

Fall Protection

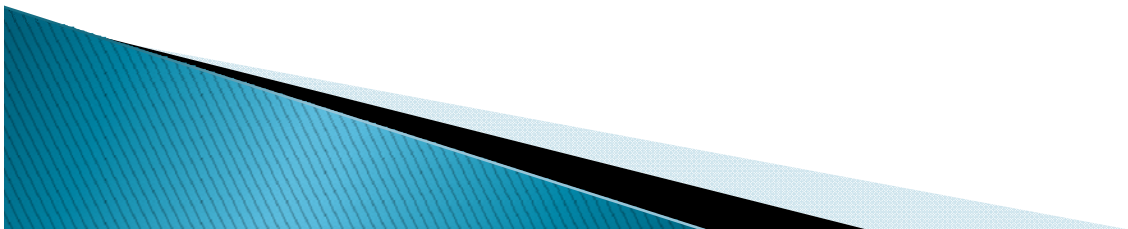
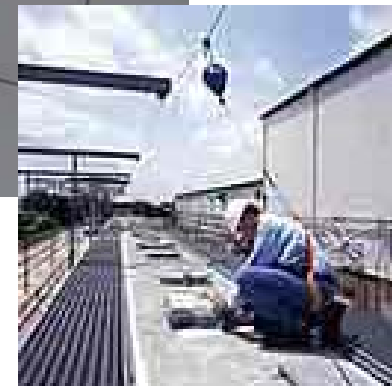
OSHA 1910.23 & 1926.500

NGFA – AAI Safety Seminar
Johnston, IA

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Consulting

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Fall Protection – General Industry



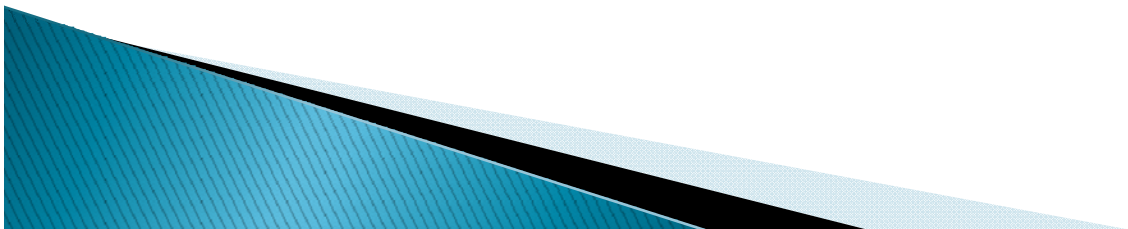
Why Fall Protection?

- ▶ Do your hands get sweaty when you watch someone working from heights?
- ▶ Do you know anyone who has fallen off of a deck or roof?
- ▶ Falls accounted for 10% of fatal work injuries.



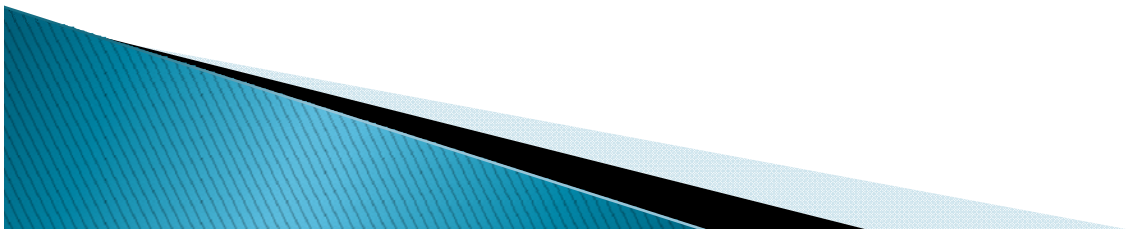
Fall Protection Requirements

- ▶ **General Industry Regulations:**
 - If you are 4 feet or more above another level then handrails or personal fall arrest systems required, or...
 - Use platforms / scaffolds, lifts (buckets, scissor lifts)
- ▶ **Construction Industry Regulations:**
 - When working 6 feet or more above a lower level, some form of fall protection is required
 - Scaffolds, cranes, lifts, steel erection, tunneling, stairways, ladders



