Slips, Trips & Falls
Walking & Working Surfaces
29 CFR 1910
National Safety Council Statistics

- 605 workers were killed by falls to the same or lower level (2012)
- 212,760 workers were seriously injured
- Falls continue to be the major reason for injury-related death, injury & hospital admissions
Primary Causes of Slips, Trips & Falls

- 16% Housekeeping Issues
- 25% Wet or Slippery Surfaces
- 54% Human Factors
- 1% Poor Lighting
- 2% Stairs
- 2% Ladders
Statistically Speaking

- Slip-and-fall incidents account for @ 65% of lost workdays \(^{(1)}\)
- Employee slip-and-fall injuries cost @ $70 billion annually \(^{(2)}\)
- Average cost of a “lost time injury” @ $43,000
- 3 million food service employees and 1 million guests injured annually for a cost of $2 Billion

(excluding out of court settlements)

\(^{(1)}\) National Safety Council
\(^{(2)}\) Liberty Mutual Study 2010
Walking and Working Surfaces

**Definition:** Any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.
OSHA “Walking Working Surfaces”

- 29 FCR 1910 Subpart D *
  - Walking and Working Surfaces
    - “All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary conditions; and”
    - “The floor of every workroom shall be maintained in a clean and, as far as possible, a dry condition…”

- First written in 1974
- Last Updated 1990
Section 5(a)(1) of the OSH Act, often referred to as the General Duty Clause, requires employers to "furnish to each of his employees a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees".

Section 5(a)(2) requires employers to "comply with occupational safety and health standards promulgated under this Act".

OSHA “Walking Working Surfaces”
# Agency Rule List - Spring 2016

**Department of Labor**

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Most Common

– Head & neck injuries
  (traumatic brain injuries & concussions)
– Spinal cord injuries
– Broken bones
– Sprains & strains

1) National Safety Council
2) Liberty Mutual Study 2010
Major Causes (1)

- Lack of slip resistance on walking surfaces
- Poor walking conditions
- Poor visibility
- Lack or poor condition of handrails/guardrails
- Poor accessibility

(1) CNA Risk Control Study
Obstacles in Walkways

- Narrow aisles
- Storage rooms/tool sheds
- Shop offices
- Shop environments
- Lunch rooms
- Locker rooms
Wet or Slippery Surfaces

- Parking lots
- Sidewalks or lack of
- Floors
  - Carpeted
  - Linoleum
  - Tile
  - Concrete
- Leaves, debris or other naturally occurring hazards
Unprotected Edges

Any side or edge of a walking / working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches (1.0 m) high.
Floor Holes & Skylights

A gap or void 2 inches or more in its least dimension, in a floor, roof, or other walking/working surface.
Elevated Work Locations

Every open-sided floor or platform 4 feet or more above an adjacent floor or ground level shall be guarded by a standard guardrail.
Fall Hazards

• Falls from elevation are the **#1 killer** in construction & industry with approximately 33% of all fatalities related to falls

Where, when and how do fall hazards occur in your operations?
Portable Ladders

General
CFR 1926.1053(a)
CISO 1675

Extension Ladders
CFR 1926.1053(a)
CISO 1678

Does your ladder safety program include documented inspections and user training?
Ladder Inspections

Your Company Name Here

Ladder Inspected __________ (Date)
Next Inspection __________ (Date)
Ladder Inspected By __________ (Name)
Ladder Decals

- **Type**: Craft-Master
- **Grade**: Type 1
- **Duty Rating**: 250 lbs.
- **Model (I.D.) Number**: 376
- **Ladder Size**: 6 ft.
- **Highest Standing Level**: 3 ft. 10 in.
- **OSHA/ANSI**: Manufacturer's Certification
- **Notice**: Use only in normal working positions.
- **Extension Ladder I.D. Label**
  - **Type**: Duty-Master
  - **Grade**: Type 1A
  - **Duty Rating**: 300 lbs.
  - **Model**: D1524-2
  - **Total Length Sections**: 24 ft.
  - **Total Length**: 21 ft.
  - **Notice**: Use only in normal working positions.
  - **Highest Standing Level**: 15 ft. 11 in.
  - **Manufactured in U.S.A.**

- **Type**: Heavy Duty Industrial
- **Height**: Overall height of the ladder.
- **Maximum Working Length**: Total length the ladder will extend, after deducting all section overlaps.

