Safety Council
OF NORTHWEST OHIO

alliance
An OSHA Cooperative Program

March 24, 2026

Monthly Safety Meeting

Hand and Battery Powered Tools

8:00 a.m. – 9:15 a.m.

Webinar

Presenter: Ray Struffolino

March 30 – April 1, 2026

OSHA 10-Hour

Construction

8:00 a.m. – Noon each day

@ SCNWO

Instructor: Ray Struffolino

Safety Council OF NORTHWEST OHIO

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April 1, 2026

Workplace Emergency Action Plans

9:00 a.m. – 11:00 a.m.

Webinar

Presenter: Robert Momany

April 7, 2026

Compliance Luncheon

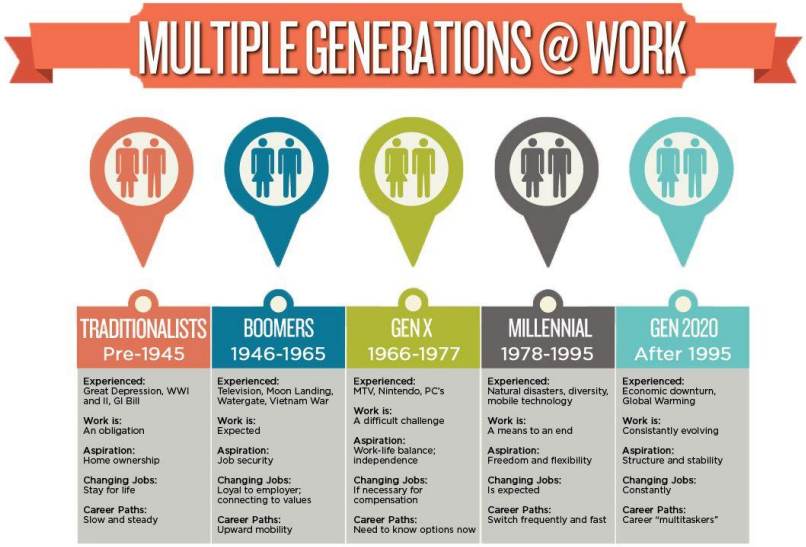
Influencing Safety in Multi-Generational Workplaces

Noon – 1:30 p.m.

@ SCNWO

Presenter: Shanna Dunbar

Workplace Health Inc.



April 8, 2026

BUSTR

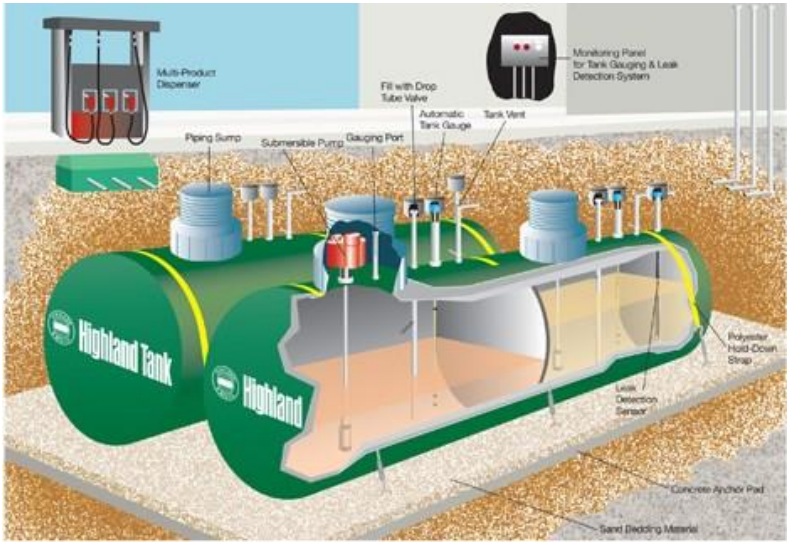
Bureau of Underground Storage Tanks

9:00 a.m. - Noon

@ SCNWO

Instructor: Bob May

Montrose Environmental Group



April 9, 2026

Competent Person

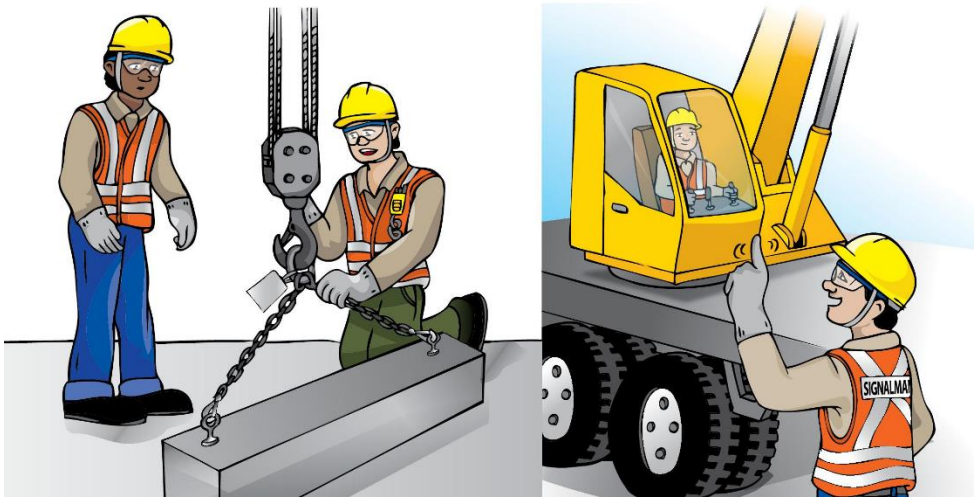
Qualified Rigger / Signal Person

9:00 a.m. – 3:30 p.m.

@ SCNWO

Instructor: Rob Siemens

Blue Arc Training & Consulting



April 13, 2026

ICRA 2.0

Infection Control Risk Assessment

8:00 a.m. – 4:00 p.m.

@ SCNWO

Instructor: Robert Momany

April 14, 2026

First Aid / CPR

First Aid – 9:00 a.m.

CPR – 1:00 p.m.

@ SCNWO

Instructor: Stephanie Cuellar

April 14, 2026

Safety Program Participation

9:00 a.m. – 11:00 a.m.

Webinar

Presenter: Robert Momany

Safety Council OF NORTHWEST OHIO

alliance An OSHA Cooperative Program

May 13, 2026

35th NW Ohio

Safety & Health Day

8:00 a.m. – 3:00 p.m.

@ Owens Community College

Keynote: Mary Archer & Rena Harrington

United Support and Memorial for Workplace Fatalities

www.safetyandhealthday.org

Slips, Trips & Falls

Identification & Prevention

Presented by:
Robert Momany, COSS, COSM
March 23, 2026

Objectives

- Costs of slips, trips & falls (STFs)
- Definitions
- Causes of STFs
- Risk factors
- Prevention/minimization

Costs of STFs

- Slips, trips & falls can happen anywhere in your operation
- Slips & trips can result in falls, possibly disability or death
- Costs to employer & worker can be substantial

Costs of STFs

- To the employer:
  - Loss of productivity & business
  - Increased industrial insurance premiums
  - Costs associated with training replacement worker

Costs of STFs

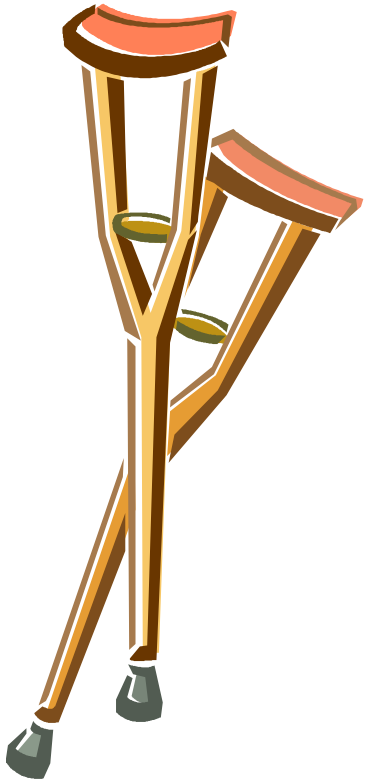
- To the worker:
  - Lost wages & out-of-pocket expenses
  - Pain
  - Temporary or permanent disability
  - Reduced quality of life
  - Depression
  - Death

