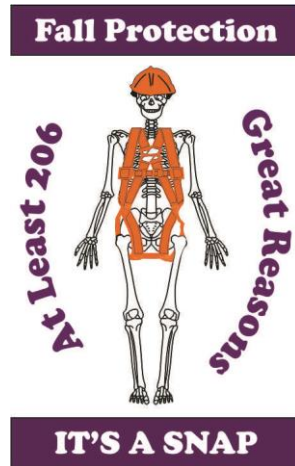


Safety Stand Down on Fall Protection

June 12, 2017



Why is fall protection training so important?

- Falls are the leading cause of serious injuries and fatalities in the construction industry.
- In 2016, there were 520 fatalities in construction. 220 of those were falls.*
- 42% in 2016

* OSHA jurisdiction cases.



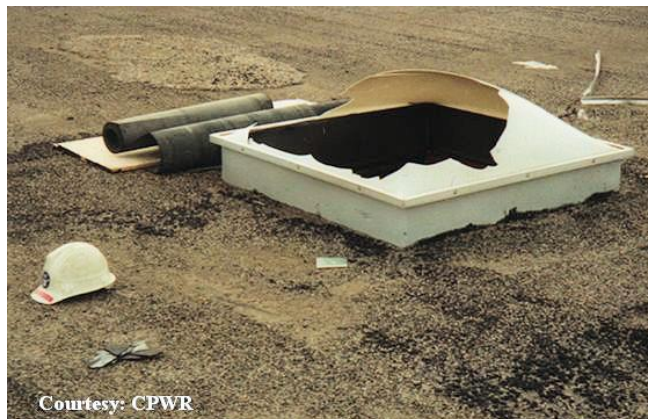
Almost

1/2

**of all deaths in
construction**

TOP 5 TYPES OF FALLS IN 2016*

1 st -	Fall from Roof	(73 / 14%)
2 nd -	Fall from Structure	(41 / 7.9%)
3 rd -	Fall from Ladder	(40 / 7.7%)
4 th -	Fall from Scaffold	(27 / 5.2%)
(Tied for 5 th)		
5 th -	Fall from Aerial Lifts	(11 / 2%)
5 th -	Equipment Opening	(11 / 2%)



* OSHA jurisdiction cases.

Top Fall Protection Related Citations in TN (FY 2016)

Standard

Penalty Description

- | | |
|--------------|---------------------------------------|
| 1. 1926.501 | Lack of fall protection when required |
| 2. 1926.503 | Lack of fall protection training |
| 3. 1926.1053 | Unsafe ladder usage |
| 4. 1926.453 | Unsafe aerial lift usage |
| 5. 1926.451 | Unsafe use of scaffolds |



How can we prevent fall-related injuries?

It's as easy as 1, 2, 3 ...

- **PLAN** ahead to get the job done safely.
- **PROVIDE** the right equipment.
- **TRAIN** everyone to use the equipment safely.



THE KEY TO SAVING LIVES:

100% FALL PROTECTION IS REQUIRED AT ALL TIMES!

- NEVER allow an exposure– EVEN FOR A SECOND!
- Sometimes this requires the use of dual lanyards to move from point to point.
- It may even require using fall protection BEFORE a hazard exists.
- Examples:
 - ❖ An employee is cutting an opening in a roof for a HVAC unit. Fall protection should be worn BEFORE the opening is cut!
 - ❖ An iron worker is transitioning across a column – he must have the equipment to be tied off in front and behind him to safely move from point to point.



Fall Protection Required at 6 ft for:

- Unprotected sides and edges
- Wall openings
- Leading edges
- Hoist areas
- Holes
- Reinforcing steel
- Roofing Work
- Precast concrete erection
- Wells, pits, shafts



REMEMBER:

Fall Prevention
(guardrails, hole covers,
etc.)
is always better than
Fall Protection
(safety harness, warning
line, etc.)

Fall Prevention Systems

Guardrail Systems:

- Toprail 42 +/- 3 in.
- Midrail at 21 in.
- Toeboards
- Wire rope guardrails flagged every 6 ft.



