Slips, trips and falls for the real estate industry

Zurich 10-point program
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Introduction

How safe are your floors? How about your stairs? Have people fallen recently? You are not alone if you have had slips and falls.

In the U.S., there are more than 8.7 million people injured from slip, trip and fall incidents every year, according to the National Center for Injury Prevention and Control. The most common injuries are joint injuries, typically to the wrist, elbow, shoulder and knee. Back injuries also occur often. These types of injuries affect every aspect of your business, from worker injuries to contractors, visitors and the public.

Purpose of this guide

Many factors contribute to slip, trip and fall incidents. This guide is designed to help you and your management teams become self-sufficient in better controlling these exposures. This workbook provides a logical process to identify areas at your location that have the greatest potential for slip, trip and fall occurrences. Then, it will show the user how to prioritize hazards and develop action plans to help control slip, trip and fall losses in those areas.

Terminology for contributing factor analysis

Zurich completed a forensic review of a large number of slip, trip and fall injury cases and identified that the potential for incidents commonly depended on the convergence of 10 risk factors that are defined below. These 10 risk factors became the basis of our 10-point slip, trip and fall analysis methodology.

Surface composition

Surface composition refers to the type of floor or exterior walking surface installed and the coefficient of friction or slip resistance the surface provides. Surfaces such as natural stone, asphalt, brick, broom-finished concrete and carpet normally provide adequate slip resistance due to the asperities or raised edges on the surface. Hard, smooth surfaces such as vinyl-composition tile, ceramic tile, terrazzo, marble and granite may appear slip resistant when dry but could be quite slippery when wet. Painted surfaces, including parking lots and sidewalks, should be reviewed to ensure abrasives were utilized to avoid creating a slippery surface exposure. The more slip resistant you find the walking surface in the area being assessed, generally the lower the exposure to a slip and fall incident.
Foreign substance potential
This potential is the likelihood that a foreign substance will be on the walking surface and adversely affect the slip resistance. Items to consider include ice, water, liquids, powders, and grease or any substances that could be tracked into the building or accumulate on a walking surface. Exposures created by maintenance or third party cleaning crews should be considered. Vestibule entrances and the area just inside the main entrance should be reviewed in detail. The higher the potential for foreign substance introduction, the higher the exposure for a slip and fall incident.

Surface conditions
These are the actual conditions at the time of the survey. Consider raised or recessed sidewalk edges or curbing, potholes in parking lots, painted surfaces, loose carpeting, loose or broken tiles, holes or pits on the surface, or unusual wear. Poor surface conditions should receive a high exposure rating.

Surface changes
These changes are from one type of material to another as someone walks through the area. This is especially critical when the surfaces have widely different slip resistance, such as carpet to tile, brick to epoxy floor, or wet to dry. Surface changes like these create a higher exposure for a slip and fall incident.

Level changes
Level changes are defined as floor or exterior walking surface height changes of three or fewer steps. Ramps are defined by the ADA as walking surfaces with a slope greater than 1:20 rise/run. Ramps used for persons with disabilities should have a slope no greater than 1:12 rise/run or 4.8 degrees with new construction or updates. Additional items to consider include non-uniform steps or stairs and curbing that is too high. Six inch curbs are the standard for most jurisdictions. Convergence issues, such as poor visibility and illumination, can impact level changes dramatically. Level changes that impact pedestrian safety should be considered a high level exposure. Additional information on ramps and slopes can be obtained in the 2010 ADA Standards at the following link: http://www.ada.govregs2010/2010ADASTandards/2010ADASTandards.pdf

Obstructions
Obstructions are items that can contribute to the likelihood of a trip and fall, which is anything that protrudes into the normal walking path. They include items such as extension cords, hoses, product storage, material handling equipment, guards, concrete posts, parts of equipment, parking lot bumpers, speed bumps and temporary storage/holding areas. Factors to consider include the proximity to pedestrian traffic areas and the permanency of the item. Familiarity of the person walking into the area or obstruction is also a factor.
Visibility
Visibility pertains to more than just lighting (how easy the surface is to see). Other considerations include glare, shadows, bright lights, and color contrasts. Environmental factors that can affect visibility need to be considered. These include mist, steam, condensation, dust clouds, etc. Poor visibility increases the adverse impact of surface changes, level changes and a pedestrian’s ability to see potential obstructions. Areas with poor visibility should receive higher exposure ratings.

