Slips, Trips, and Falls
Hazard Recognition and Best Practices

Chubb Loss Control Services
24th Annual Schedule 2 Employers’ Group Conference
October 8-9, 2013
Agenda

- Regulatory References
- Extent of Falls
- How Big a Liability Problem
- Types of and Contributing Factors to Slips, Trips, and Falls
- Coefficient of Friction and Asperities
- Examples and Controls
- Contract Management and Accident Investigation
- Chubb Slip, Trip, and Fall Services
What do Regulators Reference?


3 (1) An occupier of premises owes a duty to take such care as in all the circumstances of the case reasonable to see that persons entering on the premises, and the property brought on the premises by those persons are reasonably safe while on the premises

• (2) The duty of care referred to in subsection (1) applies in relation to the

  (a) condition of the premises,
  (b) activities on the premises, or
  (c) conduct of third parties on the premises.
What do Regulators Reference?

Occupiers’ Liability Act – R.S.O 1990 c.O.2 (cont’d)

(4) Despite subsection (1), an occupier has no duty of care to a person in respect of risks willingly assumed by that person other than a duty not to

(a) create a danger with intent to do harm to the person or damage to the person's property, or

(b) act with reckless disregard to the safety of the person or the integrity of the person's property.
What are the Triggers?


• The Act states that a “reasonable” system of inspection is required.

• Courts concerns are:
  – an **effective** maintenance program is in place
  – adequately trained employees
  – a warning system to warn of identified hazards such as posting signs or notices in highly visible locations
Are There Other Regulations?

2. Canadian & Provincial Building Codes

• Standard of care as relates to the structure of a building on a premises (e.g., floor surfaces, staircases, walls, balconies, etc.,)

3. Municipal Act and Regulations and By-Laws

• Standard of care as relates to municipal sidewalks and roadways with regulations on snow accumulation, icy conditions, potholes, cracks or discontinuities, etc.

Section 11
A floor or other surface used by any worker shall,
(a) be kept free of,
   (i) obstructions,
   (ii) hazards, and
   (iii) accumulations of refuse, snow or ice; and
(b) not have any finish or protective material used on it that is likely to make the surface slippery.
The Extent of the Fall Problem

• Slips and falls represent 41% of preventable injuries in Canada at a total cost of $3.6 billion each year.

• Falls were the leading cause of overall injury costs in Canada in 2004 accounting for $6.2 billion or 31% of total costs (direct and indirect).

• 50% of all fall injuries resulted in hospitalization.

• Falls are the leading cause of injuries resulting in permanent partial disability (47%) and total permanent disability (50%).

• Falls are the leading cause of death due to injury among Canadians over 65 with one in three falling on average of once or more each year.

Gillespie et al., (2009) “Interventions of preventing falls in older people living in the community”
The Extent of the Fall Problem

• 70% of slips and falls occur on level ground.

• The most frequent injuries are to the back, wrist, elbow, shoulder, and knee. In general, joint injuries are most common.

Source: National Safety Council, Bureau of Labor Statistics, Center of Disease Control & Prevention
The Extent of the Fall Problem

Leading Causes of Unintentional Injury Deaths in Home and Community - ONTARIO 2001-2005

<table>
<thead>
<tr>
<th></th>
<th>0-14</th>
<th>15-64</th>
<th>65 &amp; Older</th>
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<tbody>
<tr>
<td>Drowning</td>
<td>517</td>
<td>4663</td>
<td>387</td>
</tr>
<tr>
<td>Pedal Cyclist</td>
<td>112</td>
<td>663</td>
<td>3288</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>1589</td>
<td>411</td>
<td>683</td>
</tr>
</tbody>
</table>

Total: 517 4663 387 112 663 3288 1589 411 683

# The Extent of the Fall Problem

## Number of Unintentional Injury Deaths, Hospitalizations, Non-hospitalizations, and Related Disability Causes by Top 5 Causes in Canada - 2004

<table>
<thead>
<tr>
<th></th>
<th>Deaths</th>
<th>Hospitalizations</th>
<th>Non-hospitalizations</th>
<th>Permanent Partial Disability</th>
<th>Permanent Total Disability</th>
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</thead>
<tbody>
<tr>
<td>Transport Incidents</td>
<td>3,067</td>
<td>30,932</td>
<td>286,086</td>
<td>7,738</td>
<td>760</td>
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<tr>
<td>Falls</td>
<td>2,225</td>
<td>105,565</td>
<td>883,676</td>
<td>29,576</td>
<td>2,500</td>
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<tr>
<td>Other Unintentional Injuries</td>
<td>2,220</td>
<td>34,948</td>
<td>1,641,051</td>
<td>15,341</td>
<td>1,105</td>
</tr>
<tr>
<td>Poisoning</td>
<td>944</td>
<td>7,060</td>
<td>54,741</td>
<td>1,677</td>
<td>106</td>
</tr>
<tr>
<td>Fire / Burns</td>
<td>233</td>
<td>2,002</td>
<td>44,778</td>
<td>996</td>
<td>51</td>
</tr>
</tbody>
</table>

The Extent of the Fall Problem

• Ministry of Labour inspectors conducted a blitz in industrial and construction workplaces in February and March 2013 focusing on STF hazards.