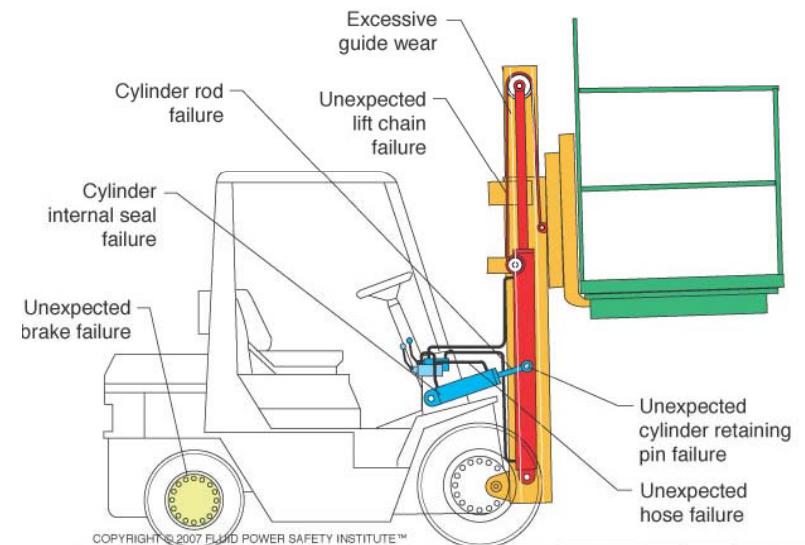
Ladder Fall Protection

- ▶ There are specific criteria for fixed ladders to be guarded with cages to help prevent falls.
- ▶ Ladders over 20 feet from the ground need a cage.
- ▶ Short ladders at elevated location needs a cage.
- ▶ Ladders over 30 feet high need rest platforms every 30 feet.
- ▶ Ladders with no cages can use a ladder climb device composed of a body belt and a cable clamp.



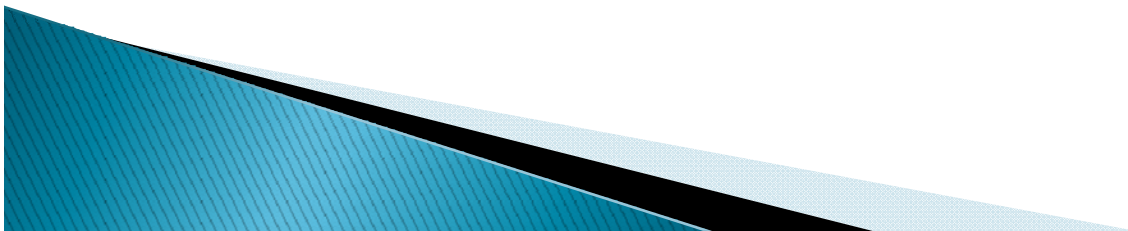
Hazard Recognition

- ▶ Falls to lower levels
- ▶ Tripping over tools, materials, etc.
- ▶ Mis-stepping or stumbling
- ▶ Not aware of location & Dropping objects
- ▶ Failure to use required fall protection
- ▶ Lifting people with improper equipment



Rules for Working at Elevation

- ▶ Use a personnel lift only if you're authorized.
- ▶ Only authorized employees should work on elevated areas.
- ▶ Stay away from edges, unless you are working there and properly protected.
- ▶ Never run when working above ground.
- ▶ Listen for verbal warnings.



Falling Objects

- ▶ When working above ground:
 - Don't leave tools or materials where they might be kicked over the edge or tripped over.
 - Don't throw items over the edge.
 - Block or barricade pathways going under over head work areas.
- ▶ Wear hard hats when under an above ground work area.



Guardrails for elevated edges and floor or wall holes.

- ▶ Serve as a barrier along an open edge or around a floor hole.
- ▶ 42" high with a middle rail halfway up.
- ▶ 4" Toe board or kick plate needed.*
- ▶ Withstand force greater 200 lb. in any direction.
- ▶ On flat roofs a warning line system can be used provided it is more than 6 feet from the roof edge.



Personal Fall Arrest System

- ▶ Worker tied to fixed object. [Anchorage]
- ▶ Harness or belt worn. [Body wear]
- ▶ Lanyard, lifeline, deceleration device. [Connector]
- ▶ Lanyards need a double locking snap hook.
- ▶ Never use fall protection system to hoist workers or objects.



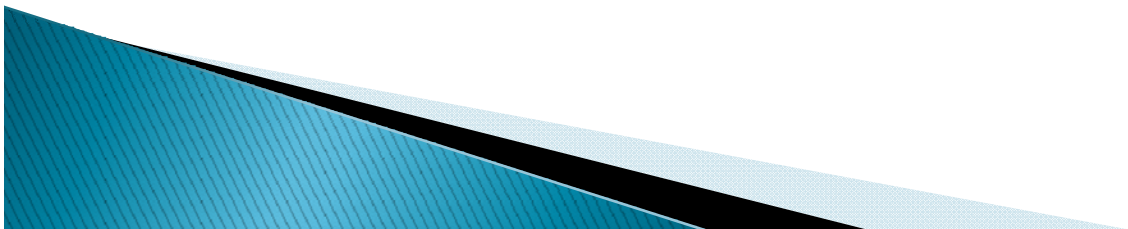
Uses for Personal Fall Arrest

- ▶ Working above a lower level
- ▶ Worker positioning
- ▶ Worker restraint
- ▶ Climbing
- ▶ Worker riding or being lifted on a rated platform