Human factors
The assumption is that different people have different physical capabilities. Human factors are elements such as demographics (i.e., age), shoe types, familiarity with the areas traveled, and physically challenged persons. Carrying awkward packages/materials can also negatively affect the rating. Slip, trip and fall exposures increase where human factors play a critical negative role.

Stairs (including elevators and escalators)
Stairs are defined as more than three steps and are a major source of falls. Falls from stairs are more likely to result in a serious injury and most often occur while pedestrians are descending. Consider the frequency of use and giving higher exposure ratings if the stairs are used on a regular basis. The more use, the more likely an incident will occur. Step geometry must be uniform to prevent users from misstepping and falling or tripping and falling. Curved or spiral stairs would receive a higher exposure rating. Ensure handrails are uniform around stair corners and do not present an exposure in which users are searching for the next section of railing. Handrails should be secure and easily grasped. Stair treads should be slip resistant, well maintained and free of defects.

Escalators and elevators, if any, need to be considered. When not operating, escalator steps do not generally meet the standard step geometry for stairs, which would increase the exposure for a slip, trip or fall. Elevator thresholds should be level with the elevator carriage at each level and be slip resistant.

Unusual features
Unusual features include anything out of the ordinary that might distract a person walking through the area. This reflects the impact of distractions or unusual features. Examples include distractions created by a particular process, alarms/buzzers, strobe lights or flashing lights, high pedestrian traffic, high vehicle traffic or unusually close proximity to material handling equipment, signs, information boards, displays, large windows, and decorative lighting. There typically will be a convergence of issues, such as level changes, obstructions or poor surface conditions associated with the unusual features. Areas where unusual features are a major distraction should receive a high exposure rating.
Contributing factor guide

When assessing an area, you will be evaluating each factor to determine whether it contributes to a very low, low, medium, or high potential for a slip, trip and fall. Based upon your observations, each contributing factor will be scored, as follows:

- High potential = “4”
- Moderate potential = “3”
- Low potential = “2”
- Very low potential = “1”

<table>
<thead>
<tr>
<th>Contributing factor</th>
<th>High potential (Score = 4)</th>
<th>Medium potential (Score = 3)</th>
<th>Low potential (Score = 2)</th>
<th>Very low potential (Score = 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface composition</td>
<td>Highly polished and smooth surface (e.g., glazed tile, polished marble, granite, etc.). Anticipated slip resistance below 0.50 (below 0.65 if a ramp) under its “normal conditions”.</td>
<td>Adequate traction when dry, but reduced slip resistance when wet (e.g., smooth concrete, vinyl, etc.). Anticipated slip resistance of 0.45 to 0.55 (0.65 – 0.75 if a ramp) under its “normal conditions”.</td>
<td>Adequate traction when dry, only slightly reduced slip resistance when wet (e.g., untreated wood, textured epoxy, etc.). Anticipated slip resistance of 0.55 - 0.60, (0.75 - 0.80 if a ramp) under its “normal conditions”.</td>
<td>Adequate traction under all conditions (e.g., carpet, rough concrete, etc.). Anticipated slip resistance greater than 0.60 (greater than 0.80 if a ramp) under its “normal conditions”.</td>
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<tr>
<td>Foreign substance potential</td>
<td>Walking surface contaminants are likely present (e.g., water, oil, wood dust, chemicals, etc.). This could be a result of a process, location, or a spill.</td>
<td>Walking surface contaminants are occasionally present due to non-routine conditions (e.g., spills, leaks, tracking, etc.)</td>
<td>Walking surface contaminants are rare. Area is remote to tracking and leak sources, with most likely hazard due to beverage spills.</td>
<td>Walking surfaces have virtually no potential for contaminants to be present or to impact slip resistance of the surface.</td>
</tr>
<tr>
<td>Surface condition</td>
<td>Holes in floor, ruts, missing floor tiles / material, unrepaired tears in carpeting.</td>
<td>Worn flooring, patched surfaces, and cracked flooring.</td>
<td>Initial indications of wear – traffic areas appear “polished” reducing traction.</td>
<td>No observable deterioration in surface conditions.</td>
</tr>
<tr>
<td>Surface changes</td>
<td>Carpet to glazed tile, brick to epoxy, dry to wet.</td>
<td>Linoleum to vinyl, wood to linoleum, etc.</td>
<td>Carpet to rough concrete, wood to rough concrete, etc.</td>
<td>No change in surface.</td>
</tr>
<tr>
<td>Obstructions</td>
<td>Poor housekeeping, obstacles located in the walkway creating the need to step around or over objects.</td>
<td>Obstacles in the walkway, but arranged, guarded, or protected to minimize tripping hazard.</td>
<td>No obstacles in the walkway, but potential for objects to fall/drift unexpectedly into walkway.</td>
<td>No obstacles or potential for obstacles to be present in the walkway.</td>
</tr>
</tbody>
</table>

