and OSHA standards for rise and run of steps.

Also facility managers should make sure that any set of stairs with three treads or more have properly mounted handrails. Consult with the National Fire Protection Association Life Safety Code or the local building official to determine the handrail requirements for stairwells.



## Stair Maintenance

Proper maintenance of stairs is also important for slip and fall prevention. Accumulation of ice, snow and excessive sand on outdoor steps can reduce proper footing. Facility managers should frequently inspect stairs and clear away new accumulations as soon as practical.

Slick wax, unattached or rolled carpet and items stored on stairs can be trip hazards in offices or shops. Steps should be inspected frequently ensure that these conditions do not exist. High-traction tape may be used to enhance the coefficient of friction on treads. Specialty nonslip wax and other edgings are also viable options to improve traction on stairs.

Stairwells should be well-lit to ensure good visibility. Burnt out bulbs or under-illuminated fixtures should be replaced immediately.





## Section 5

# CARPET, CORDS AND MORE

In office settings, some of the more common contributing factors to slip and fall accidents are unsecured carpeting, curled rugs, cords strewn across walkways and under desks, and drawers left open.

## Carpet and Rugs

Carpets and rugs should be inspected frequently to ensure that there are no rolls that create trip hazards. If rolls exist, the carpet should be restretched or replaced. Entry rugs should be adjusted to prevent rolls and the ends secured.

Ensure that entry rugs are of a type and size to capture excess moisture brought in from outside. Higher traffic areas may require rugs with greater holding capacities.

## Cords

As more electronic equipment is used in offices, more power cords are present. Newer buildings have been designed to accommodate the increase in cords and wiring; however, older buildings with fewer outlets and no means to convey wiring in the walls or ceiling may have to run cords and wires on the floor.

To address this exposure, bridges should be used to cover cords and wiring across floors. The bridges should lie flat on the floor or be secured with tape.

Cords and wires also represent a trip hazard when they dangle from the desktop to the floor. Employees' feet can become tangled in unrestricted wires and cause employees to fall when they attempt to get up from their desks. Cords and wires should be placed in cord harnesses and secured to the desk to prevent dangling.

## Filing

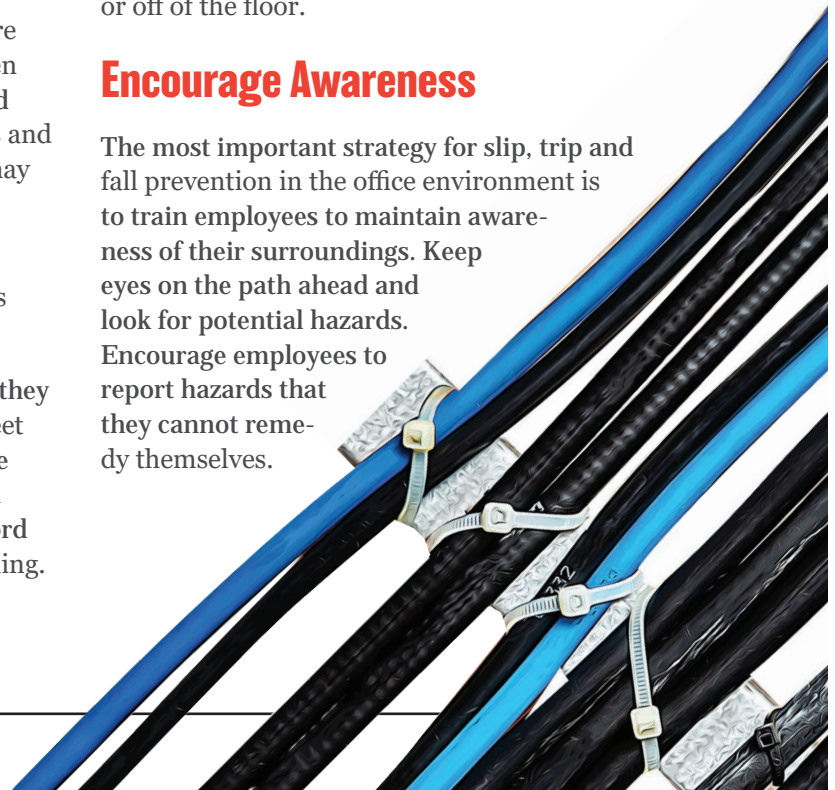
Another cause of office trips and falls are low-level filing drawers left open. Not only can these cause falls, but the sharp edges can be a source of severe cuts. Employers should remind employees to close all drawers that are not in immediate use.

## Other Items

Other items on the floor, such as papers, backpacks, boxes, briefcases or shoes, can also create slip or trip hazards. Items should be stored away from walkways or off of the floor.