**Don't forget
skylights!**

Holes (Anything over 2 inches):

- Secured
- Marked "Hole" or "Cover"
- Withstand 2X intended load



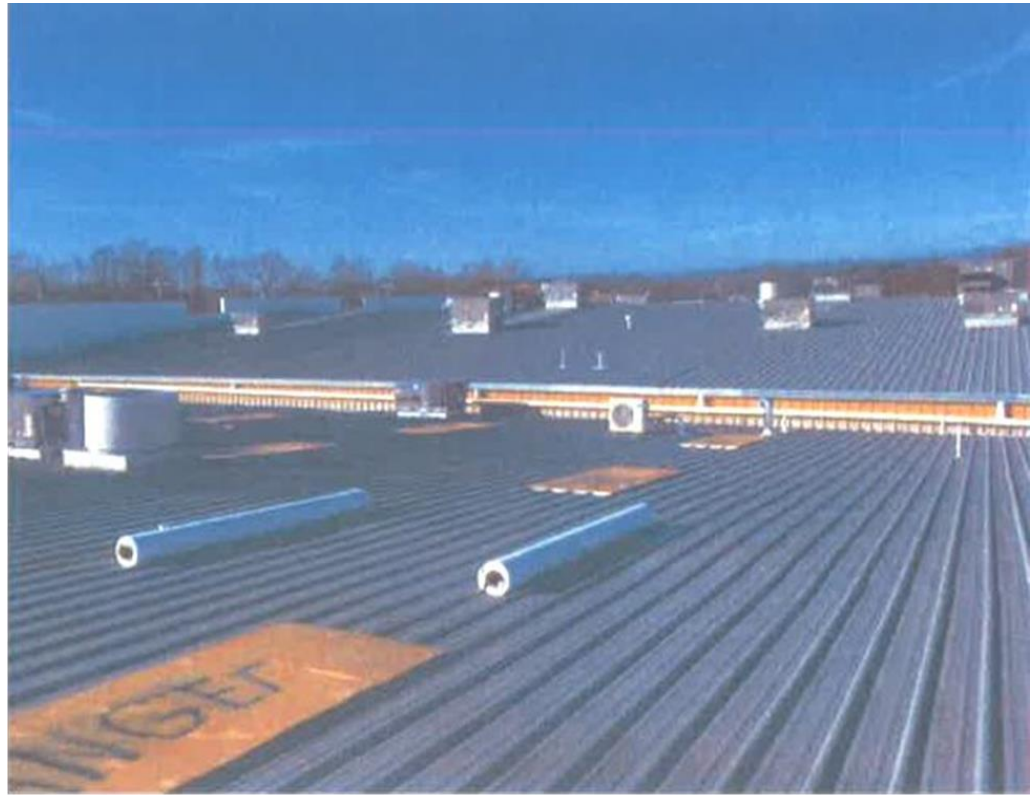
TOSHA Fatality Investigation – Fall through Floor Opening

A **59 year old male** employee was fatally injured when he stepped into a floor hole falling 15 feet 4 inches to the level below. On the day of the incident, the victim was working on the main floor of a newly constructed building framing windows. The victim moved some material to clear a space for a mobile scaffold, and in doing so he unknowingly lifted a piece of plywood that was covering a floor hole. The lead carpenter told the victim to put the board down, but the victim stepped forward falling into the 16 inch wide by 39 inch long floor hole striking his head on the concrete floor below. During the investigation it was determined that the cover was not marked, “HOLE” or “COVER”, to warn employees that a floor hole was underneath, and the cover was not anchored down to the floor. .



TOSHA Fatality Investigation – Fall through Skylight

- A **34 year old male** employee was fatally injured when he fell 30 feet to the concrete ground below. On the day of the incident, the victim, a roofer, was installing a waterproof membrane over an existing 30,000 square foot metal roof. The metal roof was equipped with 3x10 foot skylights that were flush with the surface of the roof and positioned throughout the working space. Due to the low slope of the roof, fall harnesses were not provided, and a warning line system was used to protect employees from fall hazards. Employees were instructed to watch out for the unprotected skylights. While the victim was moving material around the rubber membrane covering a skylight, he unknowingly stepped onto the unprotected skylight causing it to break, falling 30 feet to the concrete ground below.