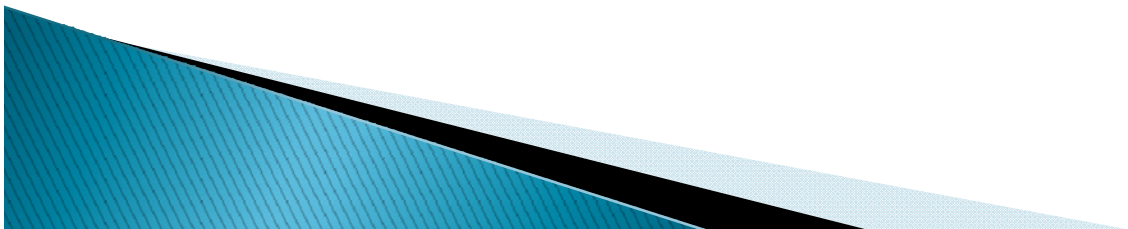
Anchorage

- ▶ Locate directly above.
 - Avoid swinging
 - Clear drop zone
- ▶ Can withstand 5,000 pounds of force (eyebolts).
- ▶ Don't use guardrail, conduit, pipes or other item that may break.
- ▶ Ask a supervisor if unsure about proper anchor points.



Anchorage Point Connectors

- ▶ Connectors are vital.
- ▶ Non-locking snap hooks cannot be part of personal fall arrest systems.
- ▶ Must use a double locking snap hooks.
- ▶ Do not link similar connectors together.
- ▶ Never tie a knot for a connection.





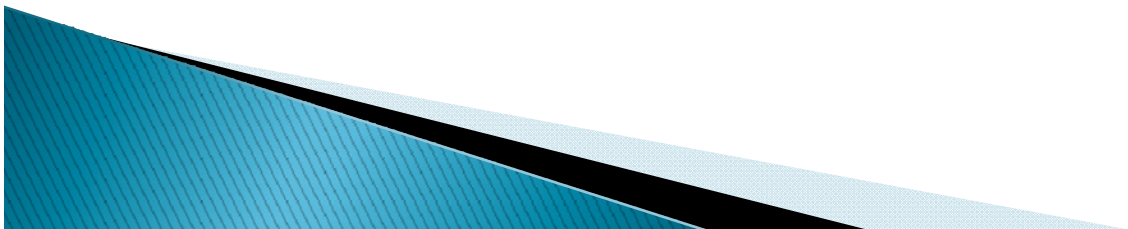
Harness [Body Wear]

- ▶ Arresting forces on thighs, pelvis, waist, chest and shoulders
 - Harness rated for 1,800 pounds of arresting forces.
 - Tolerable suspension time of 15 minutes
 - *Will need a means to rescue workers.*
- ▶ D-rings



Connecting Device – Lanyard or SRL

- ▶ Connects harness to lifeline or anchor.
- ▶ Must have double locking hooks.
- ▶ Stretching or tearing system absorbs shock, prevents bouncing to reduce arresting forces.
 - Steel provides no give, so large arresting forces.
 - Nylon rope gives mild arresting forces, however it bounces, so lots of jolts.
- ▶ No knots or wrapping around sharp objects. Use a lifting web strap around the object to connect the lanyard.



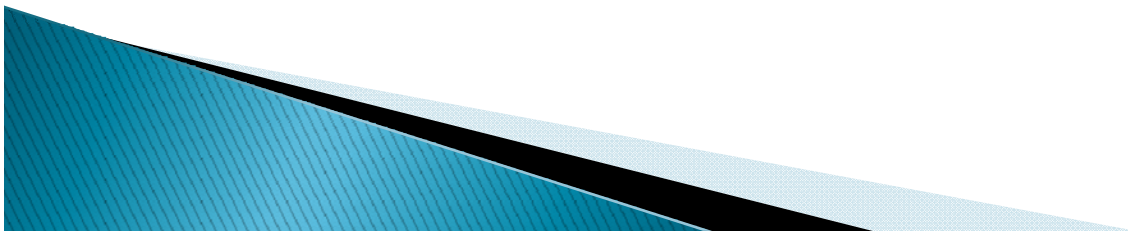
Deceleration Device

- ▶ Dissipates a substantial amount of energy during a fall arrest.
- ▶ Rip-stitch, tearing, or stretching lanyard , Shock absorbing lanyards.
- ▶ Rope grab device.
- ▶ Safety retracting lifelines (SRL) limit falls to less than 2 feet.
- ▶ Consider blocks that stops then slowly lowers workers to the ground where their use is feasible.