• Blitz included 4,359 visits to 3,445 workplaces in which 11,800 orders were issued under the OHSA, including 625 stop work orders.

• The three most frequently issued orders for falls hazards at construction sites involved a failure of employers to:
  – provide adequate guardrails (31%)
  – provide access to a work area free of obstructions (15%)
  – provide adequate fall protection system (9%)

• The three most frequently issued orders for falls hazards at industrial sector workplaces involved a failure of employers to:
  – ensure the safety of floor surfaces (48%)
  – ensure safe material handling (34%)
  – provide adequate guardrails (10%)

Source: Ministry of Labour Blitz Results: Slips, Trips, and Falls June 28, 2013
How Big a Liability Problem?


• $42 million in claims
• 2,823 Fall or Fell claims with $23 million total claim value.
• 11 of the 25 most expensive claims were fall or fell claims.
• Number of claims by Keyword in loss description:
  – Ice + Fell  281
  – Sidewalk    334
  – Parking Lot 770
  – Curb        182
  – Slip        997
  – Trip        551
  – Stepped     215
Slips, Trips and Falls – 3 Basic Types

- **Slip of trailing foot during push-off** – most often results in a fall forward due to location of person’s Center of Gravity. Person might catch themselves using the forward foot and arms that may still be under the CG.

- **Trip** over a protruding object, often by the toe of the leading foot (the swing leg) causing a forward fall. Or, trip caused by entry into a depressed defect in the walking surface, also causing a fall forward.

- **Heel strike slip of leading leg** – most often results in a fall backwards, again due to rotation around the CG. Little opportunity to save oneself.
Contributing Factors of Slips, Trips, and Falls

- Walkway surface materials
- Environmental contaminants that affect the interface between the footwear and floor surface.
- Footwear bottom material and condition
- Gait dynamics (the way people walk)
- Obstacle in the path
- A change in the elevation of the path, such as a carpet transition, threshold, stairway or ramp.
The Heel Strike Slip and Fall

• In general, the most important (and controllable) type of slip and fall involves a loss of traction at the interface, usually due to a contaminant that is on the surface.

• Traction in this context is slip resistance, the relative force that resists the tendency of the shoe or foot to slide.

Surface Textures (Asperities)

- Has a great influence over the likelihood of a heel slip.

- Two key factors affecting slip resistance, particularly in the presence of contaminants, are the sharpness of the asperities (the peaks and valleys) and their depth.

- Normal foot traffic over time can wear down the sharpness of the peaks, reducing the slip resistance of the surface.

- The wear can even become directional, as is commonly seen in ramps. Downhill traffic wears off the uphill side of the asperities.

- Contaminants filling the asperities is what makes floors slippery (i.e., the unexpected patch of water the pedestrian can not readily see).
How do people walk on frozen lakes without falling?
Criteria for Slip Resistance – 0.50

• By human studies, minimum necessary for straight unloaded walking at normal speed is 0.25 – 0.35.

• Ice is about 0.20 dry and 0.17 wet, and people safely ambulate across frozen lakes without falling.

• 0.50 slip resistance value is the generally accepted value that takes into account a reasonable factor of safety.
Common Myths About 0.50

• 0.50 is safe, 0.49 is unsafe.

• Clean dry floors are not slippery under rubber shoe bottoms. And since the vast majority of shoes sold nowadays have some kind of rubber heels, there is no point in measuring traction on clean dry floors.

• Since there are few enterprises out there maintaining floors in hyper-clean, dry conditions, test results done under these conditions do not reflect the safety of floors under real-world walking conditions.

• **Majority of slips occur at heel-surface contact**

• **Majority of trips occur at toe-heel push-off**
Typical Slip, Trip, and Fall Exposures
Uneven Walkways
Parking Lot
Sidewalk Problems
Curled Edges of Mats
Stairwell with Poor Leading Edge
Exterior Stairwell
Typical Slip, Trip, and Fall Solutions
Exterior Best Practices
Sidewalk Best Practice
Sidewalk Elevation Solutions
Stairwell Best Practices
Walk-Off Mats Best Practices
Signage Best Practice
Umbrella Bags
Interior Slip, Trip, and Fall Best Practices

• Appropriate flooring – slip resistance rating of 0.5 or better

• Proper floor maintenance

• Spill Response Plan and spill kits

• Good illumination in stairwells

• Stairway with good leading treads

• Walk-off mats in good condition

• Umbrella bags

• Proper signage – use of wet floor signs, change in elevation
Exterior Slip, Trip, and Fall Best Practices

• Monitoring conditions of parking lot: promptly repair or replace broken parking bumpers, pot holes, cracks.