Personal Fall Arrest System (PFAS)

- **Consists of 4 parts:**

- Body Harness
- Lanyard
- Snaphook
- Anchorage Point

**EACH COMPONENT IS
CRITICAL – DON'T
HAVE A WEAK LINK!**



Personal Fall Arrest System Requirements



- Always inspect prior to use
- Anchor overhead whenever possible
- Wear the harness properly
 - **D-ring between shoulder blades**
 - **Harness should be snug**
 - **Should fit properly**



One size does NOT fit all!



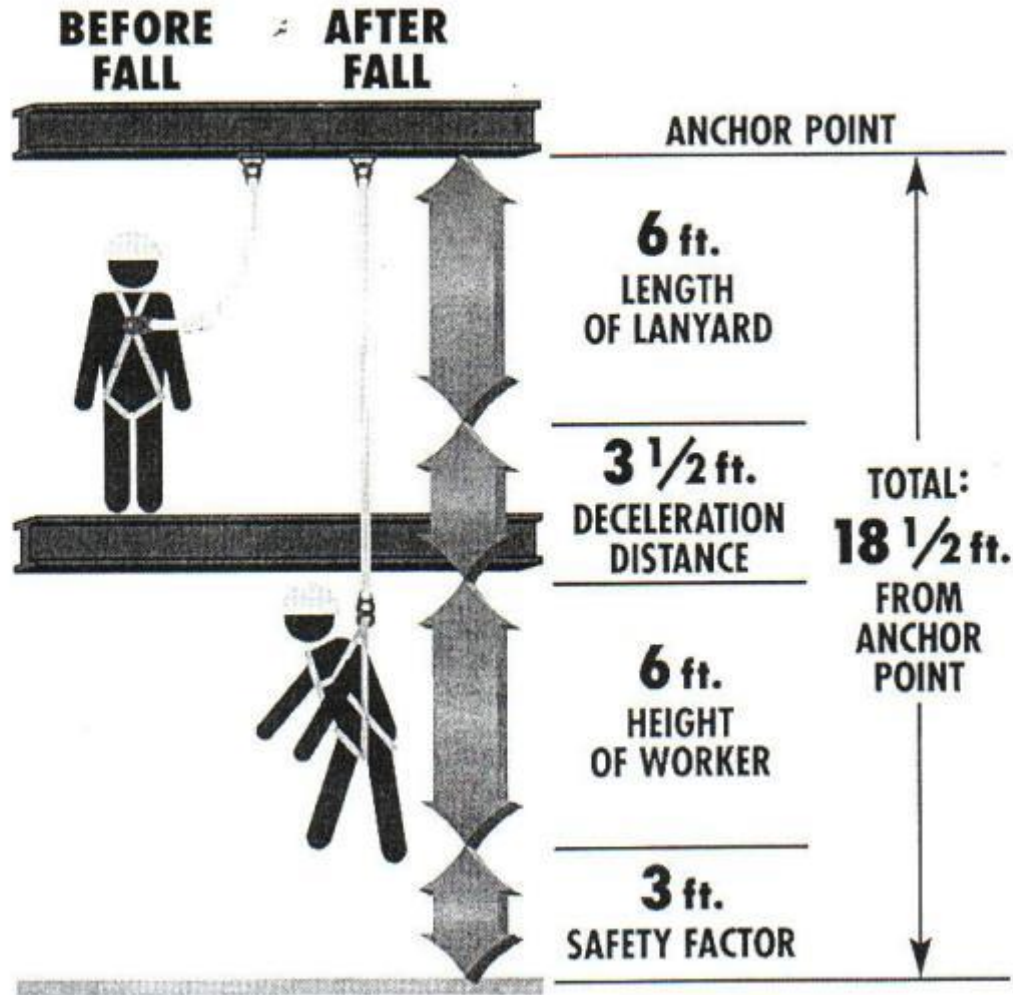
- Do not attach PFAS to guardrail systems
- Take components out of service when they are worn or damaged (ex: pelican hooks that do not close easily)
- Do not connect lanyards together – no snaphook to snaphook connections
- Do not tie a lanyard back to itself (unless designed)
- Do not connect retractables together



