



Risktopics

8-2.001 January 2011

Reducing slips, trips and falls in the construction industry

Introduction

For construction industry employees, injuries resulting from a slip, trip or fall (STF) are the most common exposures on any jobsite. STF related injuries are often the most frequent, most severe and have the greatest overall impact on workplace efficiency of any jobsite exposure – constantly chipping away at the bottom line. STF related injuries are the leading cause of worker compensation losses in construction.

The experience in the construction industry shows that STF exposures are among the easiest yet most difficult to control. Many of the conditions that lead to accidents are observable and controllable, which makes it easy to address them. However, this awareness is only one-half of the equation since the industry has accepted those exposures as "trivial and part of the job" for many years. Reducing slip, trip, fall exposures requires a paradigm shift within the construction industry that no longer accepts these exposures as "part of the job". A more systematic strategy can help reduce and control these STF related incidents and help improve the bottom line.

STF accidents

Although falls from different levels tend to result in more severe injuries, STF on the same level are the most common cause of injury/loss on the jobsite. They are generally high frequency claims and often result in broken bones, soft tissue strains, or struck by, contusion type injuries.

Many STF injuries occur due to dangerous conditions on the jobsite. The site conditions on a jobsite are dynamic and constantly changing. Multiple stakeholders are often involved in various activities. Depending on the roles and responsibilities, the property owner, general contractor and subcontractors have a duty of reasonable care to identify the existence of dangerous or unsafe conditions and maintain the premises and jobsite in a safe condition.

Inadequate housekeeping, maintenance and site inspection procedures are major contributing factors to most STF accidents. Controlling the hazard means eliminating the hazard or reducing it to a level that protects workers, subcontractors and the public. Fall exposures such as environmental, walking surfaces, stairways, ramps, floor openings, sidewalks, overhangs, lighting, machinery, equipment, etc. need to be controlled.

Common risk factors

There are many causes and contributing factors in STF accidents on a construction site. Understanding these causes and challenges will help develop effective mitigation strategies to address STF losses. These risk factors include:

- Condition of walking surface: Due to an ever-changing and dynamic nature of construction activities, this is a constant challenge to ensure safe walkways, with uneven surfaces, potholes, cracks, temporary bridges and walkways, changing elevations and changing routes and conditions, curbing and muddy soil conditions.
- Impact of environmental conditions: Water from rain and other spills from sources can result in slippery conditions. Winter conditions, snow, and ice can result in treacherous conditions. Soft soil conditions and truck traffic can add to the difficulties.
- Obstructions: A construction site can have many obstructions that increase the risk of tripping accidents. Many are temporary in nature and range from debris, materials and tools to portable equipment, cables, hoses and power cords, etc.
- Site coordination issues: With multiple contractors working at a given time, daily site coordination can be critical to ensure proper access and egress routes, coordination/communication of changing conditions, signage, illumination and a host of other items. Pre-task planning and daily inspection can help ensure safety of ladders, scaffolding and walkways.
- People issues: Many tasks on a construction site require workers to carry materials and tools. Carrying heavy and awkward objects can affect their balance and gait. Use of improper footwear or muddy shoes can also increase the potential for STF. Aging workforce and use of medication for chronic pain and other health issues can also have impact of balance.

Strategies for managing STF losses

An effective strategy for managing STF losses at a construction site considers the ever-changing and dynamic nature of a jobsite. This requires a formal pre-task planning program that anticipates and plans for access and egress routes, materials, debris removal, personal protection, visitor controls, etc. A daily inspection and audit program is essential to identify and correct jobsite hazards, maintenance, housekeeping and exposures to subcontractors and the public. Ensure formal documentation of corrective action by appointing a designated person responsible for it.

- Preplan:
 - Establish safe access and egress routes to and from, in and around construction sites
 - Mark access routes clearly and keep workers informed of changing routes or conditions
 - Designate individuals to regularly inspect and maintain access routes
 - Establish dedicated material lay down areas, debris and snow removal plans
- Develop formal written maintenance, inspection and training procedures to reduce STF accidents to the public, employees and non-employees at the jobsite, including but not limited to:
 - housekeeping (e.g., spill cleanup, daily debris/scraps removal, spill cleanup)
 - equipment maintenance
 - stairs/ramps and handrails
 - fencing
 - walking surfaces, floor and walls openings
 - lighting
 - visitor PPE
 - signage
 - routine inspections of ladders

Exposure control

Since STF accidents affect all employees on a jobsite, raising awareness of impact of STF losses and involving employees in jobsite assessments are effective strategies. Here are some ideas to consider to help reduce and mitigate STF losses on a jobsite. This is not a comprehensive list of ideas but just a starting point to help you

develop mitigation controls for your own jobsite. Since each jobsite is different and site conditions change daily, consider and anticipate a variety of exposures during the life of a project.