In order to assist you in scoring, we have developed the following guide. Although it would be impossible to develop an absolute definition for each level of contributing factor, we can give a range of examples to illustrate some of the more typical conditions that you might encounter. However, this is just a guide. You must use your judgment to determine the most appropriate score.
<table>
<thead>
<tr>
<th>Contributing factor</th>
<th>High potential (Score = 4)</th>
<th>Medium potential (Score = 3)</th>
<th>Low potential (Score = 2)</th>
<th>Very low potential (Score = 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Visibility</strong></td>
<td>No contrast in level changes, very low light level (interior &lt; 2 fc, exterior &lt; 0.2 fc). Visibility is obscured by vapor cloud, or storage.</td>
<td>Level contrasts are indicated, but not obvious. Light levels are low (interior &gt; 2 fc, but &lt; 5 fc, exterior &gt; 0.2 fc, but &lt; 0.9 fc). Visibility is restricted by vapor cloud, or storage.</td>
<td>Level contrasts are obvious, but not indicated. Light levels meet activity min. requirements (public spaces 3 fc, basic orientation 5 fc, working spaces 10 fc). Visibility may be impacted by shadows and/or glare.</td>
<td>Level contrasts are obvious through visual markings and indications. Light levels exceed activity minimum requirements (public spaces 3 fc, basic orientation 5 fc, working spaces 10 fc.) Visibility is not obscured or restricted.</td>
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<tr>
<td><strong>Human factors</strong></td>
<td>High volume of pedestrians unfamiliar with walkway, no control of footwear, high frequency of infirm population using ambulation aides, individuals constantly carrying awkward packages.</td>
<td>Some individuals unfamiliar with walkway, persons permitted access without slip resistant soles, several pedestrians using ambulation aides. Individuals frequently carrying awkward packages.</td>
<td>Most pedestrians familiar with walkway, limited number of persons permitted without slip resistant soles, rare use of ambulation aides by pedestrians. Individuals intermittently carrying awkward packages.</td>
<td>All pedestrians familiar with walkway, slip resistant footwear in use, no individuals using ambulation aides.</td>
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<tr>
<td><strong>Stairs</strong></td>
<td>Stairs – not constructed to standard (e.g., treads and/or risers inconsistent, uneven, or inadequate; handrails missing or at improper height, etc.). Treads and/or landings have high potential for contaminants. Elevator – does not level at floor, excessive gap, and significant change in floor surface. High potential for contaminants on walking surface. No inspection/maintenance records. Escalator – Visual cues inadequate at entrance and exit, system operating erratic, no inspection and/or maintenance records.</td>
<td>Stairs – tread and landing surfaces show visible signs of wear, potential for contaminants (liquids, dust and dirt accumulation). Elevator – Floor surface shows sign of wear, potential for contaminants. Inspection and/or maintenance practices not to standard. Escalator – Inspection and/or maintenance practices not to standard. Visual cues fading.</td>
<td>Stairs – tread and landing surfaces show beginning signs of wear, low potential for contaminants (liquids, dust and dirt accumulation). Elevator – Floor surface shows initial sign of wear, low potential for contaminants. Inspection and/or maintenance practices meet minimum standard. Escalator – Inspection and/or maintenance practices meet minimum standard.</td>
<td>All standard and code requirements met. Inspection and maintenance requirements exceed minimum requirements and documented. In addition, Stairs – slip resistant treads and landings. Very Low potential for contaminants. Elevators – similar floor surface, flooring in good condition. Escalator – all components in good condition and working properly. Good visual cues in place.</td>
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<td><strong>Unusual features</strong></td>
<td>Convergence of multiple factors - High volume of forklift traffic with no marked traffic lanes, painted floors without slip resistant additive, visual and/or auditory distractions (e.g., signs, displays, warning signals, etc.), tire stops, smooth metal or diamond plate panels over utility access or drainage troughs.</td>
<td>Forklift traffic with marked traffic lanes, painted floor with slip resistant additive showing signs of wear, drainage grates, speed bumps, building expansion joint not level, recessed metal grating over floor drains. Multiple visual distractions exist (e.g., displays, noise, alarms, etc.)</td>
<td>Unusual features exist, but are controlled. Visual distractions exist (e.g., displays, noise, alarms, etc.)</td>
<td>Unusual features exist, but are controlled – Forklift traffic with guarded traffic lanes, approved slip resistant additive integrated into floor markings, gratings are level with openings &lt; ½-inch in predominant direction of travel and slip resistant. No other visual distractions.</td>
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**Note:** There may be times when a specific contributing factor does not apply. When this occurs, the contributing factor is to be omitted from the scoring process.
Instructions for completing the slips, trips and falls evaluation form