- Do not tie knots in lanyards
- Do not connect retractables to lanyards
- Do not use D-ring straps in a configuration that increases fall distance beyond 6 ft.
- Do not use a 6 ft. lanyard without a deceleration device
- Do not connect a snaphook to more than one thing (ex. two D-rings on a strap or two eyes of a wire rope).

Ensure there is adequate clearance

Fall Clearance Calculation



**Don't have a
false sense of
security!**

Does It Add Up?

$$2 + 2 = 5$$

- Always evaluate each fall hazard scenario to ensure you are not going to hit the ground.
- Example: Moving an aerial lift from point A to B. If you drove off a curb and were ejected, a 6 ft. lanyard would not keep you in the basket. You need restraint.
- What if you are working from the basket at a height of 8 ft.? (You don't have the clearance needed.)
- Consider your options:
 - Shorter lanyards?
 - Self-retracting lifeline if configuration allowed by manufacturer and clearance is adequate?



DID YOU KNOW?

All Self Retracting Lifelines (SRLs) are not created equally!

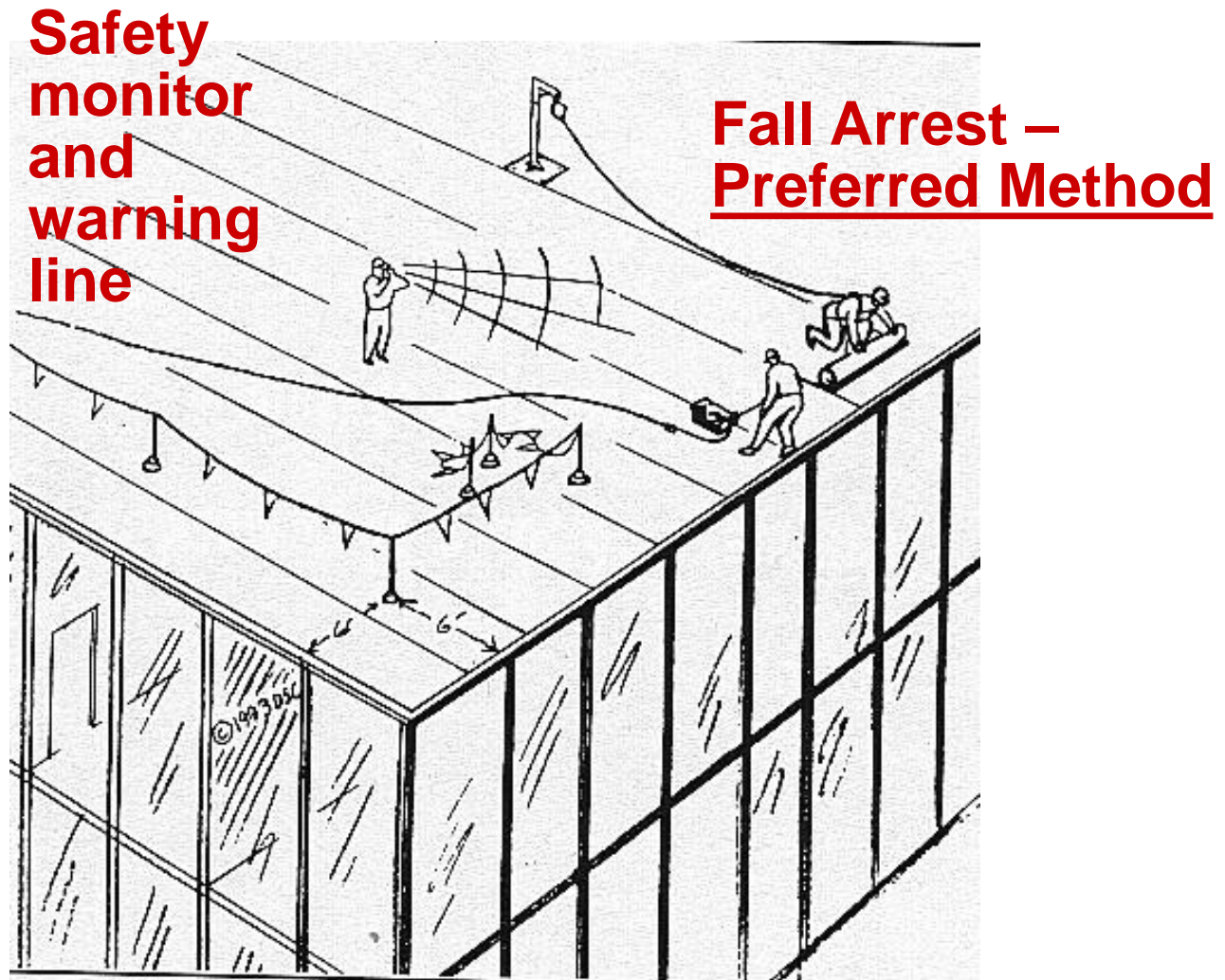
Fall protection when working on a site that involves open edges and roofs is extremely important, and it requires a different type of SRL. The retract needs to be designed to minimize the impact on itself when a fall occurs going over a ledge, and it needs to be able to be easily positioned either overhead, at foot level, or at the level of the leading edge. Among the many features of a leading edge SRL is their integrated shock-absorbing pack that helps limit the impact of a fall's force on the cabling that is in contact with the ledge itself. This design allows overhead, foot level, or leading edge placement.



