

KEEPING CEMENT MASONS SAFE: *PREVENTING FALLS, STRUCK BY and CAUGHT BETWEEN ACCIDENTS*



GOALS OF THIS CLASS

- *You will understand:*
 - The causes of falls, struck-by and caught-between accidents in cement work
 - How they happen



What's wrong here?

- *You will be able to:*
 - ✓ **Reduce your risk of falls, struck by and caught-between accidents**

Accidents are preventable!

WHAT YOU NEED TO KNOW AND DO TO LAST IN THIS PROFESSION

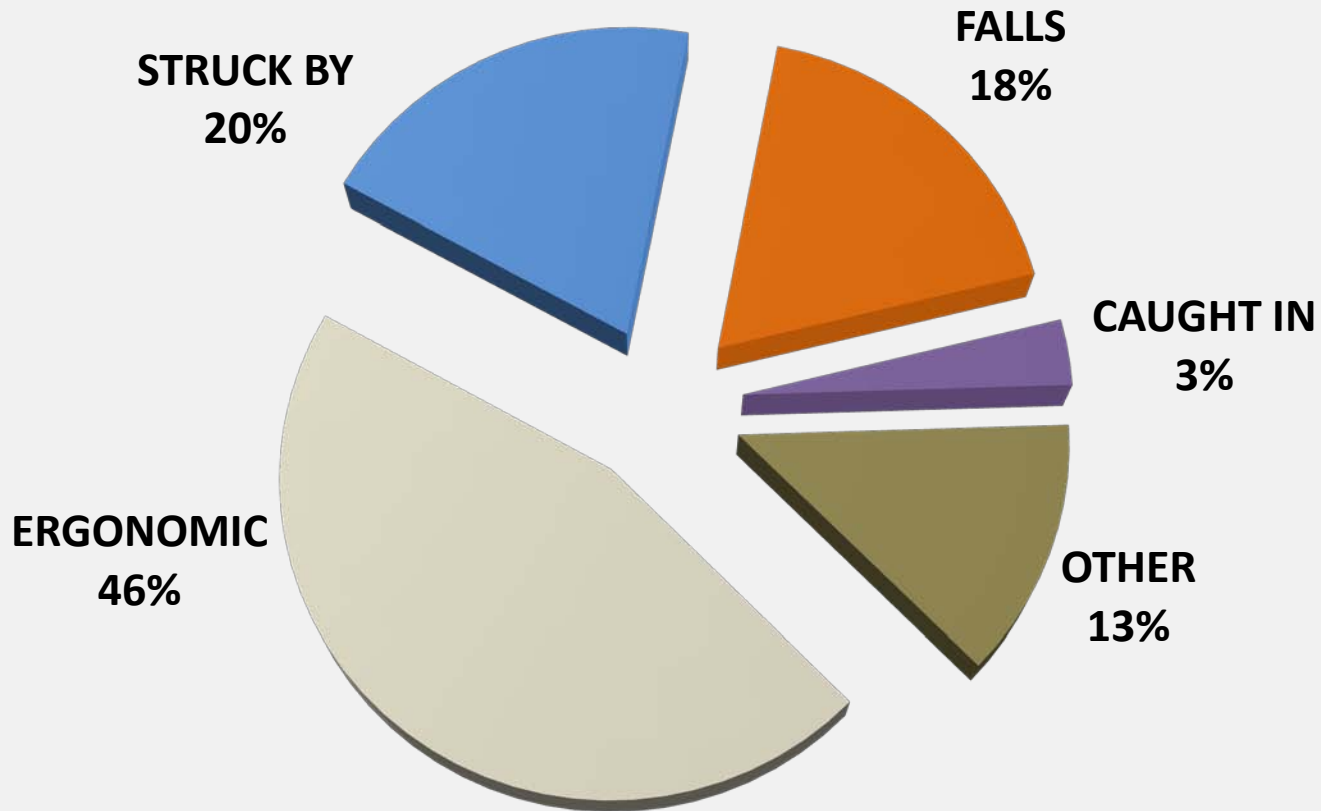
- Proper use of scaffolds and ladders
- Safety around moving vehicles and equipment
- Preventing falls
- Avoiding what can hit you



What's wrong here?

