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Slip, trip and fall prevention

Slip, trip and fall related incidents are one of the most common problems in construction. Myriad hazards and conditions contribute to these events, and it is a leading cause of injury. Slips, trips and falls (STF) constitute the majority of general industry accidents; they cause 15 percent of all accidental deaths and are second only to motor vehicles as a cause of fatalities. Statistics show that the majority (60 percent) of falls happen on the same level resulting from slips and trips. The remaining 40 percent are falls from a height. According to Zurich Financial Services Group, 14 percent of their total claim dollars are due to STF injuries, but the total annual compensation for them doubled in the past decade to more than \$70 billion! And that is only the tip of the iceberg; as worker injuries are just a part of the STF issue, it is also the leading cause of liability claims for business owners. While no one knows for sure, the total impact worldwide of STF injuries is estimated to be hundreds of billions of dollars.

Slips happen where there is too little friction or traction between the footwear and the walking surface. Common causes of slips are: wet or oily surfaces; weather hazards; loose, unanchored rugs or mats; and uneven or inconsistent flooring or walking surfaces.

Trips happen when your foot collides (strikes, hits) an object causing you to lose balance and eventually fall. Common causes of tripping are: obstructed view; poor lighting; clutter in your way; loose carpeting; and uneven (steps, thresholds) walking surfaces.

Falls can occur either at the same level or from height. This article is only focused on falls at the same level (or from a small height). Falls from a distance of more than 4 feet are addressed separately as part of a fall protection program.

Slips, trips and falls result from some a kind of unintended or unexpected change in the contact between the feet and the ground or walking surface. This shows that good housekeeping, quality of walking surfaces (flooring), selection of proper footwear and appropriate pace of walking are critical for preventing fall accidents.

Flooring

Wet or slippery surfaces are a major cause of slips. Highly polished floors such as marble, terrazzo or ceramic tile can be extremely slippery even when dry and definitely increase the potential for a slip when moisture (spills, rain, snow and mud) is present.

Changing or modifying walking surfaces is a good engineering solution. Recoating or replacing floors, installing mats, pressure-sensitive abrasive strips or abrasive-filled paint-on coating and metal or synthetic decking can further improve safety and reduce risk of falling. However, it is critical to remember that high-tech flooring requires good housekeeping as much as any other flooring. In addition, resilient, non-slippery flooring prevents or reduces foot fatigue and contributes to slip prevention measures.

These measures may also prevent STF incidents:

- Use anti-skid tape in high traffic areas (and stairs).

- Use absorbent mats in entrance ways during inclement weather. (Caution: Unanchored mats may cause slip hazards themselves. Make sure that mats lie flat and that the backing material will not slide on the floor.)
- Display wet floor signs when appropriate; note that signs are a great awareness tool but should not be the only means of control. Clean up spills and wet floors as soon as practical.
- Have a procedure to deal with spills and ensure spills are reported and cleaned up immediately.
- Use proper mats in areas that tend to be “spill prone.”
- When wet processes are used, maintain proper drainage or use platform mats.

If you must walk on a slippery surface:

- Wear proper footwear for better traction.
- Point your feet slightly outward, keeping your center of balance under you.
- Be aware that friction (grip) can be reduced when moving from one type of surface to another and take slow, small steps in transition areas.
- Reduce or eliminate the load carried by hands to maintain balance and sight.
- Use your feet as probes to detect possible slip, trip and fall hazards.
- Get your feet underneath your body quickly to maintain your balance after an initial step.
- Use rails or other stable objects that you can hold onto.

- Protect the more vulnerable parts of your body like your head, neck and spine if you do fall.

Outdoor environmental conditions

Develop precautions and assign them to specific employees to enact under certain poor weather conditions. One important precaution is the placement of walk-off mats at all entrance doors. Mats should allow for a minimum of 10 paces in the normal direction of travel to absorb water/snow that may accumulate at entrances during inclement weather. Mats should be constructed of rubber or cocoa fiber, which help remove water and dirt from shoes. The color of the mats should contrast with the color of the flooring, and mat edges should taper down to the floor for a smooth transition to the floor's surface. Under severe conditions, consider posting a janitorial staff member at each entrance to warn employees and customers entering the area about the slipping hazard and to manually mop any excess water that may accumulate.

No matter how well the snow and ice are removed from sidewalks, parking lots and the surrounding streets, people will invariably encounter some slippery surfaces when walking outdoors in the winter.

- Dress warmly and wear boots with non-skid soles (avoid plastic and leather soles).
- Properly fitting footwear increases comfort and prevents fatigue which, in turn, improves safety for the employee.
- Consider the use of traction devices (e.g. "Spikeys" or other brands). Be sure to provide a seating area near the entryway to don and doff these devices. Discourage the wear of these devices indoors on hard surfaces, as that can create a STF hazard.
- Try not to carry too much; you need to leave your hands and arms free to better balance yourself.
- When entering a building, remove as much snow and water from your boots as possible. Take notice that floors and stairs may be wet and slippery. Walk carefully.
- Be prepared to fall and try to avoid using your arms to break your fall. If you fall backward, make a conscious effort to tuck your chin

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