**See
manufacturer's
information for
clearances!**



Fall Protection on Low Slope Roofs (4 in 12 or less)



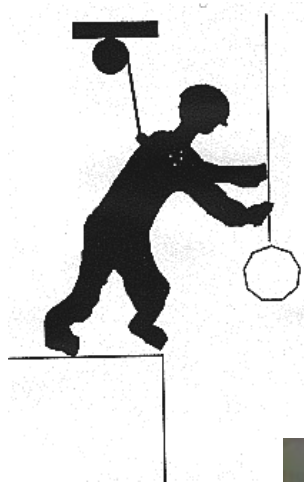
TOSHA Fatality Investigation – Fall from Roof

- A **30 year old male** employee was fatally injured when he fell approximately 30 feet from the roof of a residential house. On the day of the accident, the victim was installing coping, a custom aluminum cap, along a 6 inch tall parapet wall surrounding a flat roof. The victim and co-worker had been working on the roof 4 to 5 hours before lunch. Shortly after returning to work from lunch, the co-worker heard the victim yell and when he turned around the victim was gone. During the investigation it was determined that fall protection, harnesses and lanyards, were available onsite, but the employer did not see a hazard since they were working on a flat roof and did not require their use. The employer did not provide another form of fall prevention such as a guardrail system or safety net system to keep the employees from falling from the leading edge of the roof.



Hoist Areas

- Material handling platforms must have guardrails.
- BEFORE guardrails are opened to receive material, workers must be tied off.
- The area should be enclosed so others aren't exposed.



Stairways

- Stair pans should not be used for access until poured or filled, and stair rails have been installed.
- Be sure all debris is removed immediately.
- Keep cords off of stairway treads.