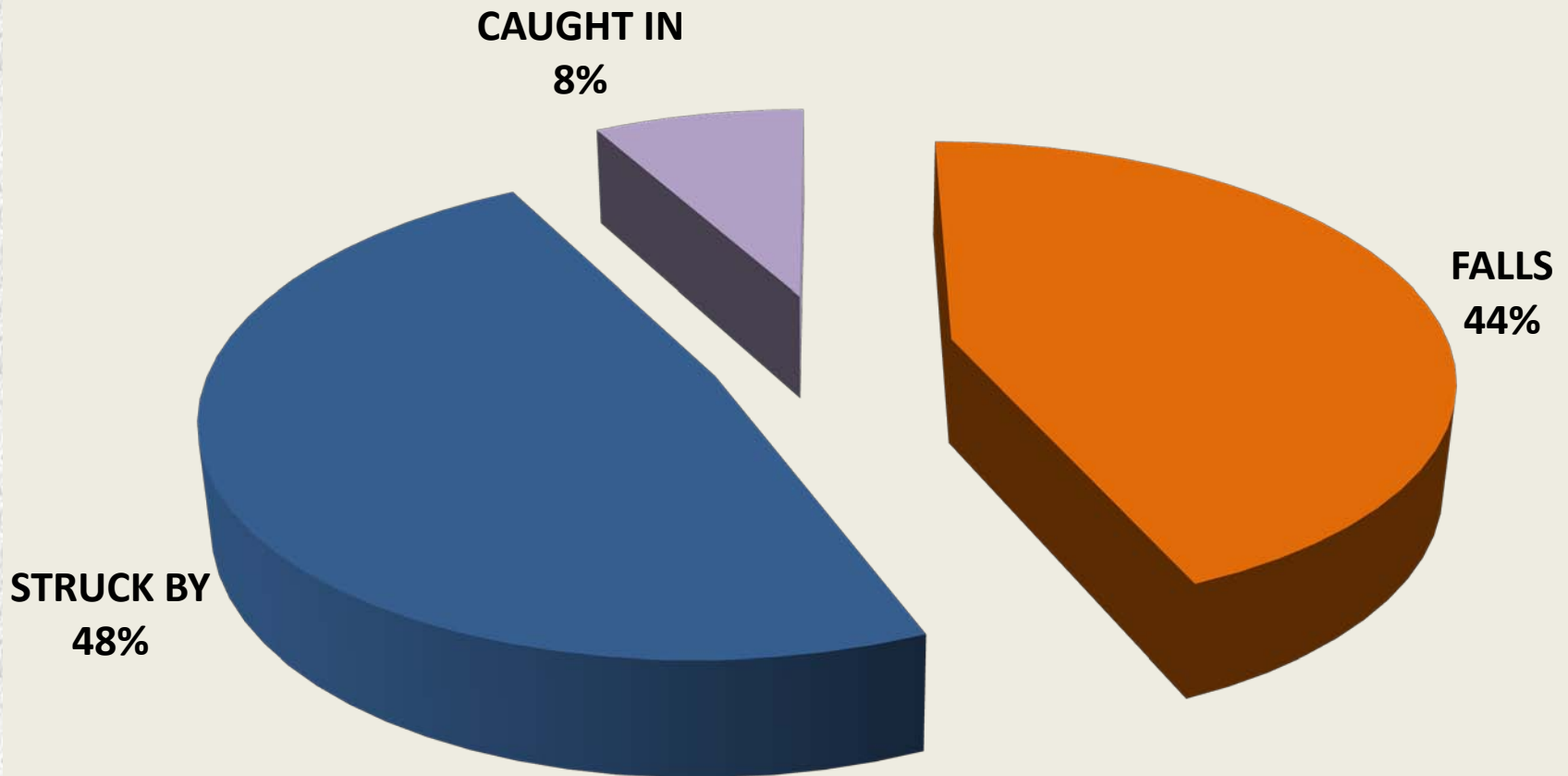
Accidents are preventable!