The slips, trips, and falls evaluation form was developed to provide an efficient method for you to assess a site and then, using the area score and overall score, help you prioritize your resources to focus on those areas/sites posing the greatest slip, trip, and fall potential.

Identify pertinent survey information by filling out the organization name, site surveyed/address, surveyed by, and date fields. Next, identify the areas you will be evaluating. The best case scenario is to evaluate every area that has foot traffic, but, if this is not possible, you should prioritize by those areas that have the most foot traffic. List the areas you will evaluate.

Assess each area in relation to each contributing factor. (See “Contributing factor analysis and contributing factor guide”). As indicated before, you will score each contributing factor as follows:

- High potential = “4”
- Moderate potential = “3”
- Low potential = “2”
- Very low potential = “1”

When evaluating an area, you will likely find that most of the contributing factors are present and pose a potential contribution to a slip, trip, and fall incident. However, there may be a situation where a contributing factor does not exist (e.g., stairs – elevator/escalator, or unusual features). If this is the case, then do not score this factor, leave the entry blank.

To calculate the area score, total up the actual score for the row and divide by the total possible score for the row. List your finding under the “Area Score”. (If all contributing factors are scored for a given row, a total of 100 percent would be the possible score for that row. If only 9 of 10 contributing factors were scored, the possible score for that row would still be 100 percent.)

Once you have completed surveying all the areas at the site, you can calculate an overall score by totaling up the area scores and dividing by the number of areas evaluated. List that number as the “Overall Score”.

To consider which areas pose the greatest STF potential and need to be addressed first, rank the area scores in descending order focusing improvement efforts on areas with the highest exposure scores.

When reviewing each area’s contributing factor score, the goal would be to have all contributing factors rated a “1” (Very low potential). If any contributing factor is rated a “4” (High potential), improvements need to be considered.

If you have evaluated multiple sites, you can use the same ranking approach to prioritize which sites you would focus improvement efforts on first by ranking each site’s overall score.
Slips, trips, and falls evaluation form

Organization Name: ____________________________________________

Site Surveyed/Address: _________________________________________

Surveyed by: ______________________________________ Date: __________

Score contributing factor in each column:
4 = High potential
3 = Medium potential
2 = Low potential
1 = Very low potential
If factor not applicable, leave blank.

Calculate Area Score:
Add up actual score and divide by total possible score. Convert to percent.