Frequency of STFs

- Slips, trips & falls make up majority of general industry accidents (USDoL)
  - 15% of all accidental deaths; 2nd leading cause behind motor vehicles
    - ~12,000/year
  - One of most frequently-reported injuries
    - ~25% of reported claims/year
  - Over 17% of all disabling occupational injuries result from falls
- Most could have been prevented

STF Injuries

- Sprains & strains
- Bruises & contusions
- Fractures
- Abrasions & lacerations



Typical Injury Sites

- Knee, ankle and/or foot
- Wrist &/or elbow
- Back &/or shoulder
- Hip
- Head

Definitions

- Slip
  - Too little friction or traction between feet (footware) & walking/working surface, resulting in loss of balance

Definitions

- Trip
  - Foot or lower leg hits object & upper body continues moving, resulting in loss of balance
  - Stepping down to lower surface & losing balance

Definitions

- Fall
  - Occurs when too far off center of balance
- Two types
  - Fall at same level
    - Fall to same walking or working surface, or fall into or against objects above same surface
  - Fall to lower level
    - Fall to level below walking or working surface

Causes of Slips

- Wet product or spills on smooth floors or walking surfaces
  - Water
  - Mud
  - Grease
  - Oil
  - Food
  - Blood
  - Offal

Causes of Slips

- Dry product or spills making walking surface slippery
    - Dusts
    - Powders
    - Granules
    - Wood
    - Plastic wrapping

Causes of Slips

- Highly-polished floors can be slick even when dry
  - Concrete
  - Marble
  - Ceramic tile
- Freshly-waxed surfaces
- Transitioning from one surface to another
  - Carpeted to vinyl
  - Grid to smooth concrete

Causes of Slips

- Sloped walking surfaces
- Loose, unanchored rugs or mats
- Loose floorboards or shifting tiles
- Wet, muddy or greasy shoes
- Ramps & gang planks without skid- or slip-resistant surfaces

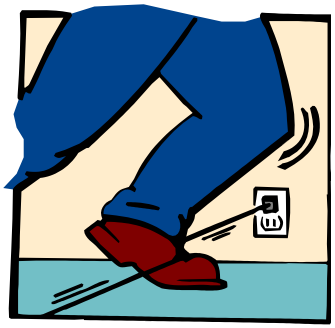
Causes of Slips

- Metal surfaces
  - Dockboards & dock plates
  - Platforms
  - Sidewalk & road covers
- Mounting & dismounting vehicles & equipment
- Climbing ladders
- Loose, irregular surfaces such as gravel

Causes of Slips

- Sloped, uneven or muddy terrain
- Weather hazards
- Leaves, pine needles & other plant debris (wet or dry)

Causes of Trips



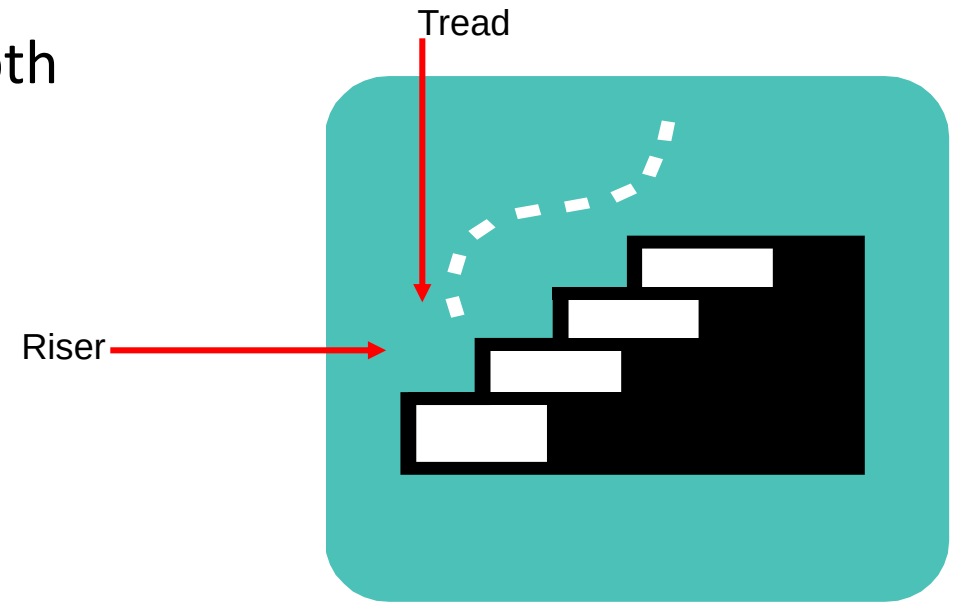
- Uncovered hoses, cables, wires or extension cords across aisles or walkways
- Clutter, obstacles in aisles, walkway & work areas
- Open cabinet, file or desk drawers & doors

Causes of Trips

- Changes in elevation or levels
  - Unmarked steps or ramps
- Rumpled or rolled-up carpets/mats or carpets with curled edges
- Irregularities in walking surfaces
  - Thresholds or gaps
- Missing or uneven floor tiles & bricks

Causes of Trips

- Damaged steps
- Non-uniform, improper or irregular steps
  - Taller of shorter
  - Shallower tread depth
  - Otherwise irregular



Causes of Trips

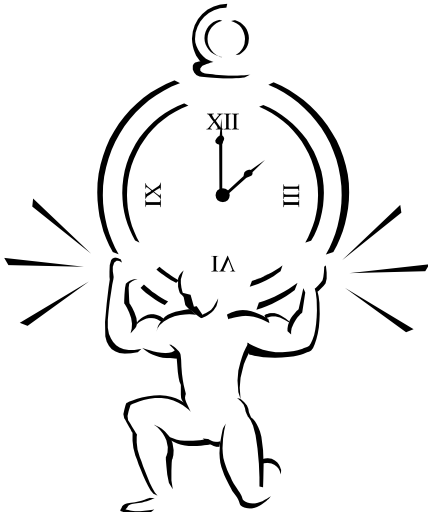
- Debris, accumulated waste materials
- Trailing cables, pallets, tools in gangways
- Objects protruding from walking surface
- Uneven surfaces
- Sidewalk/curb drops
- Speed bumps
- Tire bumpers
- Wheelchair ramps & curbs
- Driveways

Environmental Conditions Increasing Risk of Trips & Slips

- Poor lighting
- Glare
- Shadows
- Bulky PPE (includes improper footware)
- Excess noise or temperature
- Fog or misty conditions
- Poor housekeeping
- Improper cleaning methods & products
- Inadequate or missing signage

Human Factors Increasing Risk of Trips & Slips - Physical

- Failing eyesight &/or visual perception
- Age
- Physical condition & fatigue
- Stress or illness
- Medications, alcohol & drug effects



Human Factors Increasing Risk of Trips & Slips - Behavior

- Carrying or moving cumbersome objects or simply too many objects at one time
- Not paying attention to surroundings or walking distracted
- Taking unapproved shortcuts
- Being in a hurry and rushing

STFs are Preventable

- Design of workplace & work processes
  - Design workplace & processes to prevent potential exposures to slip & trip hazards
- Good housekeeping
  - Maintain clear, tidy work areas free of clutter
- Safe walking practices
  - Follow safe walking practices & routes
- Wearing proper footwear
  - Wear proper footwear with good traction
- Learn to fall “properly”
  - There are techniques that can minimize fall injuries

Workplace/Work Process Design

- Contain work processes to prevent discharge, splatter, or spillage of liquids, oils, particles, dusts & offal onto floor
  - Local exhaust ventilation
  - Extraction/collection systems
  - Enclosures
  - Work surfaces with raised or lipped edges
  - Catch/drip pans, drain-offs

Workplace/Work Process Design

- Use drip trays to contain leaks of lubricant onto floor from machinery
  - Perform regularly scheduled maintenance
- Use adequate ventilation to avoid smoke, steam & condensation of water & grease onto floor
- Provide adequate lighting to keep work areas, aisles & paths of travel well lit

Workplace/Work Process Design

- Mark/highlight step edges & transition areas (changes in elevations)
  - Use anti-skid paint, slip-resistant coatings & strips
- Make sure stairs have sufficient lighting & hand rails
- Provide effective drainage, false floors or work platforms
- Install slip-resistant floors in high risk areas

OSHA's Regulations
29 CFR 1910 Subpart D

Housekeeping

- All places of employment clean and orderly and in a sanitary condition
- Workrooms clean & dry
- Platforms, mats, or other dry standing places for wet processes

Aisles

- Sufficient safe clearance maintained where mechanical handling equipment is used
- Aisles and passageways kept clear and in good repairs
- No obstruction across or in aisles that could create a hazard

Aisles

- Permanent aisles and passageways shall be appropriately marked.