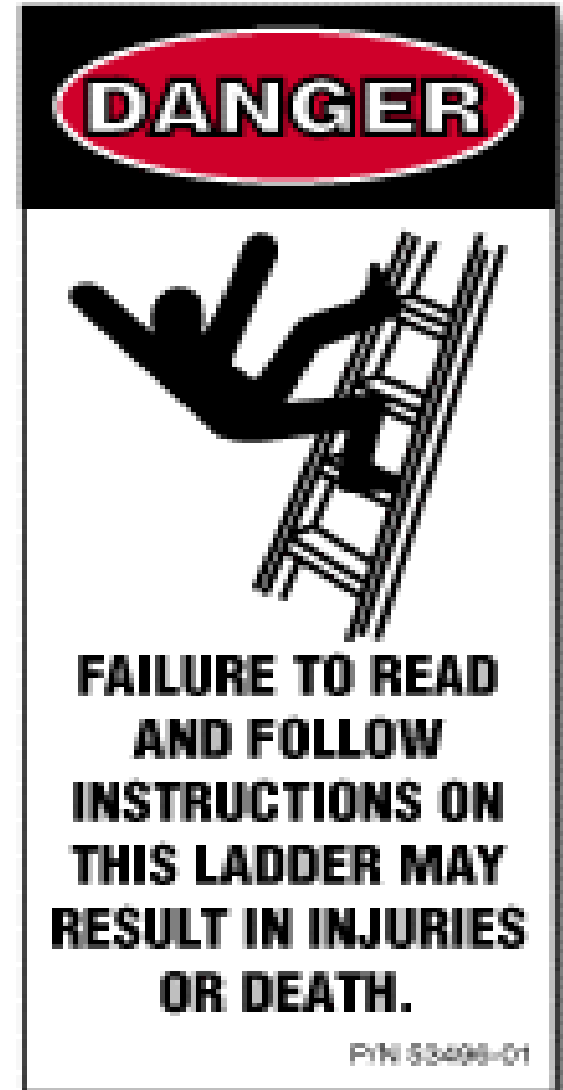


Proper Ladder Usage

- Inspect ladders prior to use
- Use both hands to climb a ladder
- Always face the ladder when climbing, descending or working
- Avoid the top two steps of a stepladder.
- Always have a stepladder open fully with spreaders locked.
- Extension ladders should be tied off and extend 3 ft. above the landing.
- Set up at a 4:1 ratio.



NEVER walk a stepladder!



Access Ways

- Offset guardrails are recommended.
- Watch for tripping hazards at tops of ladders and stairs.
- Avoid configuring ladders so that people have to climb through guardrails to egress.



Scaffold Requirements

- Firm foundation with base plates
- Plumb, square and adequately braced
- Have a fully planked work deck
- Have guardrails over 10 feet (Best management practice – install guardrails at all heights.
- Tie scaffold into structure as per manufacturers requirements.
- 6” overhang on planks; 12” overlap over supports.
- Have a safe means of access.