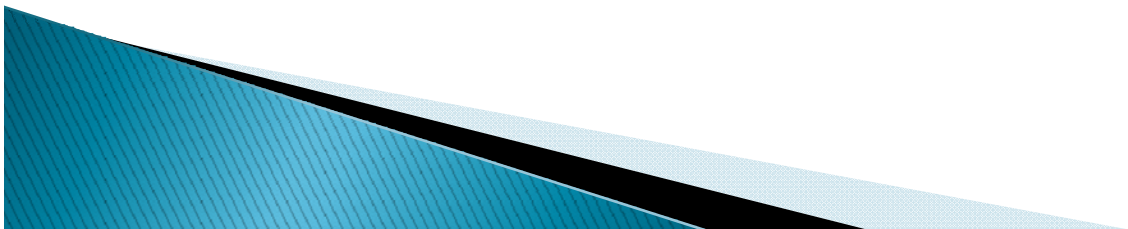
Lifeline

- ▶ Rope or webbed material
- ▶ Means to connect personal fall arrest system to an anchor
- ▶ Hangs vertically from one anchor point
- ▶ Stretches horizontally between two anchors



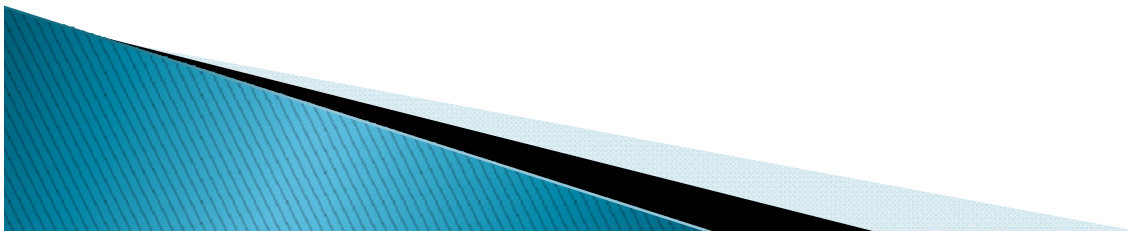
Fall Protection Equipment Inspection

- ▶ Inspect before every use
- ▶ Cuts, tears, abrasions, stitches coming out
- ▶ Cracks or burrs
- ▶ Parts move freely
- ▶ No alterations
- ▶ Appropriate labels
- ▶ Periodic inspections should be done on fixed fall protection systems (record)



Rail Safety – Fall protection

- ▶ In 1995 NGFA went to OSHA about the problem of citing grain facilities for not providing fall protection from railcars.
- ▶ In 1996 OSHA issued a letter of interpretation giving their position that they would not issue any citations for lack of fall protection unless the cars are position inside of or contiguous to a building or structure where fall protection is feasible (at loadout point).



Rail Safety – Fall protection Alternatives used

- ▶ Connect the fall protection to a structure at the loadout point.
- ▶ Install an over head cable above the rail cars in a loadout area and use a safety retracting lifeline block that rolls along the cable and have employees connect to it.
- ▶ Install supporting structure that overhangs the railcar with a I-beam that allows a small trolley to roll on its flange and use the SRL to connect to a worker on top of the cars. Systems vary in length from 1 to 3 cars most frequently with a few covering up to 10 cars.
- ▶ Place handrails on each side of the car suspended from a shed roof. Car height variation is a problem to deal with. Build to the tallest car for clearance.



Working on top of Rolling Stock

- ▶ OSHA states that they do not regulate rolling stock but could regulate workers being on top of railcars or trucks when they are exposed to falls.
- ▶ OSHA has cited some facilities under the PPE rule 1910.132a and when cars were remote to the facility.
- ▶ OSHA is now considering adding rail car fall protection as a regulation in its revision to the walking and working surfaces now being worked on.



Rail Safety – Fall protection

At loadout or receiving areas:

- Inside buildings and next to structures when need to get on top of the cars.
- Min. needed is at the loadout spout but may need for several cars to provide protection for all operations (opening, loading and closing doors).
- Use Construction standard guidelines for strength of system (Design for two workers).
- Have an administrative plan to deal with adverse weather or any need to access car tops in remote areas.
- Train workers on fall protection usage and procedures to be used.



Summary

- ▶ Understand and recognize potential hazards.
- ▶ Keep tools and materials organized and away from edges.
- ▶ Reduce arresting forces by limiting fall distance.
- ▶ Use decelerate devices to reduce arresting forces.
- ▶ Consider the need to rescue workers who fall and are held suspended.
- ▶ Inspect your fixed equipment prior periodically.