- **Notice**: Use only in normal working positions.
- **Highest Standing Level**: Maximum safe working height.
  - Step ladders: 2nd step down from the top.
  - Extension ladders: 4th rung down from the top.
Portable Ladders

• All users must be trained in safe operations
• Inspect before each use & frequently
• Remove defective ladders from service
• Tag and/or mark DANGEROUS - DO NOT USE
• All manufactured ladders shall be marked as designed and approved per ANSI A14 1982 standards
Portable Ladders

• Do not use ladders horizontally as platforms, runways or scaffolds
• Do not place in passageways
• Side rails shall extend at least **36 inches** above the landing
• Ladder must be secured while in use
• Do not use portable metal ladders for electrical work
• Do not stand on the top cap or the step below the top cap on step ladders
Fall Hazards
Ron Hunt, a Truckee CA construction worker was working at his job when the ladder he was standing on started to wobble.

Following safety procedures, he tossed the drill when he realized he was falling off the ladder.

Good news – he didn’t break anything.

Bad news – landed face first on the drill. The 18 inch long (45.2 cm), 1.5 inch diameter (3.81 cm) bit went through his eye and out his skull, just over his right ear. The word “lucky” doesn’t quite cover it.
Ron said, “By the time I was falling and I let the drill go down, I was already on top of it. I ran my hands up the drill bit, up to my eye and put my other hand in the back of my head and felt it coming through the back of my head. And that's where pretty much the shock set in.”
Science of Predictive Measurement

Coefficient of Friction
- A measurement that records how slippery a floor is

Static Coefficient of Friction
- The force necessary to start a body moving

Dynamic Coefficient of Friction
- The force necessary to keep the same body moving
Traction Scale

0.0 to 0.4 = Very Low Traction – (dangerous floors)
0.4 = 0.6 = Moderate Traction (OSHA Standard)
0.6 to 1.0 = Very High Traction

National Flooring Safety Institute
Tribometers

BOT 3000

American Slip Meter

Slip Doctor
Walkway Auditing

ANSI B101.0
Walkway surface auditing procedure for the measurement of walkway slip resistance
Walkway Auditing

ANSI B101.0

Scope: Provide technical procedures for walkway auditing and measuring coefficient of friction of walkway surfaces in public and private facilities
Walkway Auditing

ANSI B101.0

Qualifications of the Auditor:
An individual who has completed a nationally recognized training program that offers knowledge, skills and understanding through successful examination, testing [...] In methods, measurement, analysis and recording of walkway slip resistance data
Walkway Auditing

Facility Site Assessment
Risk Classes
Auditing Frequency
Auditor’s Report
Interventions
Walkway Auditing

ANSI B101.1
Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials
Walkway Auditing

ANSI B101.1

Purpose: provide a measurement procedure setting forth traction ranges that facilitate remediation of walkway surfaces as warranted
Which is not a Fall Protection Program?
# Training Program Ideas

## Introduction & Sign In

## Applicable Regulations


## Learning Objectives

1. Recognize the common causes of slips, trips, and falls.
2. Realize that slips, trips, and falls can cause serious injuries.
3. Know what precautions can prevent slips, trips, and falls.
4. Avoid acts and omissions that cause slips, trips, and falls on the job.

