



Slip, Trip & Fall Prevention: Concepts and Strategies

Zurich's 10 Point Program

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Agenda:

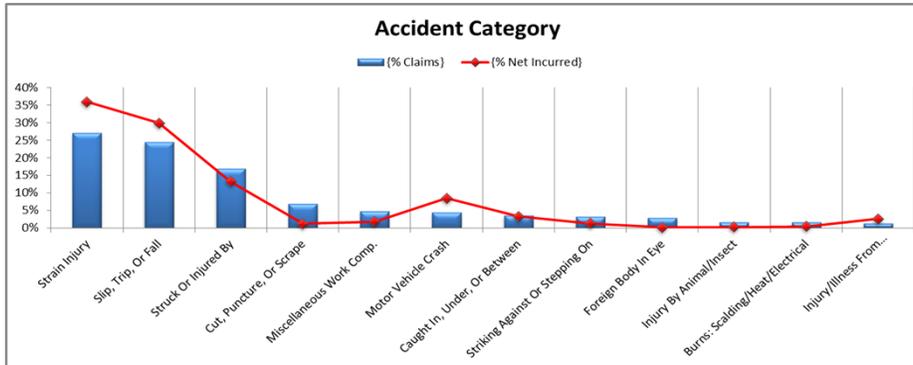


- WV Slip/Trip/ Fall Claims Analysis
- Causes of Slip/Trip/Falls
- Prevention Strategies
- Zurich 10 point Program



State of WV- Claim Cause Analysis

October 1, 2011- August 1, 2015



Since October 2011:

- 1,431 Injuries have resulted from Slip/Trip/Falls
– 24.5% of Total Claim Frequency
- \$11,098,712 of Incurred Cost
– 29.9% Of Total Claims Cost

**2ND LEADING
CAUSE OF
INJURIES
STATEWIDE**

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State of WV Claims Analysis By Division

October 1, 2011 – August 2015



Rank	Division	Number of Claims	Total Cost
1	DOT	454	5,056,440
2	DHHR	332	1,686,197
3	DOC	322	2,346,487
4	Commerce Department	120	1,166,628
5	Dept of Education	54	195,373
6	DEP	31	117,875
7	Dept of Ed and the Arts	31	122,640
8	Department of Revenue	26	63,045
9	Veterans Assistance	23	114,361
10	All Other	38	229,666
Grand Total		1,431	11,098,712

- Average cost of a Slip/Trip/Fall Claim Statewide = **\$7,756**
- Since last year's conference, **345 WV employees** have suffered injuries from slip/trip/falls

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Case Study:



Toys R Us Worker Who Died in Fall has been Identified

"A 57-year-old Toys R Us employee who died after falling off a ladder on Wednesday night has been identified.

Keith I. Weisheimer, of Hilliard, was working at the toy store at 6547 Sawmill Rd. in Dublin when he fell from an 8-foot ladder while trying to remove an item from a display, according to Dublin police.

Washington Township paramedics were called at 7:45 p.m. Police said it appeared that Weisheimer missed a step on the ladder and fell backward, hitting his head on the floor.

He was pronounced dead at Dublin Methodist Hospital about 30 minutes after he fell. The Franklin County coroner's office will conduct an autopsy to determine cause of death.

Officials with the Occupational Safety and Health Administration confirmed today that they are investigating the incident." -The Columbus Dispatch Thursday, October 25, 2012

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Slips, Trips, and Falls are Costly



- Slips and trips can happen in any part of the workplace, inside or outdoors.
- Slips and trips often result in falls and more serious outcomes, including disabling injuries and even death. The costs to both worker and employer can be great:

To Worker:

- pain
- lost wages
- temporary or permanent disability
- reduced quality of life
- depression



To Employer:

- loss in productivity and business
- increased industrial insurance premiums
- costs associated with training replacement worker

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Why Falls Occur



- Two Major Causes:
 - Inadequate friction on the surface.
 - A certain level of friction is necessary to prevent the shoe from slipping as it first strikes the walking surface (debris, foreign objects, water).
 - Unseen and unanticipated obstacles or conditions.
 - When surface conditions change significantly (uneven, broken, cracked walking surfaces). Changes as little as ¼ inch can cause someone to stumble.