Floor Openings

- Every stairway floor opening guarded by a standard railing
- Railing provided on all exposed sides (except at entrance to stairway)

Floor Openings

- Every ladderway floor opening or platform shall be guarded by a standard railing with standard toeboard on all exposed sides (except at entrance to opening), with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.

Floor Openings

- Where operating conditions necessitate the feeding of material into any hatchway or chute opening, protection shall be provided to prevent a person from falling through the opening.

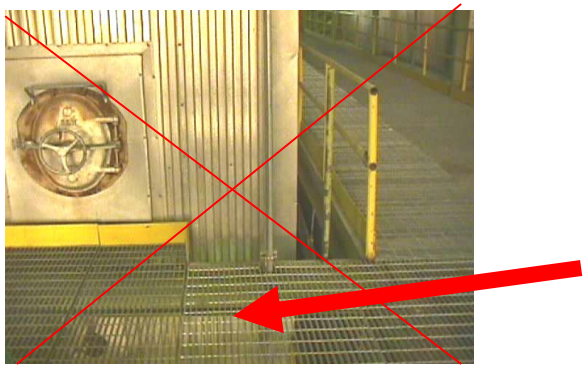
Floor Openings

- Every pit and trapdoor floor opening, infrequently used, guarded by a floor opening cover of standard strength and construction.
- While the cover is not in place, the pit or trap opening constantly attended by someone or protected on all exposed sides by removable standard railings.


www.officeclips.com

Floor Openings

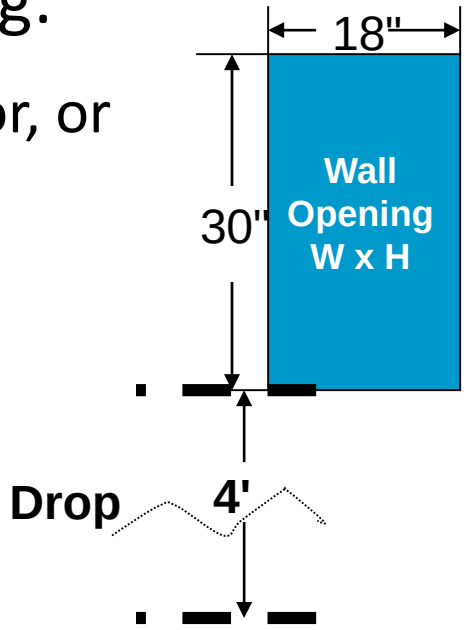
- Every floor hole into which persons can accidentally walk shall be guarded by either:
  - A standard railing with standard toeboard on all exposed sides, or
  - A floor hole cover of standard strength and construction. While the cover is not in place, the floor hole shall be constantly attended by someone or shall be protected by a removable standard railing.



Floor opening large enough to fall through

Wall Openings

- Every wall opening from which there is a drop of more than 4 feet shall be guarded by one of the following:
  - Rail, roller, picket fence, half door, or equivalent barrier.



Open-sided Floors

- Every open-sided floor or platform 4 feet or more guarded on all open sides except where there is entrance to a ramp, stairway, or fixed ladder.

Open-sided Floors

- The railing shall be provided with a toeboard wherever, beneath the open sides,
  - Persons can pass,
  - There is moving machinery, or
  - There is equipment with which falling materials could create a hazard

Open-sided Floors

- All open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, guarded with a standard railing and toe board

Stairways

- Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails.

Fixed Stairs

- Provided for regular travel between levels
- Where equipment requires attention routinely
- Fixed stairs provided where access to elevations is daily
- For work around acids, caustics, gases, or other harmful substances

Fixed Stairs

- Fixed stairs minimum width of 22 inches

Fixed Stairs

- "Stair treads." All treads shall be reasonably slip-resistant and the nosings shall be of nonslip finish.

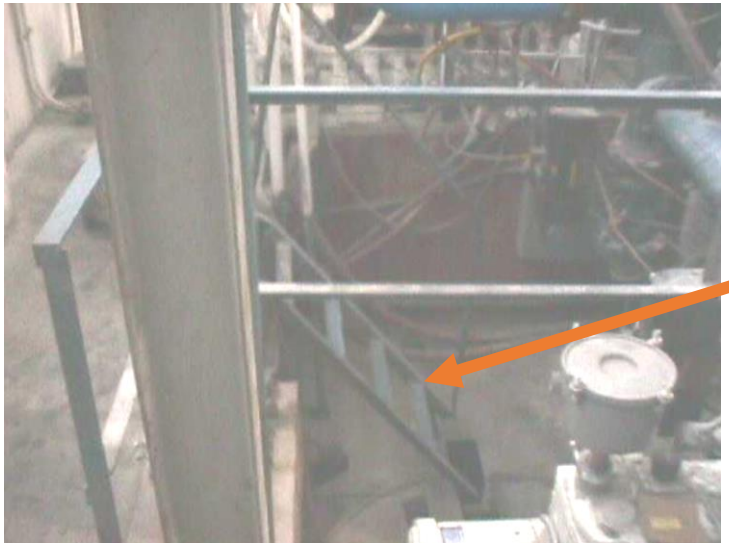
- Rise height and tread width shall be uniform throughout any flight of stairs including any foundation structure used as one or more treads of the stairs.

Fixed Stairs

- "Stairway platforms." Stairway platforms shall be no less than the width of a stairway and a minimum of 30 inches in length measured in the direction of travel.

Fixed Stairs

- "Railings and handrails." Standard railings shall be provided on the open sides of all exposed stairways and stair platforms.
- Handrails shall be provided on at least one side of closed stairways preferably on the right side descending.



No handrail on stairs leading to machine pit

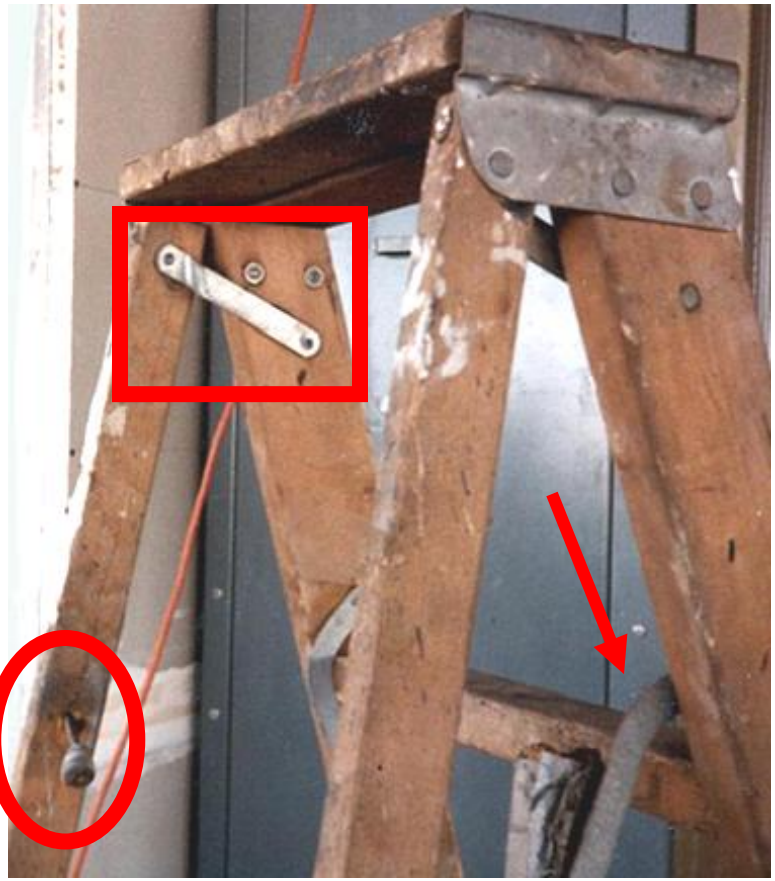
Portable Ladders

- All parts free from sharp edges and splinters;
- Visually acceptable
- Stepladders 20' max.
- Single ladders 30' max.