<table>
<thead>
<tr>
<th>Areas evaluated</th>
<th>Foreign substance potential</th>
<th>Surface conditions</th>
<th>Surface changes</th>
<th>Level changes</th>
<th>Obstructions</th>
<th>Stairs - elevators/escalators</th>
<th>Human factors</th>
<th>Unusual features</th>
<th>Area score</th>
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Calculate OVERALL SCORE by totaling area scores, and then dividing by number of areas surveyed.

Overall Score: ____________________

To consider which areas pose the greatest STF potential and need to be addressed first, rank the area scores in DESCENDING order focusing improvement efforts on areas with the HIGHEST scores. While the goal would be to have all contributing factors rated a “1” (Very low potential), any contributing factor rated a “4” (High potential) needs to be improved.
Slip, trip and fall incidents are a leading cause for loss within the real estate industry for both workers’ compensation and general liability coverage. According to Zurich Claims data for a 5 year period (2010 thru 2014), real estate customers incurred the following STF losses:

- the average workers’ compensation claim (total incurred cost)* of $57,327
- the average general liability claim (total incurred cost)* of $22,316
- Grand total of employee & visitor STF losses = 7,614 claims at $194,389,664 total incurred cost

*Total incurred cost includes the sum of payments and reserves for indemnity & expense including claim recoveries

Industry specific Insights – Real Estate

Real estate industry assessment guide including contributing factors and methods for control

<table>
<thead>
<tr>
<th>Areas to address</th>
<th>Most likely contributing factors</th>
<th>Methods for Control</th>
</tr>
</thead>
</table>
| Preventing employee/visitor/tenant/contractor STF injuries | • Surface composition  
• Potential for foreign substances  
• Surface condition  
• Surface changes  
• Level changes  
• Obstructions  
• Visibility  
• Human elements  
• Unusual features | Routine audit and repair of floor surfaces  
Adequate surface slip resistance  
Adequate floor cleaning methods & mats, if any  
Slip resistant shoes, signage  
General housekeeping  
Ensure similar slip resistance  
Highlight level changes  
Adequate lighting and contrast  
Minimize distractions |
| Lobby areas                              | • Surface composition  
• Potential for foreign substances  
• Surface condition  
• Surface changes  
• Level changes  
• Obstructions  
• Visibility  
• Human elements  
• Unusual features | Routine audit and repair of floor surfaces  
Adequate surface slip resistance  
Adequate floor cleaning methods & mats, if any  
Slip resistant shoes, signage  
General housekeeping  
Ensure similar slip resistance  
Highlight level changes  
Adequate lighting and contrast  
Minimize distractions |
| Back of the house & stairwells (e.g. loading docks, maintenance shops, debris disposal, etc.) | • Surface composition  
• Potential for foreign substances  
• Surface condition  
• Level changes  
• Obstructions  
• Visibility  
• Human elements  
• Stairs | Routine audit and repair of floor surfaces  
Adequate surface slip resistance  
Adequate floor cleaning methods & mats, if any  
Slip resistant shoes, signage  
General housekeeping  
Highlight level changes  
Adequate lighting and contrast  
Handrails and uniform spacing |
| Exterior areas                           | • Surface composition  
• Potential for foreign substances  
• Surface condition  
• Surface changes  
• Level changes  
• Obstructions  
• Human elements  
• Stairs | Routine audit & repair of surfaces  
Adequate surface slip resistance  
Routine sweeping & inspections  
Marked walkways  
General housekeeping  
Ensure similar slip resistance  
Highlight level changes  
Handrails and uniform spacing |
Action plan

Our final step is to determine how to control the problems we have identified. We have determined our priorities and know which issue to work on first, but each issue is unique and requires special thought about what level of control is desirable, what resources are available and what is technically feasible. Because of these differences, action plans to control each different exposure will likely be unique also. You will probably find that in most cases, more than one change is needed to affect a long-term solution to the problem. To assist you in this process, a Slip, trip, and fall – Action plan worksheet has been provided at the end of this section.