## Encourage Awareness

The most important strategy for slip, trip and fall prevention in the office environment is to train employees to maintain awareness of their surroundings. Keep eyes on the path ahead and look for potential hazards. Encourage employees to report hazards that they cannot remedy themselves.





## Section 6

# WET FLOORS

Slips and falls can occur anywhere when the potential of reduced traction exists. One element that contributes significantly to reduced traction is the presence of moisture on floors. Wet floors can occur in office buildings, shops, nursing homes, kitchens and any other location with impermeable flooring such as tile, cement and marble.

There are several reasons that moisture occurs in these locations:

- Leaking from roof or plumbing
- Melting snow or ice carried in by footwear
- Housekeeping duties such as mopping or washing
- Melting snow from equipment being serviced in shops
- Spilling of employees' drinks and lunches
- Splashing from sinks and drinking fountains

## Take Action

To reduce or eliminate moisture in walkways, employers should train staff about these commonsense strategies:

- Practice good housekeeping by immediately mopping up excess moisture.
- When cleaning wet floors, place warning signs in travel portions of walkways.
- Fix leaks immediately.
- Place carpets at building entrances to catch rain water and melting snow and ice from footwear. Change out carpets frequently to prevent oversaturation.
- Ventilate rooms with high humidity, such as laundry rooms and kitchens.
- Provide slip-resistant mats in front of sinks, dishwashers and washing machines to keep water from accumulating.
- When possible, use traction tape, textured paint or nonslip floor treatment in environments with heavy moisture potential.
- Wear proper slip-resistant footwear.
- Take time when walking in areas that are generally wet, such as maintenance bays.
- Take corrective action immediately or report problems properly when found.





## Section 7

# ENTERING AND EXITING VEHICLES AND EQUIPMENT

Although getting in and out of a vehicle seems like an innocuous undertaking, many people sustain serious injuries from slips and falls while attempting this task. Getting on and off large equipment and vehicles (e.g., dump trucks, motor graders, front loaders) accounts for a large percentage of injuries. Entering and exiting passenger vehicles also represent slip and fall exposures in certain situations.

## Large Equipment



The best means of preventing slips and falls from equipment is to use three points of contact when mounting and dismounting. This process means that either two hands and one foot or one hand and two feet are in contact with the equipment steps and rails.

For larger equipment, the specific procedure for three points of contact may vary based on equipment design. To ensure proper mounting and dismounting procedures, employees should consult with the manufacturer's recommended procedure. In many cases, manufacturers may provide training videos on the recommended procedures.

Employers should evaluate every truck and piece of equipment. They should provide additional steps, nonslip surfaces and hand holds where necessary.

Once the proper procedure for a type of equipment is identified, it is important to train employees on it.

## ADDITIONAL RECOMMENDED SAFETY RULES

Employers should train employees on these measures:

- Only enter or exit when the equipment or vehicle is stationary.
- Always mount or climb down while facing the truck or the equipment.
- Make sure that the points of contact used are clear of debris and mud.
- Only use points of contact that were intended to be used to climb onto or dismount from the vehicle (hubs and such should not be used).
- Look for obstacles on the ground before exiting.
- Do not climb on or get down with something in a free hand. Put the item on the vehicle's floor and reach for it when on the ground.
- Do not rush to exit the equipment. Descend slowly to avoid straining a muscle.
- Never jump out. Employees may land off balance or on an uneven surface and fall.

## Passenger Vehicles

For passenger vehicles, such as cars, pickups and SUVs, it is important that employees ensure they have firm footing with one or both feet before putting their entire weight on their feet. People should maintain contact with the door, car roof or assist handle to develop the three points of contact.

Remember that sand and oily spots can lead to slips and falls just like snow and ice. Employers should remind employees always to be aware of the type of surface onto which they are stepping!





## Section 8

# SHOP SAFETY

Maintenance shops are multi-operational sites that harbor the potential for numerous slip and fall exposures due to the equipment and materials used, and the byproducts of the work.

## Common Slip and Fall Exposures

### EMPLOYEES SHOULD BE TRAINED TO IDENTIFY THE FOLLOWING HAZARDS:

- Cords and hoses left on shop floor.
- Accumulation of wood and metal shaving.
- Oil spots from mechanical work—may also include piles of oil-absorbing material.
- Unsecured rugs.
- Uneven steps.
- Equipment or tools left in walkways.
- Boards or metal strips that extend into walkway.
- Storing equipment without adequate walking space.
- Dirt and snow falling from stored equipment.
- Poor lighting.
- Uneven surfaces or protrusions due to drains, lift rails and thresholds.
- Unsecured tools.