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STF Risk Factors – Inadequate Friction



- Type of walking/working surface, interior or exterior
 - Vinyl composition tile (VCT)
 - Carpet
 - Marble
 - Terrazzo
 - Asphalt
 - Cement
 - Wood, etc.
- Suitability for use/environment



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STF risk factors – Inadequate Friction

Surface composition



- Coefficient of friction - dry
- Slip resistance - wet
- Surface asperities or roughness enhance COF or slip resistance
- Most surfaces are safe when clean and dry
- Basic facts: Clean, smooth, hard surfaces are safe when dry, but very unsafe when wet. Similar slip resistance to ice
- ASTM F1637.10
 - Exterior walking surfaces shall be slip resistant
 - Interior walking surfaces that are not slip resistant shall be maintained dry



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STF risk factors – Foreign substance potential



- Likelihood of foreign substance
 - Water, oil, various contaminants, debris, etc.
 - Commonly referred to as lubricants
- Rate effect of foreign substance on surface being evaluated
- Spill controls
 - Cleanup measures (effectiveness)
 - Barricades and signage
- Tracking effect (under shoes)
 - Example: grease from a kitchen
 - Proper cleaning protocols?
 - Avoiding polymerization?



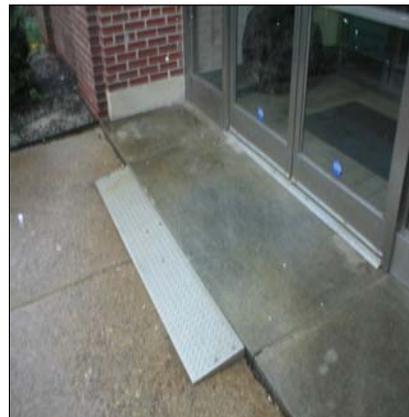
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Examples of poor surface conditions



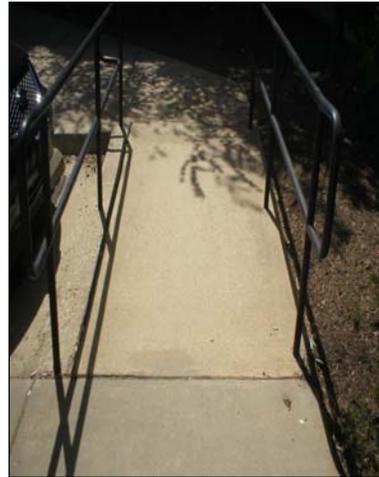
STF risk factors – Surface changes

- Frequent changes in types of flooring
- High traction to low traction
- Low traction to high traction



STF risk factors – Level changes

- Three or fewer steps
- Frequency of level changes
- Small and subtle changes
- Ramps
- Non-uniform steps



Examples – Obstructions



STF Risk Factors – Unanticipated Obstructions or Obstacles

VISIBILITY

- More than just illumination or lighting
- Consideration during an evaluation should include:
 - Glare and lack of color contrasts
- Poor visibility increases the adverse impact of surface/level changes and obstructions
- Business owners should draw attention to level changes by:
 - Using color contrasts
 - Marking step or stair nosings
 - Use of reflective or contrasting colors
 - Marker lights or spot lighting
 - Use of signage
 - “Watch your step”
 - “Please use handrail”



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STF Risk Factors – Unanticipated Obstructions or Obstacles

STAIRS

- More than 3 steps
- Frequency and type of use
- Uneven stair geometry-3/16” to 3/8”
 - Runner 9 to 10” existing, 11” new
 - Risers-8” existing, 7” new
 - Landings
 - Treads-slip resistant
 - Slope angle-30 to 35 degrees
- High risk stairs
 - Non-uniform steps
 - Worn or loose nosing, coverings
 - Wide with no reachable/graspable railing
- Handrails – shape-too big to grasp?



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STF Risk Factors – Unanticipated Obstructions

INTERIOR STEPS & STAIRS

- Properly illuminated
- Stairwells maintained clean and free of storage
- Handrails properly anchored
 - Continuous/wrap around corners
 - Graspable 1.5 to 2.0 inches in diameter



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Human Factors

- Age
- Health
- Shoes
- Vision
- Physical, mental state
- Cumbersome objects/packages



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Slip/Trip/Fall Prevention Strategies



- Operations

- Response/training to spills, debris, water intrusion
- Arrangement of LOW LEVEL obstacles
- Workplace/ Work Process Design
- Inspections
 - Routine daily
 - Zurich's 10 Point Assessment



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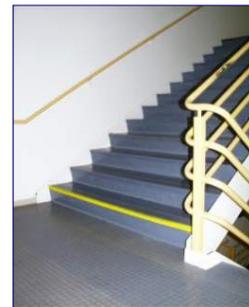
Workplace/Work Process Design



Step edges are highlighted for better visibility to prevent a misstep and fall down the stairs.