There are, however, some basic similarities that can serve as a guide to helping you through the process of developing an action plan. Each of these considerations is listed in the action plan table on the next page. Also, because assignment of responsibility is a key factor in making sure suggested changes are actually implemented, management decisions about each issue should also be documented. You should complete the table for each significant problem identified in the previous steps.

Here are some suggestions for possible controls to get you started:

Physical changes

- Repair deficiencies in floor surfaces.
- Replace slippery floor material with surfaces having a higher coefficient of friction or slip-resistance. New construction or remodel activity presents the best opportunity to eliminate unsafe walking surfaces.
- Engineer out slip, trip and fall exposures at entrances. Provide permanent matting or recessed gridding in vestibules and provide at least 15 feet of quality entrance matting. Ensure back up matting is stored properly. When possible, mats should be stored in a manner in which they lay flat and are ready for use. Not rolled or stored on end.
- Explore floor treatments that enhance slip resistance. Test on tile samples, when possible. (Some floor dressings or treatments may damage vinyl, linoleum, marble or other sensitive floor surfaces. These products are normally made for durable floor surfaces.)
- Install handrails where appropriate. Add signs, “Please Use Handrail” to promote use.
- Avoid furnishings or display fixtures that might slip or roll when leaned upon.
- Use color contrasts or lighting to make steps or level changes more visible.
- Verify lighting is adequate inside and outside the building.
- Install spill stations or spill cleanup products throughout the facility to provide associates with the proper tools to clean up spills. Provide training and reminders.
- Purchase wet floor signs that are at least 36 inches high to avoid creating a trip hazard with those signs.

Administrative changes

- Ensure managers/associates are aware of their responsibilities to prevent slips, trips, and falls.
- Create appraisal or performance management objectives related to maintaining slip, trip and fall prevention standards.
- Train management and associates not to use chairs, stools, counters, stockroom racking, boxes, etc., as a ladder.
- Address slip, trip, and fall prevention in daily morning meetings and safety committee meetings.
- Include slip, trip, and fall prevention information in self-inspection forms. Ask hourly associates safety awareness questions in regards to slip, trip and fall prevention during the self-inspection.
- Ensure managers set the example and never walk by an unsafe act or unsafe condition that could result in a visitor, customer or employee slip, trip or fall.
- Introduce a shoe program requiring that only slip resistant shoes be worn.
<table>
<thead>
<tr>
<th>Contributing factor</th>
<th>Most likely contributing factors</th>
</tr>
</thead>
</table>
| **Composition**                     | • Install new flooring material with higher slip resistance  
• Install permanent matting system  
• Increase traction through shoe program  
• Apply slip resistant coating (if appropriate for floor material) |
| **Foreign substance potential**     | • Eliminate source of contaminant  
• Avoid polymerization/use proper cleaning methods  
• Install permanent matting system or inlaid carpet at entrances  
• Install slip resistant gridding in vestibules  
• Implement non-slip shoe program  
• Investigate/improve cleaning/housekeeping practices  
• Apply slip resistant coating (if appropriate for floor material)  
• Ensure proper signage/warnings and barricades are used  
• Provide absorbent materials for spill clean up  
• Use clean mop heads only for spill clean-up to avoid contaminating walking surfaces  
• Redirect traffic, as appropriate |
| **Surface condition**               | • Repair with material having similar walking surface characteristics  
• Minimize “patch” repair |
| **Surface changes**                 | • Install matting system  
• Provide transitional repair |
| **Level changes**                   | • Provide adequate visual cues  
• Install alternate means to transition elevation change |
| **Obstructions**                    | • Improve housekeeping  
• Mark and protect walkways  
• Redirect power cords  
• Remove temporary obstacles  
• Review/modify walkways with permanent obstructions  
• Use barricades to prevent striking into obstructions  
• Redirect traffic flow |
| **Visibility**                      | • Improve lighting  
• Remove obstructions  
• Reduce glare |
| **Human factors**                   | • Provide transport assistance (carts, wheelchairs, etc.)  
• Install visual and/or auditory cues  
• Work to provide safe, slip resistant walking surfaces for elderly/aging population  
• Provide walking surfaces free of defects  
• Reduce or eliminate trip exposures |
| **Stairs (Includes elevators and escalators)** | • Ensure railing is continuous around corners to prevent falls  
• Ensure handrails are graspable and of the appropriate height  
• “Please use handrail” signs posted  
• Install sturdy handrails  
• Install slip resistant nosing/treads  
• Provide visual cues  
• Increase maintenance activities  
• Minimize surface and level changes on stair landings  
• Ensure elevator thresholds are even with elevator carriage  
• Ensure elevator thresholds are slip resistant |
| **Unusual features**                | • Ensure walking lanes marked and protected  
• Reduce noise levels  
• Avoid creating distractions where multiple risk factors are converging |
Slip, trip, and fall – Action plan worksheet