## Pre-Training Quiz

## Employer Policy

## Main Points to Cover

## Practical Exercises and Discussion

## Summary

## Final Exam

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**Purpose**

**Application of this Guidance Document**

**Responsibilities**

3.1 Supervisors

3.2 Employees

3.3 Building Managers and Zone Managers

3.4 Department of Environmental Health and Safety (EH&S)

**HAZARD IDENTIFICATION / INSPECTION**

4.1 Slip, Trip, & Fall Hazards

4.1.1 Higher Risk Areas

4.2 Inspections

**HAZARD CONTROL MEASURES**

5.1 General Housekeeping Procedures / Safe Work Practices

5.2 Floor Mats and Other Floor Treatments

5.3 Slip-Resistant Footwear

5.4 Floor Maintenance Procedures

**Training**

6.1 General Housekeeping / Safe Work Practices

6.2 Floor Maintenance Procedures

6.3 Recordkeeping
On-Going Awareness Program

Preventing Slips, Trips, and Falls

Handout #1

FALLING CAN BE DEADLY...

SO PREVENTING FALLS IS ESSENTIAL!

Falls disable or kill thousands of people in the workplace each year; so stay alert for these hazards:

- Slipping on wet, oily, or other slippery surfaces
- Tripping over cords, boxes, and other objects
- Falls on stairways, from ladders, or from other positions above the floor or ground

Know and use these common sense safety guidelines to prevent falling accidents:

- Walk, don’t run
- Keep walkways and passageways clear of tripping and falling hazards
- Promptly clean up spills
- Unobstructed and practice walkway safety
- Use fall protection equipment if required
- Stay alert and pay attention to where you’re walking
- Don’t take chances—use ladders or platform, not boxes or chairs, to reach high places
- Report all potential fall hazards to a supervisor

General Objectives of This Training Session

By the end of this Session, you should know:

- Fall hazards in the workplace
- Safety measures to prevent falls
- First aid for workplace falls
Housekeeping

- Everyone should be trained to understand the importance of housekeeping
- Establish housekeeping as a daily routine for everyone
- Whose responsibility is it to make sure procedures are being followed?
Housekeeping

• Keep walkways, hallways and stairs free of clutter

• Cover or secure cords, cables, wires or hoses and keep them away from high traffic areas

• Make sure rugs lay flat and are secure
Housekeeping

• Keep floors free of mud, water, grease and debris

• Provide training and written procedures for cleaning spills and floor contaminants quickly

• Keep tools readily accessible
Safe Walking Procedures

• Pay attention to your surroundings, look where you are going and pay attention to slip and trip hazards
• Walk, don’t run – take your time
• Don’t read, write, work or text while walking
• Use handrails while ascending and descending stairs, take your time and don’t skip steps
Safe Walking Procedures

• Walk cautiously when you transition from one walking surface to another

• Slow down and take small steps when a surface is cluttered, uneven or at an angle

• Wear stable non-slip shoes
Approved Footwear
Safe Walking Procedures

• Before you lift anything, check to make sure your path is clear and your view is not obstructed

• Utilize carts - don’t carry anything that you cannot see over or around

• Carry small loads close to your body

• Use the elevator if you are going to another level and are carrying something that requires you to use both hands
Learn How to Fall

Objective: to have as many square inches of your body contact the surface as possible

This minimizes the fall’s impact and spreads it over a larger area
Learn How to Fall

• Whenever possible:
  • Tuck chin
  • Turn head
  • Throw an arm up
  • Twist or roll body to the side
  • Keep wrists, elbow and knees bent at all times
  • Exhale on impact (Shout loudly)
Learn How to Fall

• Never, EVER, EVER!...
  – Try to break a fall with your hands, wrists, elbows, knees or head (face)
  – Look in the direction of your fall
  – Get up too quickly after a fall
    • Assess injuries before moving
    • If you’re in doubt, get a medical assessment
    • Injuries may not manifest until a later time?

Is your First Aid/CPR training current?
A Rule of Thumb...

- If you drop it, pick it up
- If you spill it, wipe it up
- Go where you’re looking, and look where you’re going
Falls can happen to anyone!
Can you identify what is wrong in the following pictures?
COMPETENT PERSON FALL PROTECTION
Safety Center is a 501(c)(3) not-for-profit organization founded in 1934 whose mission is to reduce injuries and save lives by empowering our community to make positive life-changing decisions. We accomplish this mission by promoting lifelong safety and health through a variety of community and professional programs. Our programs help people of all ages learn to live safe, healthy and productive lives.

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