- Elevation changes in walking/working surfaces
 - Design walking/working surfaces to be level where possible
 - Identify uneven areas in walking/working surfaces with high-visibility paint, signage, etc.
 - Discuss uneven surfaces in pre-work safety briefings with crews
 - Smooth transitions through use of inclined wedges where possible
 - Tape joints of all temporary floor coverings
 - Repair damaged walking/working surfaces quickly
 - Use an employee reporting process to help identify problem areas

- Water on floors – frequent issue prior to dry-in
 - Barricade affected areas where possible
 - Place 'squeegees' near known problem areas with designated persons to remove the water after a rainfall, etc.
 - Assign work in alternate areas until the water can be removed
 - Be prepared for spill remediation, especially after dry-in

- Lighting – degrades as walls are put in place
 - Inspect for issues before assigning work
 - Use portable stand lights
 - Use high intensity temporary lighting in larger areas
 - Daily, continuous maintenance of temporary lighting
 - Establish a process for any subcontractor to contact request assistance with lighting – proactively
 - Ensure electrical subcontractor understands the importance of their role in STF prevention for the entire project

- Debris on floor – staged construction material, scrape and lunch trash, etc.
 - Require frequent trash/scrap removal
 - Include subcontractor housekeeping requirements in the contract and be sure to enforce
 - Designate trash/scrap collection points clear of walkways and work areas. Placing scrape in the center of a room where most work activities occur leaves walls clear
 - Do not stage piping or other rolling material in walkways

- Cords and hoses in walkways – trip hazards
 - Run overhead if possible – use 2 "x4" 'trees' or archways when needed
 - Place to the side of the hall and tape down
 - Avoid running through stairways and ladders

- Scaffolding
 - Elevation changes on stairs and stairwell platforms critical – identify and mark if non-repairable
 - Maintain dust/dirt/debris free work platforms
 - Ensure handrails are available in stairwells and changes of elevation requiring a step or more
 - Provide boot cleaning stations at access points to scaffolding where mud is an issue
 - Ensure adequate lighting, especially at elevation change areas, stairwells and access points
 - Ensure workers are trained to recognize STF hazards

- Ladders
 - Use the correct size, type and capacity ladder for the intended work
 - Inspect ladders regularly to ensure they are in good physical condition
 - Ensure ladders are set up properly and anchored to prevent movement
 - Keep access points clear of scrap, debris, hoses, cords, etc.
 - Keep rungs clear of all tools, cords, etc.

- Train workers to clean boots prior to ladder use, maintain 3-point contact and keep belt buckle between the rails
- Miscellaneous factors
 - Employee training to recognize, avoid and report STF exposures on the job site is critical
 - Employee training should also include a lesson in how to walk on wet surfaces to minimize the risk of slipping
 - Management training stressing the importance, methods of exposure identification and control is critical to success
 - Executive management must set and enforce the STF prevention requirements
 - STF prevention must be embodied within a written plan, policy and/or procedure that is available for line management review
 - STF prevention should be part of every workers orientation to the project site
 - Boots that have soles with adequate traction should be required

Conclusion

We look at our financial reports and wonder where the 'magic bullet' hides that will produce a gain in productivity, improve our bottom line, and help make our company more profitable. We know that reducing delays can produce improvements in productivity. We know that better productivity can come from workers that expend smarter efforts to accomplish their tasks and do it right the first time. We know that protecting workers and the public from hazards can reduce loss costs and administrative costs in handling these types of unnecessary claims. That approach usually comes from workers satisfied in the security of their work, assured they would not be penalized for taking time to do tasks right. So where is this "magic bullet"? Answer: it is on the floors and in our walkways. In many cases, we virtually "trip" over these opportunities to affect our bottom line profits, but do not recognize them.

Imagine a construction work place where walkways are clear and free of obstacles. You don't have to tread your way over and around extension cords, hoses, trash, scrap, materials, screws, nails, pieces of pipe or conduit and many other obstacles. Get the picture? Think of the cumulative savings that would result from the hundreds of "travels" required by the workforce daily. We can have that increase in productivity and decrease in the accidents and injuries that result from the slips, trips and resultant falls. Raising awareness and educating our workforce to control STF hazards such as spills, cords, scrap, and materials, in walkways, trashy scaffolding, etc. is part of a task well done and helps promote a safe and productive jobsite. Develop a plan for controlling slip, trip, and fall exposures, implement the plan, work through the bumps and count the success on your bottom line.

Resources

1. Fatal and non-fatal injuries from falls in construction: Electronic Library of Construction Occupational Safety and Health (eLCOSH) <http://www.cdc.gov/elcosh/docs/d0100/d000038/sect37.html>
2. OSHA Safety and Health Topics: Walking/Working Surfaces <http://www.osha.gov/SLTC/walkingworkingsurfaces/index.html>
3. Best Practices Guide for Preventing Slips, Trips and Falls: Construction Employers Federation (Northern Ireland) http://www.hseni.gov.uk/hswni_slips_trips_falls_feb_2007-2.pdf
4. Watch Your Step in the Construction Industry - February 2006. Health & Safety Executive- UK <http://www.hse.gov.uk/construction/slips/>

Zurich Services Corporation

1400 American Lane, Schaumburg, Illinois 60196-1056
800 982 5964 www.zurichna.com

Zurich Services Corporation
Risk Engineering



ISO 9001:2008

Quality-Assured Solutions Provider

The information in this publication was compiled by Zurich Services Corporation from sources believed to be reliable. We do not guarantee the accuracy of this information or any results and further assume no liability in connection with this publication, including any information, methods or safety suggestions contained herein. Moreover, Zurich Services Corporation reminds you that this publication cannot be assumed to contain every acceptable safety and compliance procedure or that additional procedures might not be appropriate under the circumstances. The subject matter of this publication is not tied to any specific insurance product nor will adopting these procedures insure coverage under any insurance policy.

©2011 Zurich Services Corporation

Zurich HelpPoint
Here to help your world.

 **ZURICH**[®]
Because change happenz[®]