• Block off parking lot areas that are not draining properly. Ensure drains are kept clear.

• Ensure that all changes in elevation are marked.

• Ensure that all curbing is visible.

• Ensure that slip-resistant paint is used outside.

• Provide sidewalk warning measures during inclement weather/snow and ice accumulation
What’s wrong with this picture?
A Little About Snow and Ice

• Adds a critical variable - unknown exactly when, how much, affected by wind patterns, topography.

• In addition to being a hazard on its own, can hide trip and fall hazards, or obscure path/stairways/ramps.

• Melting snow can refreeze in parking lots/walking areas

• Local employees can immediately:
  – Remove top layer of snow
  – Spread snow/ice melt products
  – Mark/monitor hazardous areas

• Snow Removal Plan – Preplan where excess snow accumulation should be stored.

• Ultimately, will need to engage an outside contractor
Contractual Risk Transfer / Accident Investigation

• Even with the best slip, trip and fall exposure control strategies, there will be incidents

• Before and After Cost Containment Strategies
  – Contractual Risk Transfer
  – Subcontractor Qualification Standards
  – Accident Reporting and Investigation protocols.

• Contractors can include
  – Snow removal
  – Cleaning services
  – Outside maintenance/repair services
Key Contract Concepts

• Indemnification/Hold Harmless
  – Provision in which the *indemnitor* agrees to “indemnify and hold harmless” the *indemnitee* against certain liabilities arising out of the activity that is the subject of the contract.

• Additional Insured Status
  – Requirement to be added as an additional insured on the general liability policy of the contractor
  – Grants direct rights to recovery under the insurance policy

• Use caution when granting hold harmless and additional insured to others.
Contractual Risk Transfer Controls

• “Best Practice” is to use a Standard Subcontract Agreement written by an attorney specializing in contract law for the jurisdiction where operating.

• There will be an Indemnification clause in the Standard Subcontract agreement.
  – Requires the subcontractor (and the subcontractor’s subs) to defend, indemnify and hold harmless for all claims arising out of the subcontractor’s (and their sub’s) work.

• Specify scope of work in the contract. What will the contractor be responsible for (and not responsible for).

• Specify health and safety requirements in the contract.
Subcontractor Qualification

• Defined subcontractor selection criteria included in bid specifications
  – WSIB clearance (ensures company is registered with WSIB with an account in good standing)
  – Ministry of Labour infractions and convictions
  – In business for at least 5 years
  – References of principal projects completed in the last 5 years
  – Review/consider past performance of subcontractors on other projects

• Written health and safety program capable of meeting contract requirements
Certificates of Insurance

• Obtain before the subcontractor starts work

• Verify certificates are complete and meet specifications in contract.

• Subcontractor to provide original certificates of insurance with specified endorsements.

• Establish a follow-up procedure for policies that expire mid-project.

• Subcontractors of the contractor.
Accident Investigation

• Can help mitigate potential lawsuits, and provide corrective action to prevent future accidents

• Think **GAIN**
  – **GO** to the scene and bring your investigation toolkit (camera, video, measurement instruments, policies and procedures, safety regulations).
    • Report form (FILL OUT COMPLETELY!)
  – **ASK** ....
    • Open ended questions
    • For a demonstration of the incident
    • For employee input to prevent future accidents
  – **INTERVIEW** Witnesses Separately, if possible
  – **NEVER** place blame; look for FACTS ONLY!
Chubb Loss Control Slip, Trip, Fall Services

• On-site evaluations by Chubb Loss Control Engineers
  – Provide photos of problem areas and suggestions for exposure improvements.
  – Site Evaluation can be incorporated into a presentation for property managers – in-person or webcast.

• Slip, Trip and Fall Prevention tools
  – Slip, Trip and Fall prevention tips with checklists
  – Contractual Liability guide
  – Video training materials

• English XL VIT SlipMeter
Conclusion

• Slip, Trips and Falls don’t just “happen” – There is science behind them!

• Common Slip, Trip, and Fall hazards often exist in plain sight, and focused attention can correct them.

• Contractual Management and Accident Investigation can help to mitigate the financial impact of slip, trip, and fall incidents.

• There are services available to you as a Chubb client to help you identify and prevent slips, trips, and falls at your properties.
Credits

• Fred Champion, CSP, CXLT, Chubb Loss Control Senior Risk Specialist (New York City, New York)

• AnnMarie Feeley-Jones, CSP, Chubb Loss Control Senior Risk Specialist (Los Angeles, California)

• Jay Taylor, CSP, Chubb Loss Control Customer Market Segment Specialist (Whitehouse Station, New Jersey)

• Kerrie Ting, MHSc, Chubb Loss Control Representative (Toronto, Ontario)
Thank You

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