Organization name: __________________________________________ Date: __________________________

Site surveyed/Address: ______________________________________________________________________

Created by: __________________________________________ Title: __________________________

Slip, trip, and fall prevention item number: _________________________________________________

Describe issue needing corrective action:
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Describe physical changes needed to improve the condition:
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Describe administrative changes needed to improve the condition:
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Management/team member/property manager responsible for corrective actions

Name: __________________________________________ Title: __________________________

Target date for completion: __________________________ Date completed: __________________________

Miscellaneous comments/information:
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________


Glossary of terms

**Asperities**: Raised edges or abrasives on a walking surface. Some products such as asphalt or broom finished concrete will exhibit asperities when hardened. Asperities can also be applied onto surfaces, such as adding sand or glass beads to paint or applying floor treatments with glass beads to a slippery surface. Sand paper is a good example of a surface with asperities.

**Coefficient of friction**: Represents the amount of friction provided on a dry surface when tested with a slip meter. The term “slip resistance” should be utilized when talking about the measurement of wet surfaces. The coefficient of friction or slip resistance can be measured by a properly trained or certified individual using the appropriate slip meter. Slip meters used for testing of both wet and dry surfaces must exhibit horizontal and vertical (normal) movement, similar to human ambulation, in order to be utilized. This reduces the residence time or slip activation time that normally disqualifies other slip meters from being utilized.

**Contributing factors**: Those conditions that may affect slip, trip, and fall potential.

**Foreign substance potential**: Likelihood that other substances (e.g., water, coffee, oil, etc.) will be found on the walking surface.

**Human factors**: The assumption that different individuals have different physical capabilities.

**Level changes**: Floor height/surface elevation variations, adjoining surfaces not “flush”. Walking surface height changes of three or fewer steps.

**Obstructions**: Anything protruding into the normal walking path.

**Riser**: Vertical part of a stair or step often referred to as the vertical face.

**Slip resistance**: The term used to explain a loss of traction due to multiple variables (e.g., the introduction of a contaminant, along with surface composition, shoe/sole material, etc.). See its reference under coefficient of friction.

**Slope**: Refers to an inclined walking surface, calculated by measuring the vertical distance and then divided by the horizontal distance expressed from top to bottom. Also referred to as rise over run, what a 1:20 slope would mean for every foot of rise, you must travel a distance of 20 feet (run).

**Stairs**: A series of steps, normally more than three steps going from one level to another.

**Surface changes**: An immediate transition from one type of material to another type of material (e.g., linoleum to carpet, etc.).

**Surface composition**: Type of material that makes up the floor surface.

**Surface conditions**: Actual conditions at time of survey.

**Tread**: Horizontal part of a stair step. The part of the stair surface where the foot/shoe normally comes into contact with when climbing.

**Unusual features**: Anything out of the ordinary that might distract a person walking through the area.

**Visibility**: The relative ability to view one’s surroundings, given ambient conditions.
Resources


3 Standard Practice for Safe Walking Surfaces, ASTM F-1637-10, ASTM International, 100 Bar Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428. Published 2007.


5 Understanding slip resistance: Walking and working surfaces, Zurich Services Corporation Risktopic, April 1, 2011.

6 Ladder safety, Retail Safety Solutions Newsletter, Zurich Services Corporation, October 15, 2010.


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