Mark/highlight step edges and transition areas (changes in elevations). Use anti-skid paint.

Confusing the bottom step with the floor is a common occurrence when it's not marked. No missing the last step here.



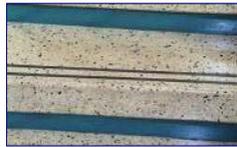
Make sure stairs have sufficient lighting and hand rails.

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Workplace/Work Process Design



Apply slip-resistant coating or strips.



Slip-resistant strips on steps



Skid-resistant coating on ramp. Note highlighted edges for better visibility to prevent walking off ramp and falling.

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Maintaining Work Areas: Housekeeping



Housekeeping

- Keep walkways, aisles, and stairs clear of materials, equipment, and other hazards.
- Cover or secure cables, cords, wires, and hoses away from walkways and other paths of travel.
- Make sure rugs or mats are flat and not bunched up.



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Prevention Strategies & Tools Zurich's 10-Point Program



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STF- Prevention Strategies

Zurich 10- Point Program



- STF for General Industry-Zurich 10-Point Program
- Zurich CXLT Program
- STF App-NEW!
- Developed using a forensic approach
- Convergence of risk factors

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Using the evaluation guide



- Fill out required information at top of slips, trips and falls evaluation form
- Identify areas you will be evaluating; list in left column
- Assess each area in relation to each contributing factor; If factor not present, do not score; Leave blank
 - Be honest in your evaluation
 - Take photos of areas evaluated and areas of concern
 - Barricade or place warning signs in areas identified with significant defects that need immediate action

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Organization name:

Site surveyed/address:

Surveyed by: Date:

Calculate Area Score:

- Add up actual score and divide by total possible score.
- Convert to a percentage.

Score contributing factor in each column:		Areas evaluated									
+ 4 = High potential + 3 = Medium potential + 2 = Low potential + 1 = Very low potential		Foreign substance potential	Surface conditions	Surface changes	Level changes	Obstructions	Visibility	Safe - egress/escapeways	Human factors	Unusual features	Avg score
1	Sidewalk										
2	Front Entrance										
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Calculate **OVERALL SCORE** by totaling area scores, and then dividing by number of areas surveyed. → Overall score: _____

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Using the evaluation guide



- Score each contributing factor based on the potential exposure(s) present that could contribute to a slip, trip and fall
 - High potential = “4”
 - Moderate potential = “3”
 - Low potential = “2”
 - Very low potential = “1”

Organization name:
 Site surveyed/address:
 Surveyed by: Date:

Calculate Area Score:

- Add up actual score and divide by total possible score.
- Convert to a percentage.

Score contributing factor in each column:
 • 4 = High potential
 • 3 = Medium potential
 • 2 = Low potential
 • 1 = Very low potential

Areas evaluated		Foreign substance potential	Surface conditions	Surface changes	Level changes	Obstructions	Visibility	Safe - Street/obstacles	Human factor	Unusual features	Area score	
1	Sidewalk	4	3	3	2	4	1	3	2	2	3	27
2	Front Entrance	3	4	4	3	3	2	1	3	2	4	29
3	Office Area	2	2	1	1	1	3	2	4	1	2	19
4												
5												
6												
7												
8												
9												
10												
11												
12												

Calculate OVERALL SCORE by totaling area scores, and then dividing by number of areas surveyed. → Overall score: _____

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Using the evaluation guide



- Total scores for each area evaluated
- Use results to determine action plan and corrective measures
- Possible controls include:
 - Physical changes
 - Administrative changes

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STF 10-pt program guidance documents



- Evaluation form
- Rate risk factors from 1 – 4 (low – high risk)
- Guidance provided to assist in rating risk factors
- Total scores for each area evaluated for prioritization
- Use results to determine action plan and corrective measures
- Possible controls include:
 - Physical changes
 - Administrative changes

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Thank You!