**No access by
crossbraces!**

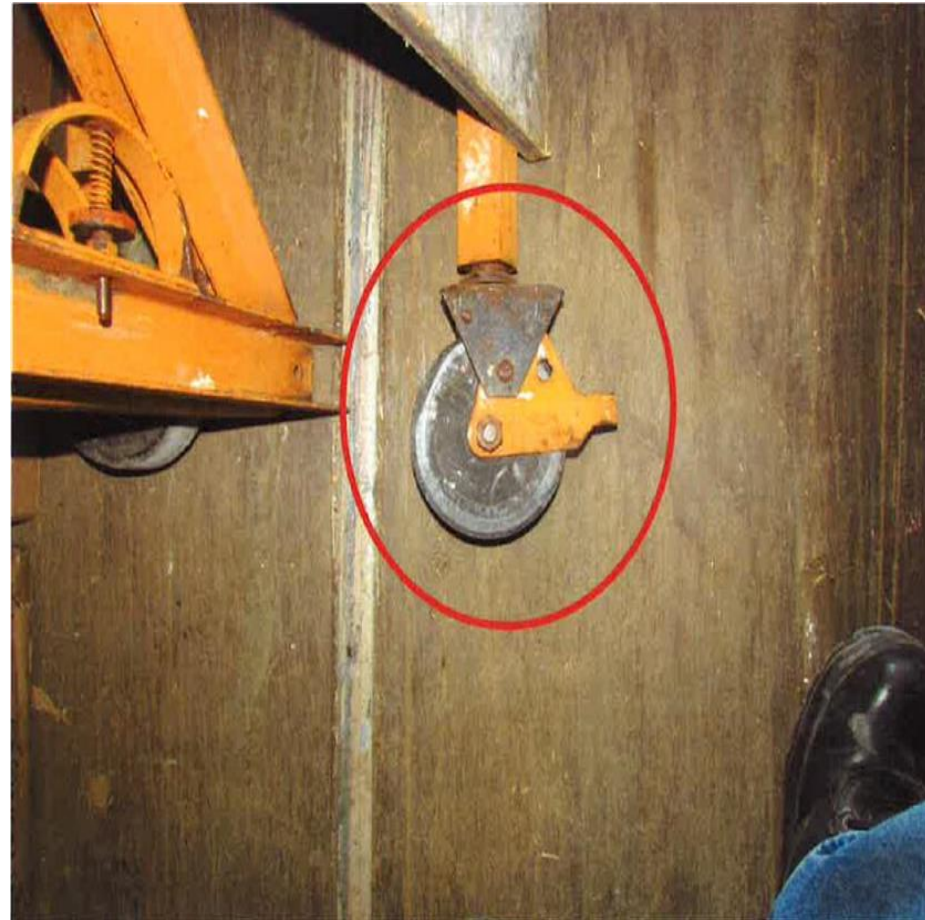
TOSHA Fatality Investigation – Fall from Baker Scaffold

- A **29 year old male** employee was fatally injured when he fell **5' feet 5" inches** from a baker scaffold striking his head on the concrete floor. On the day of the accident, the victim was working alone, finishing drywall from a baker scaffold, when fellow workers heard a noise. They found the victim unresponsive and bleeding next to the scaffold. There were no witnesses to the accident. During the investigation and interviews, it was determined the caster/wheel locks on the baker-style scaffold were not engaged which could have allowed movement of the scaffold causing the employee to lose his balance and fall. The employer had not provided scaffold training by a qualified person, and did not have a competent person to inspect the scaffolds.



Another Fall from Baker Scaffold

- **47 year old male** employee was fatally injured when he fell and struck his head on a concrete pad. On the day of the incident the victim, a framer, was installing Tyvek waterproofing material on a wall at a newly constructed commercial building. He was working from a baker-style scaffold at a height of approximately **6 feet** from the concrete pad. Several employees working in the area heard a loud noise and ran to investigate. They found the victim lying on the ground unresponsive with an apparent head injury. There were no witnesses to the incident. During the investigation it was determined that the wheel locks on the baker-style scaffold, when engaged, did not prevent movement of the scaffold. The scaffold was not inspected by a designated competent person before each work shift for deficiencies.



BEST MANAGEMENT PRACTICES VS. COMPLIANCE

- The two scaffold fatalities described occurred at heights of 5.5 ft. and 6 ft., respectively.
- OSHA requires fall protection on scaffolds at a height of 10 ft., which would not have prevented these accidents.
- OSHA regulations are minimum requirements. To prevent injuries we need to go above and beyond!



Working Above Protective Systems

When employees work above railings, they must be protected from falling over the railings.



TOSHA Fatality Investigation – Fall from Work Platform

A **38 year old male** employee was fatally injured when he fell 27 feet down an elevator shaft to the concrete floor below. On the morning of the incident, the owner/victim, and his employee began drywall finish work at the third level of the elevator shaft. The employee and victim used a metal plank work platform (8 to 10 inches wide) to extend into the shaft approximately 8 feet, with multiple packages of roofing shingles, stacked as a counterweight, on the portion of the plank that did not extend into the shaft. While the employee was working on the plank finishing the drywall inside the elevator shaft, the victim stood on the packages of roofing shingles to add to the counterweight. At a point during the day, the employee came off the plank, and sat down to remove his stilts. In mid-conversation, the employee noticed that the victim was no longer talking. The employee went to check on the victim, and found him at the bottom of the elevator shaft. During the investigation it was determined, that the victim assumed the packages of shingles could support his weight, and he stepped out onto the metal plank suspended over the elevator shaft. The victim and his employee were not wearing fall protection. The victim was the sole owner therefore citations were not issued since the company no longer exists. However, the general contractor was cited since they were the controlling contractor, and allowed others on-site to be exposed to a fall hazard without protection.