Portable Ladders

- Maintained in good conditions at all times
- Locks, wheels, pulleys frequent lubrication
- Worn rope replaced
- Safety feet and auxiliary equipment in good shape

Portable Ladders - Inspection



- Ladders inspected frequently
- Those with defects withdrawn from service for repair or destruction and tagged or marked as **"Dangerous, Do Not Use."**

Portable Ladders

- Ladders not placed in front of doors opening toward the ladder unless the door is blocked upon, locked, or guarded;

Portable Ladders

- Tops of the ordinary types of stepladders shall not be used as steps

Fall Protection

Safety Council
OF NORTHWEST OHIO
alliance
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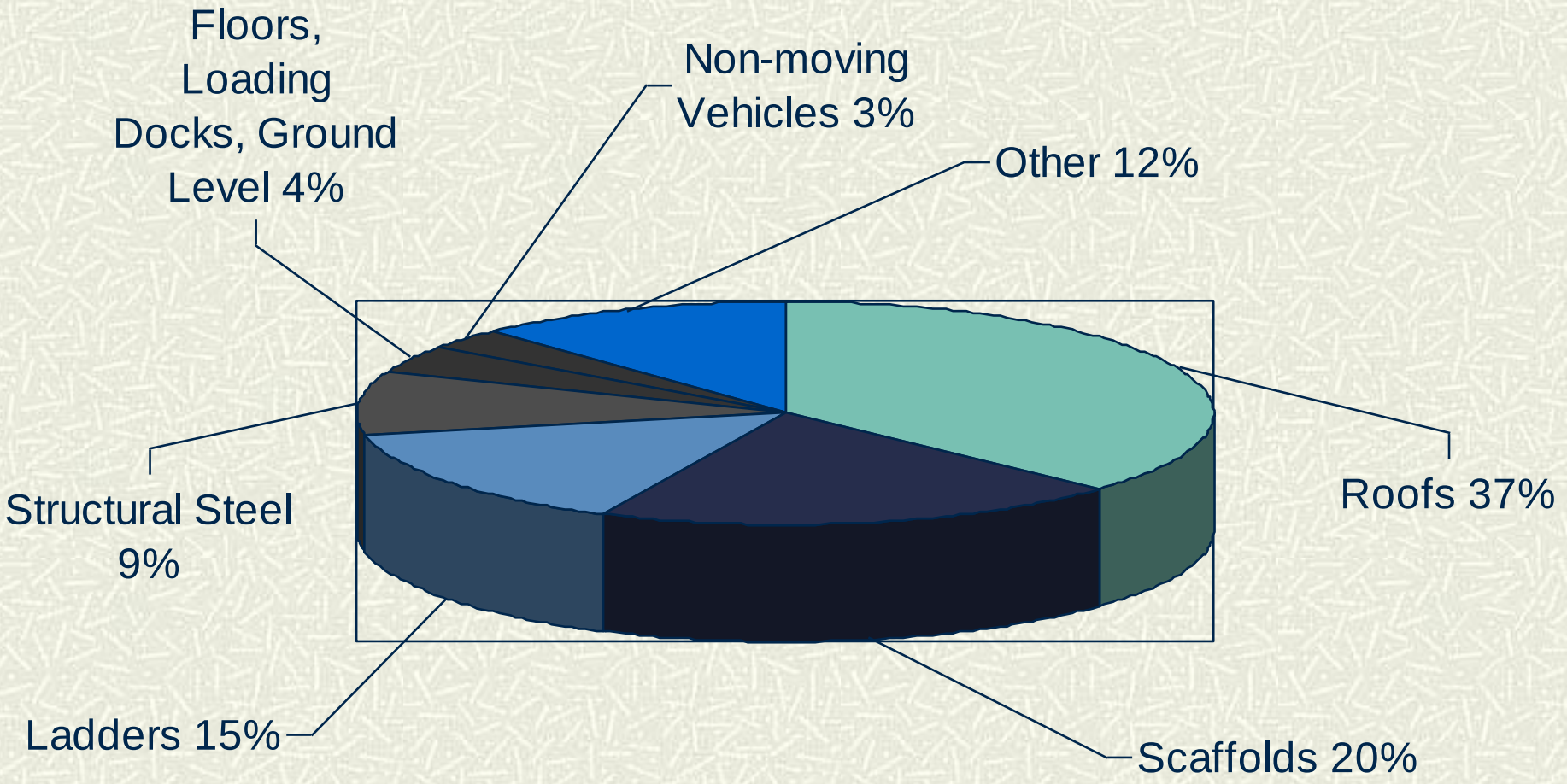
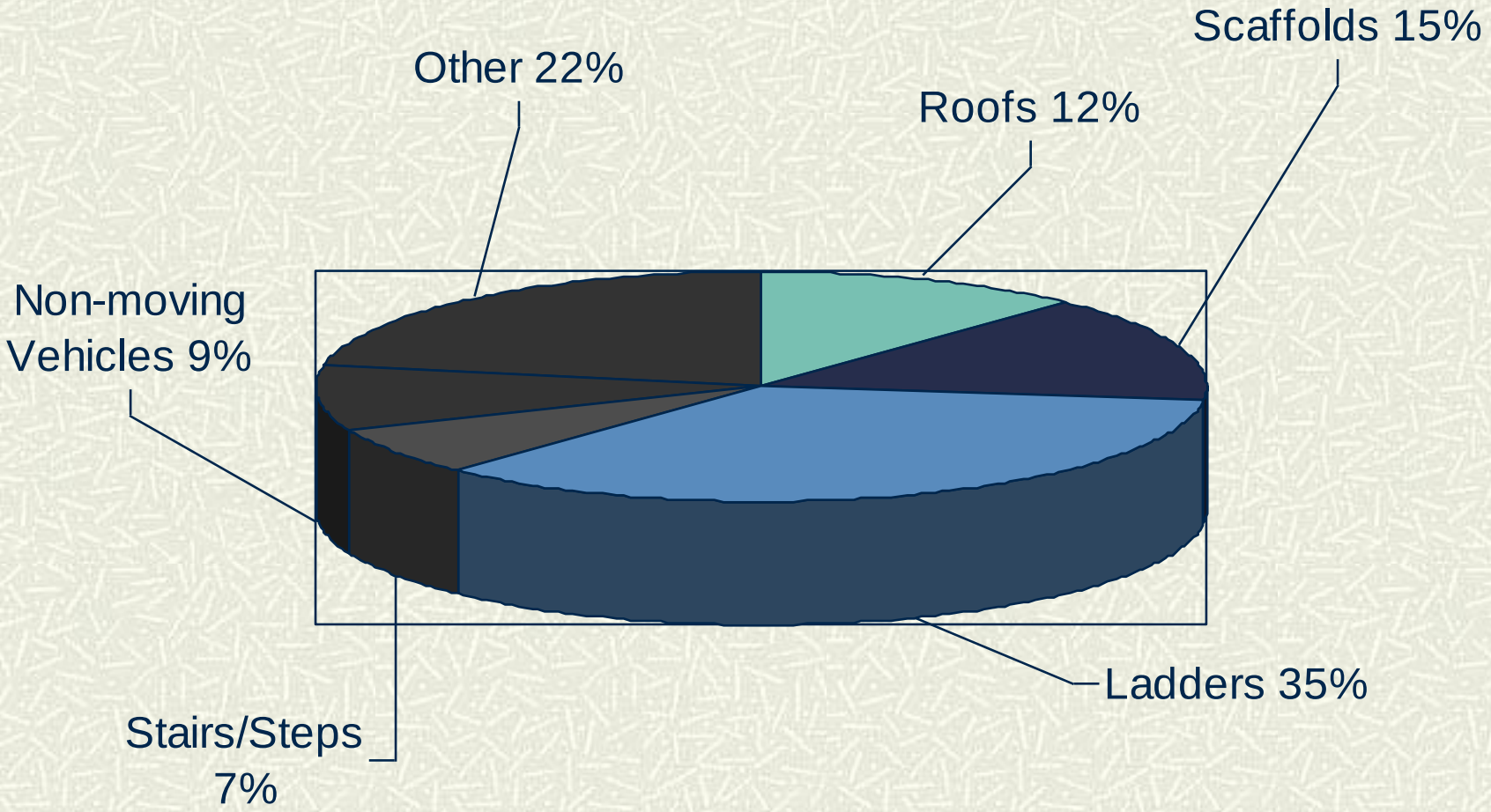
What is Fall Protection?