CEMENT MASONS REPORTED INJURY RATES 2006-2008



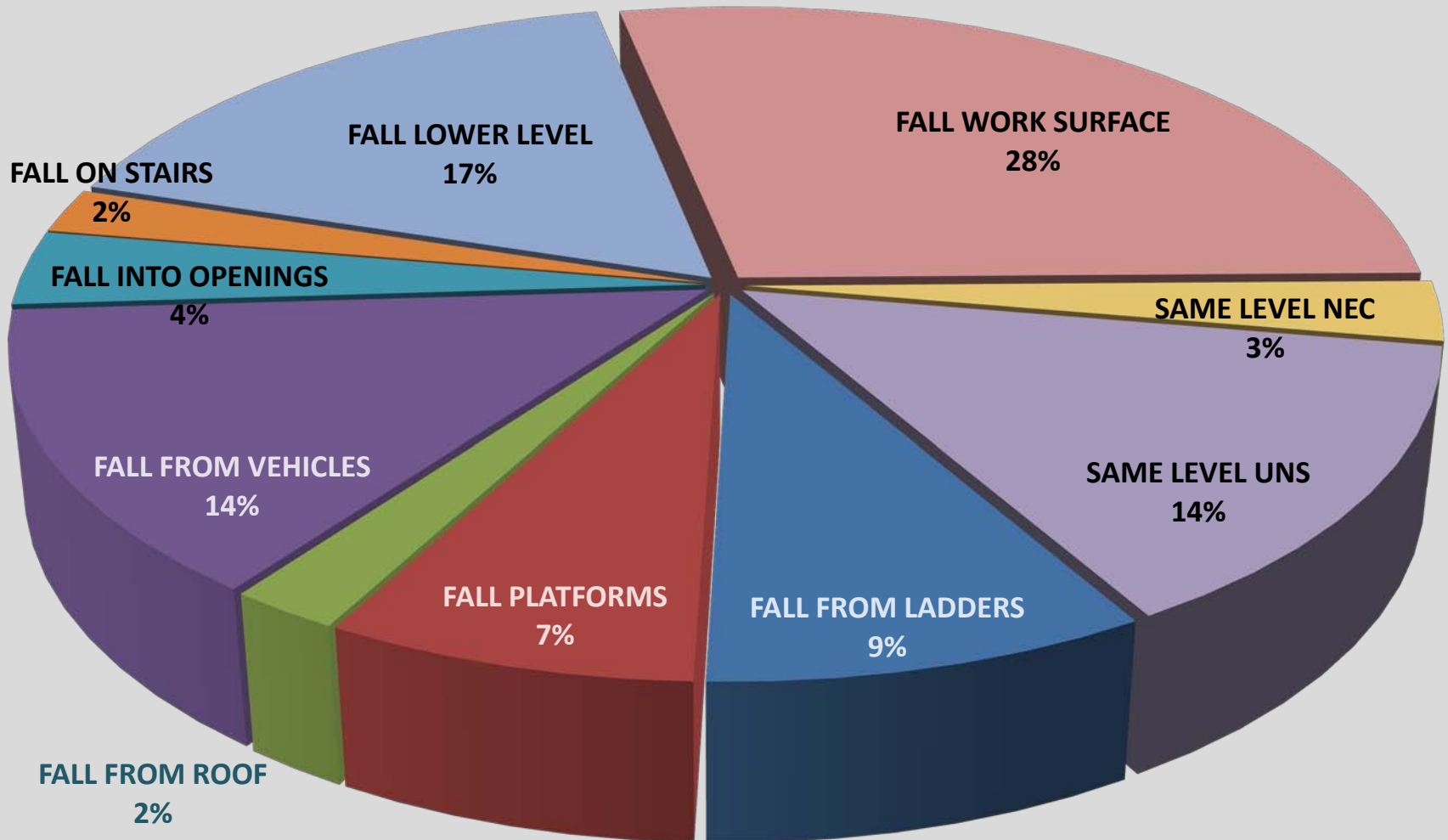
Source: Washington State Department of Labor and Industries

CEMENT MASONS FALL, STRUCK BY, CAUGHT IN INJURIES 2006-2008



Source: Washington State Department of Labor and Industries

CEMENT MASON FALLS 2006-2008



Source: Washington State Department of Labor and Industries

FALLS

Falls are a major source of Cement Mason injuries, but they are **preventable!**



Accidents are preventable!

FALLS FROM PLATFORMS

RULES FOR SCAFFOLDS AND LIFTS

- **CHECK THE GROUND CONDITION**
 - Too firm or too soft?
 - Frozen? It might thaw and begin to sink.
- Is the base of the scaffold or lift *level*?
- Is it *supported* on proper adjustable stands?
- If it is a rolling scaffold, are the castor locks in good working order and *locked* when not being moved?