## Recommended Prevention Strategies

- Store hoses and cords on retractable reels. When possible, have reels extend from the ceiling to keep them from lying on floors.
- Maintain good housekeeping practices.
- Sweep floors regularly to remove accumulated shavings, oil dry and dirt.
- Clean up oil spots immediately.
- Remove boards and metal strips that extend into walkways.
- Store equipment and materials in a manner that allows space for walkways. This prevents someone from stepping over equipment.
- Inspect regularly to ensure that tools and materials are not left in walkways.
- Secure rugs so they lie flat on the floor.
- Keep stairs clear.
- Maintain good lighting.
- Mark uneven surfaces or protrusions on floor with bright paint.



**PROBLEM:** Cords can tangle feet and cause people to trip



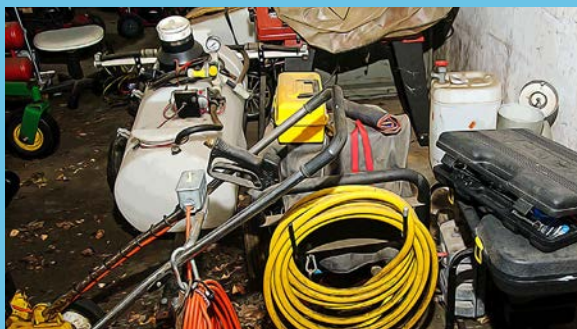
**SOLUTION:** Retractable reels store cords and hoses out of the way.



**PROBLEM:** Accumulation of shavings, oil dry and dirt can cause slippery surfaces.



**SOLUTION:** Sweep and dispose of shavings, oil dry and dirt frequently.



**PROBLEM:** Crowded storage makes it difficult to get to needed equipment.



**SOLUTION:** Store equipment and materials in a manner that allows space for walkways.



**PROBLEM:** Uneven surfaces create tripping hazards.



**SOLUTION:** Mark uneven surfaces with bright paint to bring attention to the hazard.



## Section 9

# ELEVATED WORK

Slips and falls from elevated work platforms such as ladders, scaffolds and decks are not as frequent as other types of slips and falls, but the resulting injuries to employees tend to be serious.

## Ladder and Step Stool Safety

Ladder-related falls are the most typical falls from an elevated surface. Falls from ladders are a result of a number of factors, such as:

- Using a ladder that is too short for the task
- Setting up a ladder incorrectly or in an unstable manner
- Overreaching when on a ladder
- alking up a ladder with a load in hand

Employees who may use ladders for their jobs should be trained on the following points according to OSHA:

- Correct selection of ladders for the task (i.e., height, weight limits and type)
- Inspection of ladders prior to use
- Appropriate setup of ladders including securing to base if applicable
- Properly ascending and descending ladders with three points of contact

The Minnesota Safety Council (to which all MCIT members have a membership) has videos to assist with ladder safety training. Ladder manufacturers may also have other resources to assist with training, selection and inspection.

Chairs or other makeshift platforms are not intended for

elevated work. Employers should not allow chairs to be used in lieu of an approved step stool or ladder regardless of the height of the task.

## Scaffolding and Elevated Platforms

All OSHA standards regarding scaffolding (1910.27) should be followed at all times. Poor construction or lack of proper railings are two of the most common reasons people fall from scaffolding. Employees should:

- Only allow qualified employees to set up scaffolding
- Inspect the scaffolding each day and ensure all rails are in place and properly secured when scaffolding is in use
- Always climb scaffolding using three points of contact on the scaffolding rungs

For moving work platforms, use basket trucks or lifts with proper fall protection. Never use the bucket of a loader as a work platform. Buckets are not designed for this task. Many serious injuries occur when employees are knocked out of the bucket.

Finally, when working from elevated decks, always ensure that the railing or other fall protection system is in place and any gates or chains are in place before starting a task.

## Rooftops, Other High Elevations

Work on rooftops or other high elevations may require additional measures to ensure that employees are protected from falls. Review OSHA Standard 1910 subpart D—Walking-Working Surfaces for more information.





## Section 10

# PERSONAL HEALTH

Ice and snow, uneven walking surfaces and other contributing factors are generally the main causes of slips, trips and falls. However, certain health issues can also contribute to these incidents.

## Contributing Health Issues

- Chronic health conditions that cause limited mobility, flexibility or balance can factor into slip, trip and fall accidents.
- Low blood sugar can make a person disoriented, lose his or her balance or faint.
- Medications, such as cold medicines, cough syrup and some prescriptions, can affect basic motor skills and cause imbalance. Employees taking medications that can affect their performance should be encouraged to report this to their supervisors.
- Sleep deprivation can affect balance in a manner similar to some medications. Balance and awareness can be impeded if a person is tired.