Falling Object Protection

- Toe boards at edges of platforms
- Barricade areas below overhead work
- Use canopies where walkways cross underneath
- **WEAR HARD HATS!**



Prevent Falls from Mobile Equipment

- Do not jump from equipment.
- Use three points of contact at all times.
- Be sure of your footing.
- Be sure steps are clear of mud and ice.
- Repair/ replace damaged steps immediately.



Articulating boom lifts

- Fall protection is required.
- Employees should be trained.
- Inspect area for holes or drop offs.
- Tie off to designated anchorage point and always the lowest anchorage point possible.
- Do not anchor to anything outside the lift.
- Remember to complete the guardrail by closing the gate.



**Do not stand on
the rails of the lift!**

Same Level Falls

- Watch out for trip hazards
- Trash and debris, esp. items like conduit or pieces of hanger rod create hazards for everyone in the building



- Watch for slick surfaces
- Make sure lighting is adequate
- Watch for items like rebar that someone could fall onto and be injured if not capped properly

RESCUE... What if?

- **Have a plan.**
 - Do you have equipment on site to aid in rescue?
 - How close are emergency responders?
 - Do employees have equipment to allow for self-rescue?
- **Why is prompt rescue so important?**

Suspension Trauma - A serious medical condition that can lead to unconsciousness, injury or death, which can occur when a worker is suspended in a harness for too long.
- **Prompt Rescue:** The recommended goal for rescue subject contact is less than six minutes, per ANSI Z359.2-6.1.



RESPONSIBILITY... We all have it!

- Be a good leader and role model, no matter your position.
- Take responsibility for the safety of yourself and those around you.
- Say something if you see a problem. If it's something you can correct – correct it immediately.
- Follow manufacturer's recommendations for all fall protection equipment.
- Make fall hazard identification a part of your daily schedule.
- Don't let production get in the way of safety – both can be accomplished!
- Don't take risks – follow the rules 100% of the time!
- If you don't understand - ASK.
- If you don't have the right equipment – STOP until you get it!

Together, we can prevent fall-related injuries!

Remember to always...

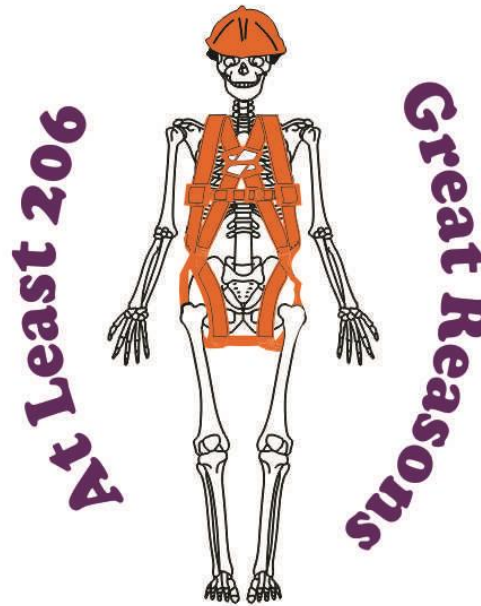
- **PLAN** ahead to get the job done safely.
- **PROVIDE** the right equipment.
- **TRAIN** everyone to use the equipment safely.

PRACTICE 100% FALL PROTECTION!

**Safety is everyone's responsibility —
ALL of the time.**

WHY 206?

Fall Protection



IT'S A SNAP

YOU HAVE 206 BONES IN YOUR BODY!
Let's keep them intact!

You can contact the following for additional information on injury prevention:



Call 1-800-249-8510 or go to their website at www.state.tn.us or www.osha.gov

OR



Contact, Organization
Phone or email or website