- A series of reasonable steps taken to cause elimination or control of the injurious effects of an unintentional fall while accessing or working at height

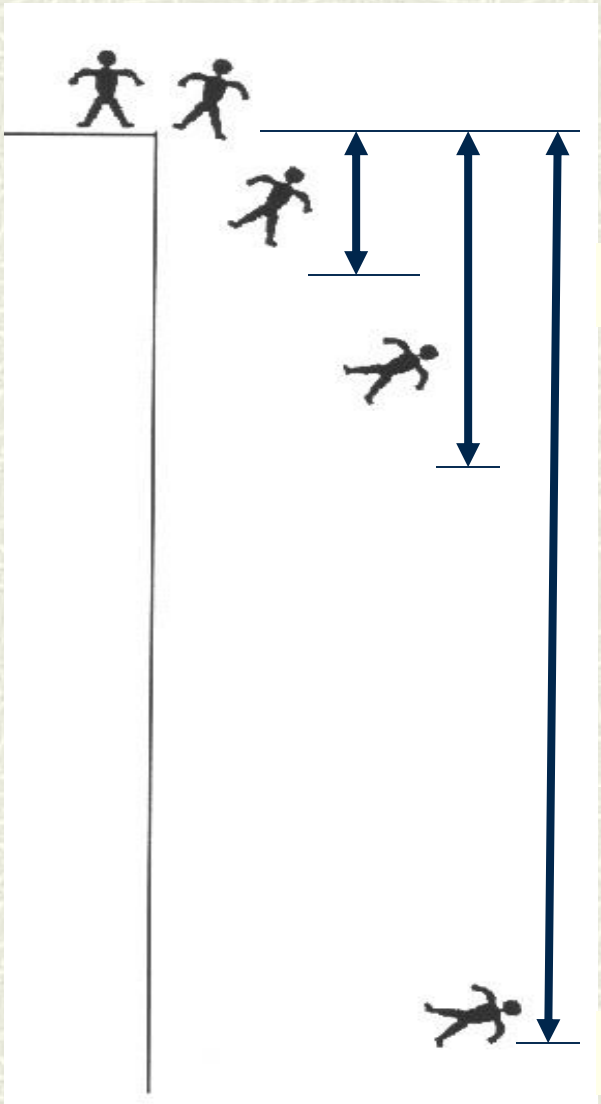
Where Do Fatal Falls Occur



Where Do Non-Fatal Falls Occur



Anatomy of a Fall



- It takes most people about 1/3 of a second to become aware.
- It takes another 1/3 of a second for the body to react.
- A body can fall up to 7 feet in 2/3 of a second.

PHYSICS OF A FALL

alculations based upon a 180 lb. Worker carrying 20 lbs. of tool

Elapsed Time	Distance Traveled	Velocity ft. / sec.	Speed MPH	Force At Impact
0.00	0	0	0	0
0.25	1 ft.	8	5.5	400 lbs.
0.50	4 ft.	16	11	1,600 lbs.
0.61	6 ft.	20	14	2,400 lbs.
0.75	9 ft.	24	16	3,600 lbs.
1.00	16 ft.	32	22	6,400 lbs.
1.25	25 ft.	40	27	10,000 lbs.
1.50	36 ft.	48	33	14,000 lbs.
1.75	49 ft.	56	38	19,600 lbs.

Planning for Fall Protection

- Best practice dictates that fall protection becomes an integral part of the work planning process, from constructability, to systems installation, to use and maintenance
- The workplace cannot be truly safe unless fall protection is incorporated into every phase of the process
- Planning will keep workers safe and minimize fall exposures

Controlling Fall Exposures

- General industry regulations (paraphrased)
  - Every open-sided floor, platform, wall opening, or hole 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing, or the equivalent, on all open sides except where there is entrance to a ramp, stairway, or fixed ladder.
- Construction industry regulations (paraphrased)
  - Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side, edge, or hole which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

Using Fall Protection Systems

- Select fall protection systems appropriate for given situations.
- Use proper *construction* and installation of safety systems.
- Supervise employees properly.
- Use safe work procedures.
- Train workers in the proper selection, use, and maintenance of fall protection systems.
- Evaluate the effectiveness of all steps

Fall Protection Methods

- Fall Prevention- A system that will prevent a person from falling to a lower level.

  Example: Railings

- Work Positioning or Fall Restraint- A system that will allow the worker to approach a fall hazard and work but will not allow the worker to fall to a lower level.

- Fall Arrest- A system that will protect a person from crashing on to a lower level after a fall. Example: Fall Arrest Harness/lanyard

Qualified Person

- Qualified person" means one with a recognized degree or professional certificate and extensive knowledge and experience in the subject field who is capable of design, analysis, evaluation and specifications in the subject work, project, or product.

Competent Person

- means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

When Is Fall Protection Required?

- What are the fall distances that trigger guardrails and fall protection?

When Is Fall Protection Required?

- Fall prevention is required for falls onto dangerous equipment. Zero fall distance is allowed.

When Is Fall Protection Required?

- Fall protection required for walking / working surfaces over 4’ in height in general industry

When Is Fall Protection Required?

- Fall protection is required for constructio n work 6’ in height or greater.

When Is Fall Protection Required?

- Fall protection is required by OSHA for scaffolding over 10’ in height.

When Is Fall Protection Required?

- Fall protection is required for vertical ladders without cages over 24’

When Is Fall Protection Required?

- No fall protection is required for portable extension ladders

Hazard Recognition

- What are the allowable controls and best practices?

Wood Guardrail Construction

- Proper Height
- Midrails
- Toeboards
- Adequate Strength

Guardrail requirements

- **TOP RAIL is 42 inches inches from the floor. It must be capable to with stand 200 of pressure applied. If made of pipe it must be 1 ½ inch schedule 40 pipe`, or if wood 2 X 4's, or if structural steel 2 x 2 x 3/8 inch angle. If a wire rope top rail it must be flagged every 6 feet.**

Guardrail requirements

- **MID RAIL must be 21 inches from the floor. Must be able to with stand 150 # of pressure applied. If made of pipe it must be 1 ½ inch scheduled 40 pipe, or if wood 1x6, or if structural steel 2x2x3/8 inch angle.**
- **Rails should not extend beyond end post or to the point that they can puncture or cut workers skin**
- **TOE BOARD must be 4 inches high and not over ¼ inch from the floor.**
- **POSTS are to be on 8 foot centers.**
- **Mesh screen must be placed from the floor to the top railing if material is stored above or if traffic is below.**

Guardrail Construction

Bad

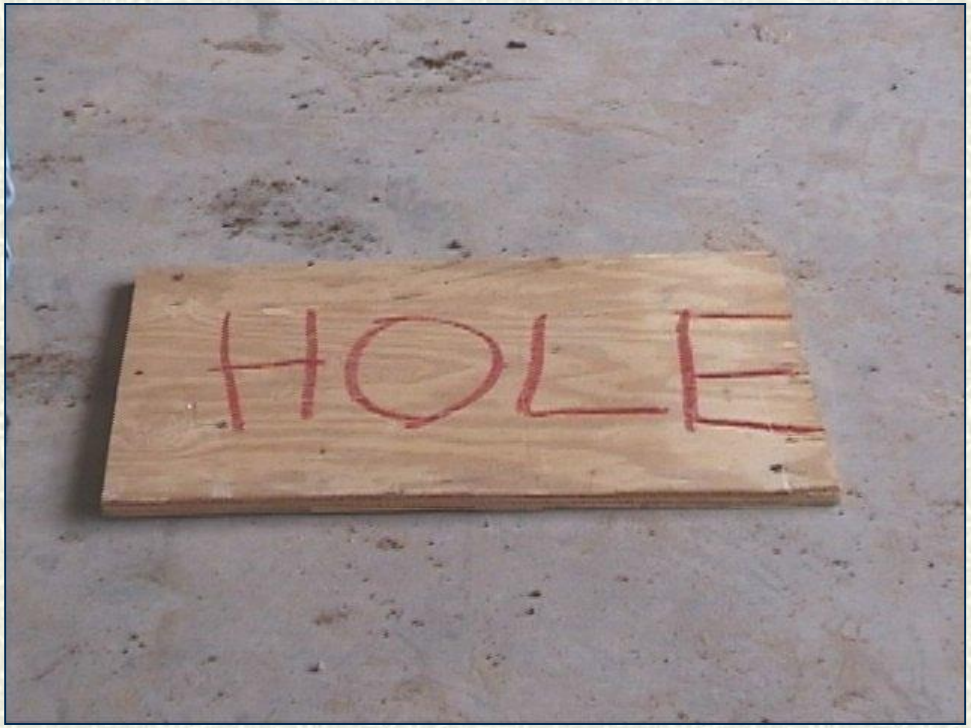
Better

Cable Guardrail Construction

- Proper height
- Cannot deflect below 39”
- Marked every 6’
- Terminations and attachments
- Maintenance

Holes

- Secured indentified covers
- Guardrails



Covers

Covers Are used to prevent workers from falling through holes in floors, roofs, or other working surfaces.