Employers may want to consider a wellness program or some other means of educating employees about personal health factors that can contribute to an increased risk of slipping, tripping and falling. Always be sure to consult with an employment attorney or human resources professional for guidance in such matters.





## Section 11

# RESOURCES

As part of the Step Wisely slip, trip and fall prevention program, MCIT provides its members with several resources to help them reduce the number and severity of slip, trip and fall accidents. Campaigns address winter and year-round hazards.

**Download materials at: [MCIT.org/step-wisely/](https://www.mcit.org/step-wisely/)**

## Display Materials

The following materials can be placed around facilities to make employees and the public aware of slip, trip and fall hazards and ways to prevent injury.

- **Wall posters:** Place in areas of high visibility, such as exits, entries, lobbies or where hazards are likely.
- **Table tents:** These work well in break rooms, waiting areas and on service counters.



## Digital Materials

The following materials can be sent via email or posted electronically to make employees and the public aware of slip, trip and fall hazards and ways to prevent injury.

- **Digital images** can be used as ready-to-send e-mail messages, as computer lock screen images, intranet posts, employee newsletter items and more.
- **Short animated videos:** A link can be sent in an e-mail or embedded on an intranet. Videos can also be played during employee training and meetings.



## Temporary 'Caution' Posters

Use the "caution" posters to alert people to changing conditions. They are to be used temporarily and in conjunction with other practices, such as shoveling and salting/sanding walkways.

- **Slick conditions:** This sign is intended to warn people exiting buildings that walking surfaces may be slippery due to changing weather conditions.
- **Specific need:** This poster includes a blank section, allowing users to enter a message based on a specific need, such as "Watch for loose floor tiles."



## Training Scripts, Handouts

Once employees are aware of hazards, it is good practice to reinforce the messages with training.

- **Quick Take on Safety training scripts:** These take just about five minutes to review and provide practical actions employees can take to reduce hazards and injuries. Each script focuses on a particular hazard or situation. Supervisors can customize the script to the particular work circumstances of their teams. A corresponding employee handout for each topic is available.



## Other Resources

- **Checklist:** A ready-to-use tool for employees to assess properties for slip, trip and fall hazards.
- **MCIT.org articles:** These provide strategies for managing claims and mitigating hazards.
- **Minnesota Safety Council Membership:** MCIT membership includes a Minnesota Safety Council membership. Access safety videos, fact sheets and articles at [MinnesotaSafetyCouncil.org](http://MinnesotaSafetyCouncil.org).



## Loss Control Consultation

The member's assigned MCIT loss control consultant can provide safety information, consultation and training at no cost. For example, consultants can survey property with members to identify slip, trip and fall hazards, and provide recommendations for how to manage them.

Connect with your loss control consultant at **1.866.547.6516 toll-free** or [info@mcit.org](mailto:info@mcit.org).



## TIPS FOR AN EFFECTIVE SLIP, TRIP AND FALL PREVENTION CAMPAIGN

Campaigns are more successful when the message is delivered often and in different formats.

### Incorporate All Elements of Step Wisely

For the most impact, utilize all of the program's features: display materials, training features and best practices.

### Swap Visuals Often

After a while the display materials become part of the everyday background. To catch employees' attention, use one design at a time and switch them every few weeks.

### Use Digital Images in a Variety of Ways

Print and distribute at staff meetings, on employees desks, payroll envelopes or in the employee newsletter. Post to the organization's intranet, set them as a lock screen background of employees' computers or send in e-mails to employees.

### Encourage Use of Quick Takes

These training scripts can be used at team meetings, as the basis for a short training skit or as discussion starters.

### Include Materials in New Employee Orientation

Emphasize the organization's commitment to safety from day one with new hires. Discuss how they can help recognize, remedy and report safety hazards at work.

### Include All Departments

Display awareness materials in all departments. Inform department heads and supervisors about how they can take a leadership role in training their employees about recognizing, remedying and reporting hazards.

### Alert Staff to Temporary Hazards

As conditions in the workplace change, such as a heavy storm or loose floor tiles, alert staff to the hazard with signage, e-mails or other appropriate methods.

### Create Your Own Step Wisely Items

If the workplace has a slip, trip and fall issue not addressed by Step Wisely, get creative and make your own awareness, training and loss prevention materials.

### Create a Culture of Safety

Encourage employees to report safety concerns and have appropriate staff respond quickly to them.

### Conduct Self-inspections

Each department can use the "Checklist for Recognizing Slip, Trip and Fall Hazards" to inspect its area and work with appropriate staff to remedy any issues they may find.