Requirements:

- **Roadway covers must be able to support, without failure, at least two times the maximum axle load for the largest vehicle that could cross the cover.**
- **Other covers must be able to support at least two times the weight of workers, equipment, materials that could be placed on the cover at any given time.**
- **All covers must be secured so they cannot become displaced by wind, equipment or workers.**
- **All covers (other than iron manholes or steel gates) must be color coded or marked with the word "HOLE" or "COVER".**

Skylights

Must be protected

Safety Net Systems

- **Safety nets are used to catch workers, tools, materials, or equipment that may fall from elevated construction sites.**

Safety Net Systems

- **Safety Net Requirements:**

  Must be installed as close as possible under the working surface where employees are working. Not more than 30 feet down.

  Install so that if anything falls into the net it will not touch the structure or surface below.

  Fall area free of obstructions.

  Drop test before use , after major repairs and every six months if left for extended periods.

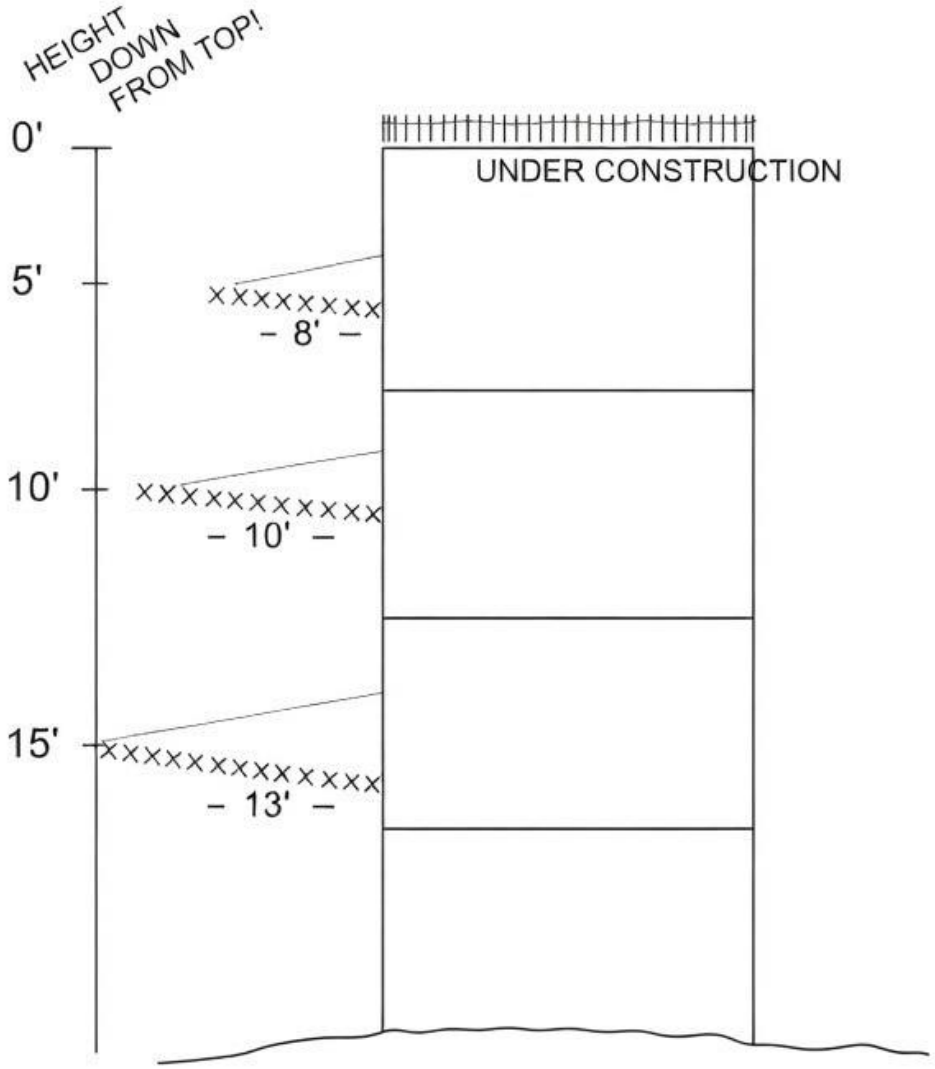
Safety Net Systems

Safety net opening cannot be larger than 36 inches square. 6 inches by 6 inches.

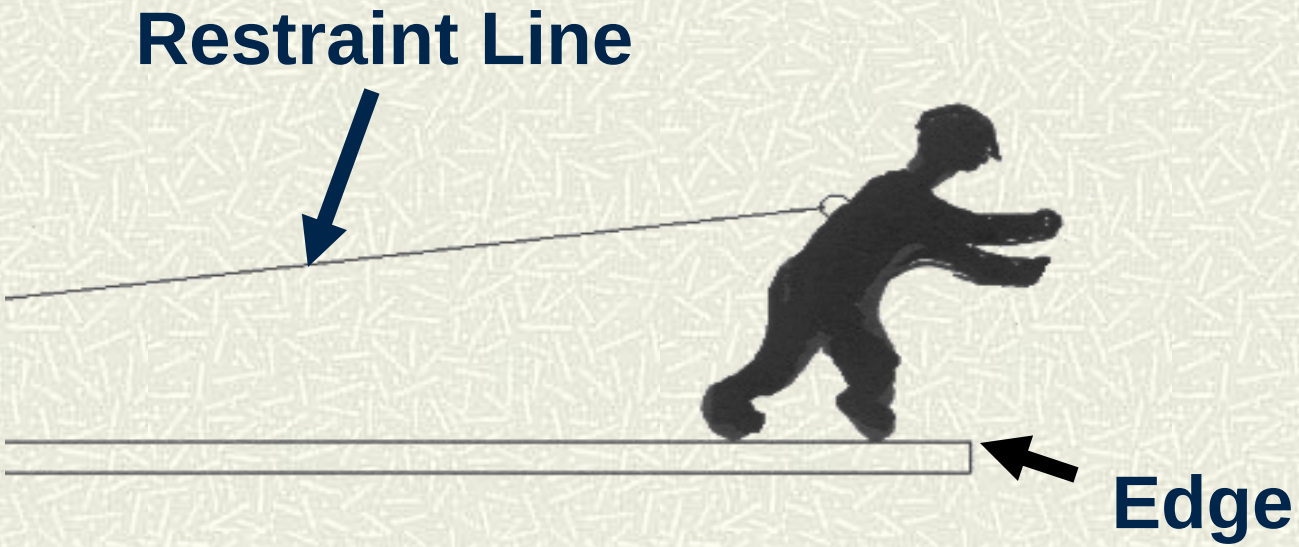
The border rope of the net must have a minimum breaking strength of 5000 pounds and connected not more than 6 inches apart. Anything that falls into the net should be removed as soon as possible.

Inspect weekly or anytime anything falls into the net.

Distances out from the working edges.



Personal Fall Protection -Fall Restraint



- Fall restraint assumes the employee cannot reach the edge, they are basically on a short leash.
- If the employee can fall over the edge, then a personal fall arrest system must be used.

Restraint Devices

- Provide access but prevent the fall
- Limit anchorage requirement to 1000 lbs
- May be more suitable for loading areas, scaffold erection and dismantling
- Should be installed and used under the supervision of a Competent Person

Use of Restraint Cables

Example of restraint cables used during deck anchoring.

RESTRAINT CABLE

Personal Fall Arrest Systems

- Should only be used when other fall prevention means can not be used or are not feasible.

Personal Fall Arrest Systems

- Used to protect an employee from hitting a lower level once they have fallen.
- Components include:
  - An anchorage point
  - Body harness
  - Deceleration devices
  - Connectors – lanyards, rope grabs, anchorage connectors

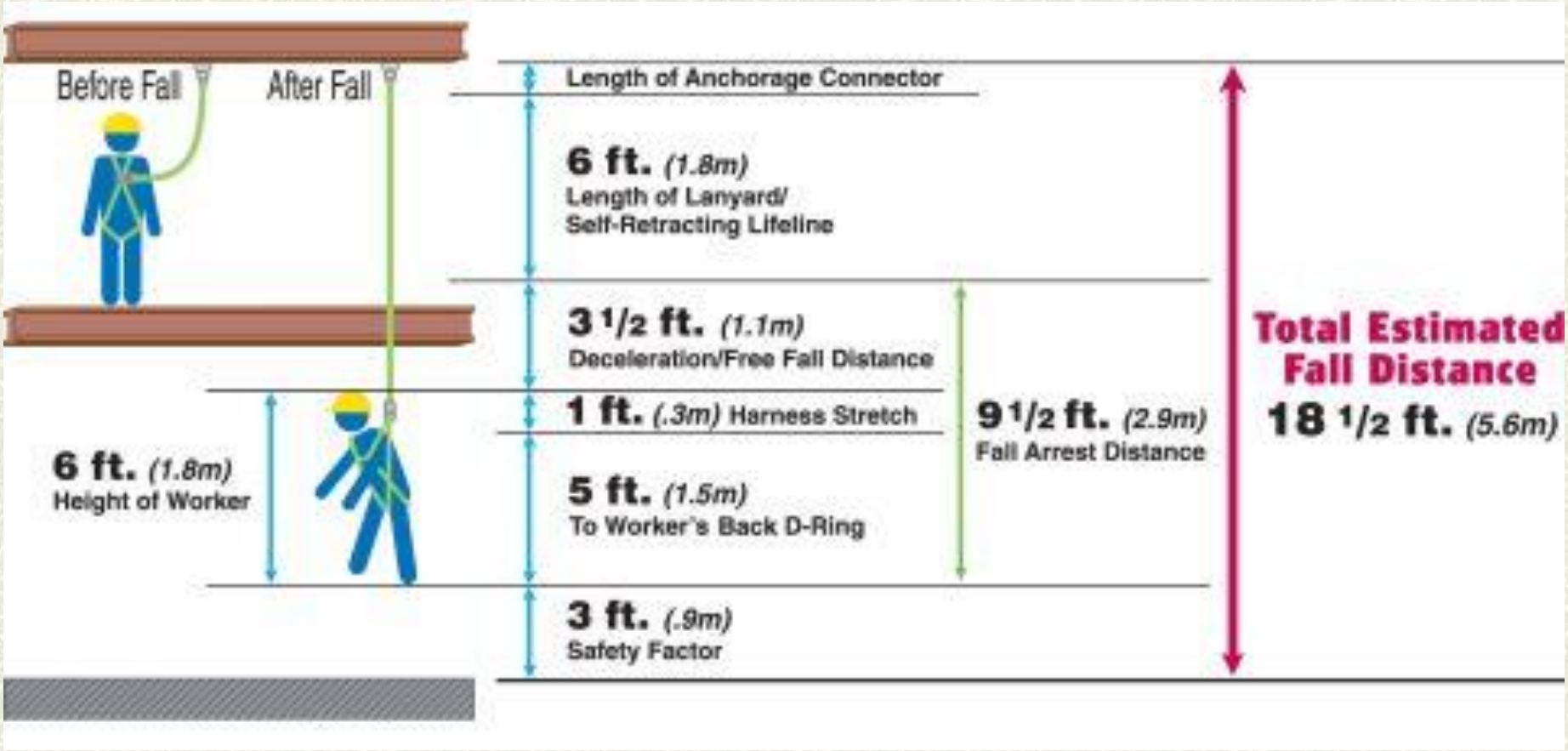
Personal Fall Arrest Systems

- When using personal fall arrest systems:
  - If you fall, the impact force to the body has to be less than 1800 pounds, achieved by using shock absorbing lanyards and a harness
  - Minimize fall distance, the maximum free fall distance can only be 6 feet
  - There can not be any structures below in you fall distance
  - Maximum weight of an individual w/tools is 310 pounds

Fall Distances

- Free Fall Distance
  - The vertical displacement of the fall arrest attachment point on the employee's harness between onset of the fall and just before the system begins to apply force to arrest the fall.
- Deceleration Distance
  - The distance between the location of an body harness attachment point at the moment of activation of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

Calculating Total Fall Distance



Watch Swing Falls

- This worker is tied off using a retractable lifeline.
- There is a major swing fall potential if he fell to either side.

Personal Fall Arrest Systems

- Anchorage
- Body
- Connector

Harnesses

Caribiners

Rope Grabs

Beam Wraps

Positioning

Lanyards

Anchorages

- Fall arrest anchor points must support 5000 lbs per employee attached
- Fall restraint anchor points must support at least 1000 lbs per employee attached
- Ask your supervisor, or you Safety Director if you need assistance in determining an adequate anchorage point

Roof & Deck Anchors

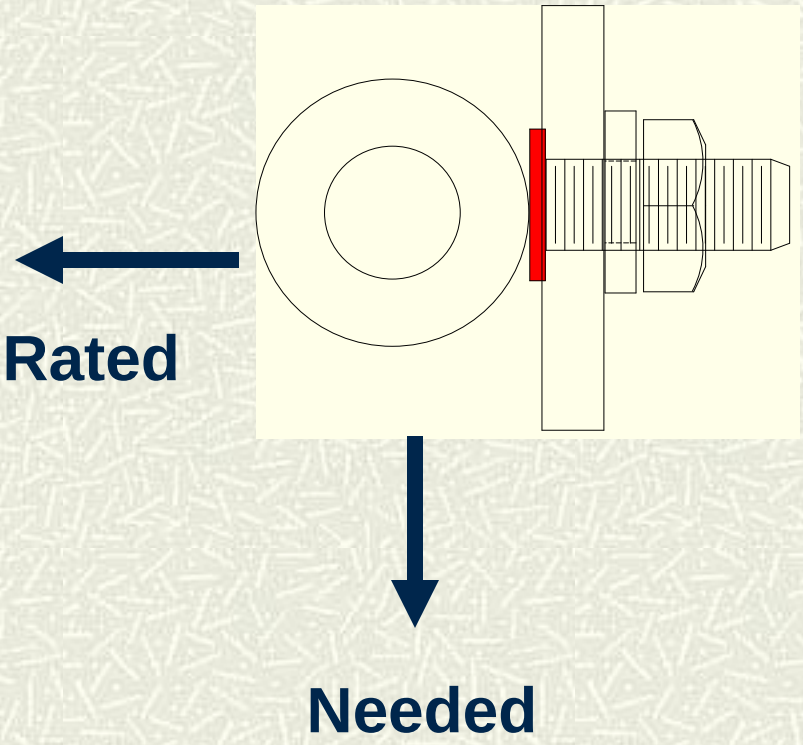
Permanent Anchors

Wood Roof Anchor

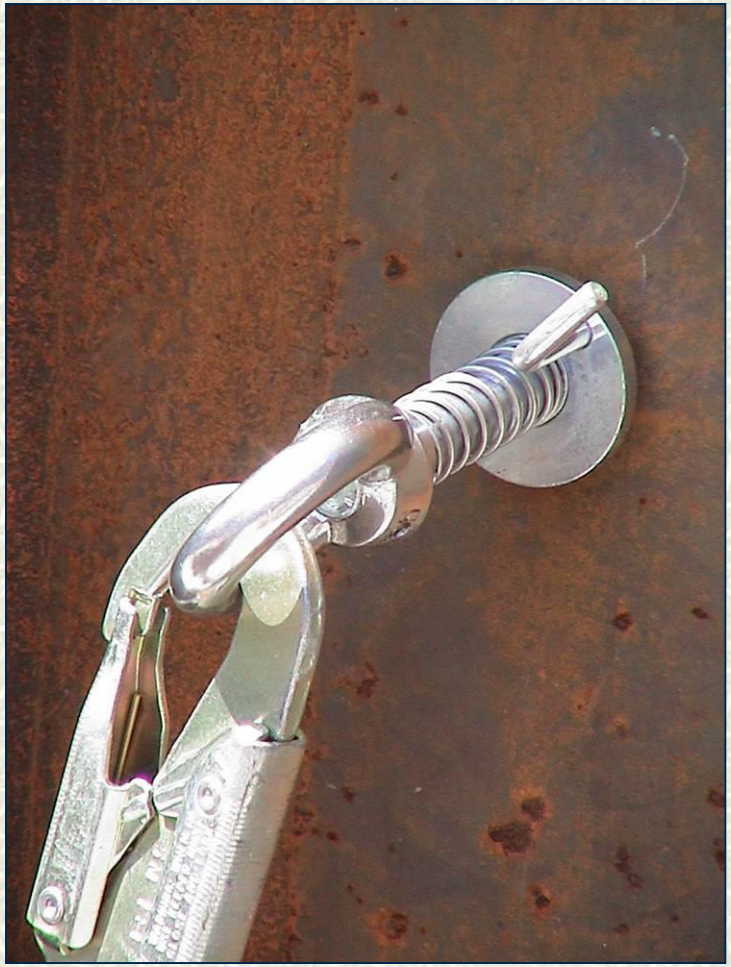
Metal Roof Anchor

Use of Eye Bolts

- Rated for loading parallel to the bolt axis.
- If wall mounted, the rating perpendicular to the axis must be good for 5,000 lbs. per employee



Girder Grip Anchorage Rings



- These attachments can be mounted through bolt holes on steel members.
- They are rated at 5,000 lbs. in all directions

Removable Concrete Anchors

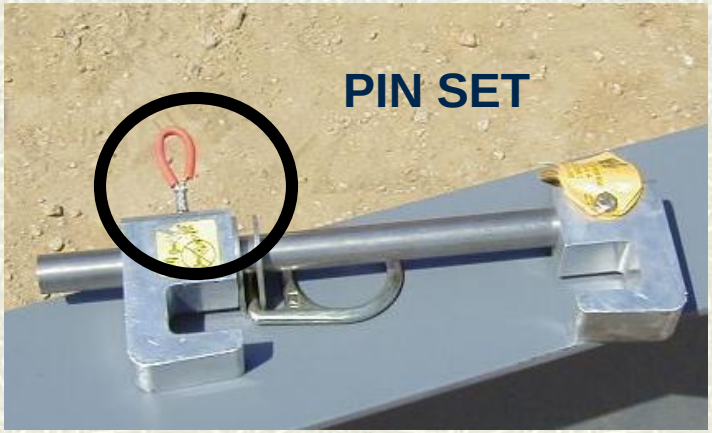
- These attachments can be mounted in holes of concrete.
- They are rated at 5,000 lbs. in all directions

Anchorage Connectors

- These type of connectors enable you to tie off to various types of anchorage points

Beam Clamps

Beam clamps can make an effective anchorage when used properly, and with the correct lanyard



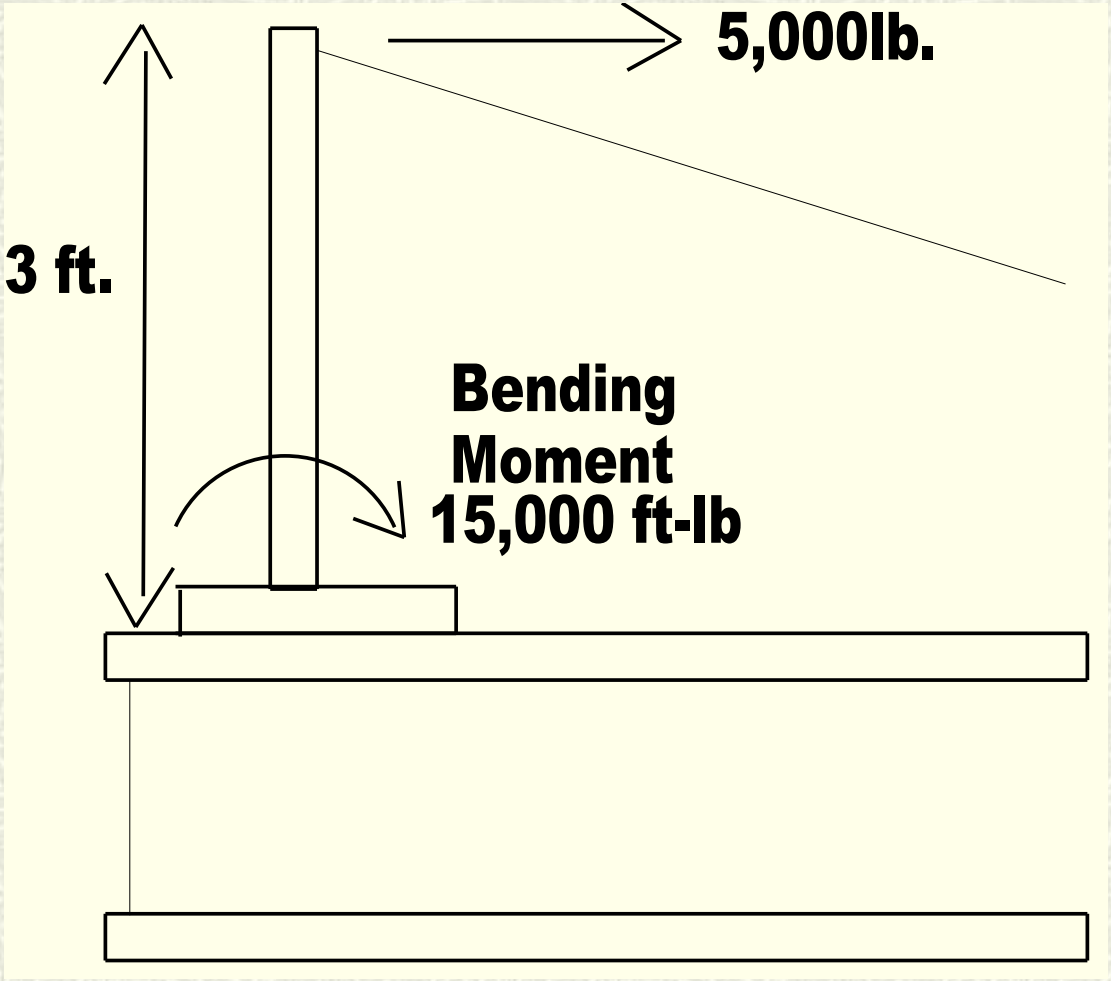
Be sure pin is inserted full length and clamp is tight.

Horizontal Life Lines

- Provide maneuverability
- Must be designed, installed and used under the guidance of a qualified person
  - This could be interpreted as requiring the use of manufactured systems, which is *recommended*

Line Stanchions

- The connection of the line stanchion to the flange must support the bending moment applied to the base.



Aerial Work Platform Anchorages

- Use the manufacture's designated anchorage points. **Never use guardrails as anchorage points**.

Body Harness

- Need to be inspected before use by the worker, and at least annually (documented) by a Competent Person
- Harnesses should never be modified
- Do not write on or paint harnesses unless material is approved for use
- Should be taken out of service immediately if defective or exposed to an impact

Lanyards

- A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline or anchorage.
- Must not be tied back to themselves unless specifically designed for such use
- Should have the appropriate clip for the intended anchorage points
- Do not knot or wrap around sharp objects

Lanyards

- Various types of energy absorbing lanyards

Retractable Lifelines

- Deceleration devices containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.
- Do not use with energy absorbing lanyards.

Planning For A Rescue

- Whenever working with the potential of hanging by a harness, a rescue plan must be in effect.
- A written Hazard Analysis must be done and employees must be trained on the plan.

Planning For A Rescue

- The rescue plan must be written in the hazard analysis
- The goal is to rescue the employee as soon as possible and limit the hanging time to no more than fifteen minutes.
- Plan for a worker that is unconscious.
- Ensure all the rescue equipment in the vicinity
- Call 911and/or follow company procedures whenever someone has been in a fall arrest situation

No fear

Andy Bauer (top) reaches to adjust a section of the new Lake Tomahawk salt shed while Steve Anklam (l) and Scott Deam (r) hold it steady. The Lake Tomahawk board saved and budgeted $109,000 for the salt shed to meet a requirement that the salt used to melt snow and ice on roads be covered and contained. The workers began erecting the salt shed three weeks ago. They work for the Dome Corporation of Saginaw, Mich.

– Rick LaFrombois photo