Accidents are preventable!

RULES FOR SCAFFOLDING

- Scaffolding must be able to support at least **four times** its intended load



- Anyone working in the vicinity of the scaffolding or on the scaffolding must wear a **hard hat**
- **Anyone constructing or operating scaffolding must be certified**

Accidents are preventable!

RULES FOR SCAFFOLDING

- Scaffolding platforms must be kept as **clear** as possible
- Do not use scaffolding in bad weather conditions like high winds, snow or icy conditions



Accidents are preventable!

RULES FOR SCAFFOLDING and LIFTS

- Never remain on the scaffold when it is being moved
- Must be checked daily
- If moving, secure all tools and materials



Use a hoist to haul tools, equipment or any loads up to and down from the scaffold.

Keep both hands free for **you**

What's wrong here?

Accidents are preventable!

RULES FOR SCAFFOLDING



- Safe access to the scaffolding must be provided -- avoid the need to climb over cross bracing.

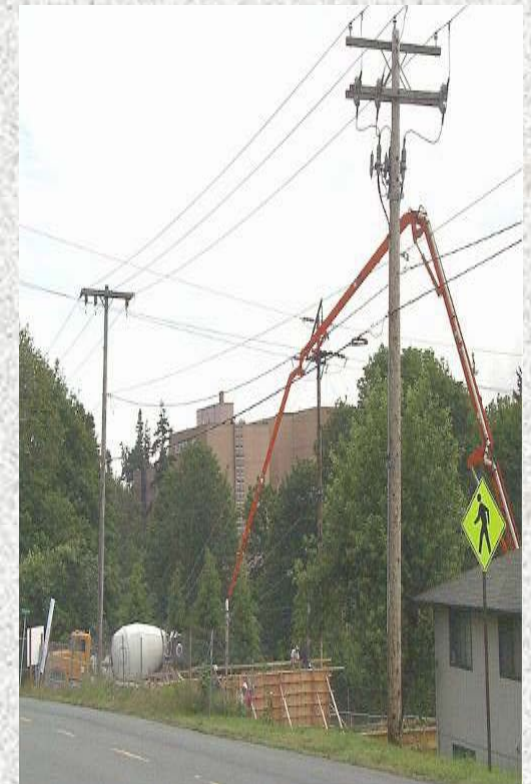
What's wrong here?

Accidents are preventable!

RULES FOR SCAFFOLDING

MINIMUM Safe Distances from High Voltage Sources & Power Lines

Power line voltage phase to phase (kV)	Minimum safe clearance (feet)
50 or below	10
Above 50 to 200	15
Above 200 to 350	20
Above 350 to 500	25
Above 500 to 750	35
Above 750 to 1,000	45



Accidents are preventable!

RULES FOR POWER LINES: NOT JUST FOR SCAFFOLDS



Accidents are preventable!

REVIEW: SCAFFOLD RULES

- **DO NOT** use damaged or distorted parts on any scaffold.
- **DO NOT** allow anyone to be on scaffolds when they are feeling weak, sick, or dizzy.
- **DO NOT** work from any part of the scaffold other than the platform.
- **DO NOT** alter the scaffold or any of its parts.
- **DO NOT** move a scaffold horizontally while workers are on it, unless it is a mobile scaffold and the proper procedures are followed.
- **DO NOT** allow employees to work on scaffolds covered with snow, ice, or other slippery materials.
- **DO NOT** erect, use, alter, or move scaffolds within 10 feet of overhead power lines.
- **DO NOT** use shore or lean-to scaffolds.
- **DO NOT** swing loads near or onto scaffolds unless properly controlled by a tag line(s) -- and the load does not exceed the scaffold's capacity.
- **DO NOT** work on scaffolds in bad weather or high winds unless **you** determine that doing so is safe.
- **DO NOT** use ladders, boxes, barrels, or other makeshift contraptions to gain additional height on your work platform.
- **DO NOT** let unused or scrap material accumulate on the platforms.
- **DO NOT** put more weight (*including you*) on a scaffold than it is designed to hold.

Accidents are preventable!

FALLS FROM LIFTS AND PLATFORMS



Scissors Lift Topples

Accidents are preventable!

FALLS FROM LIFTS AND PLATFORMS



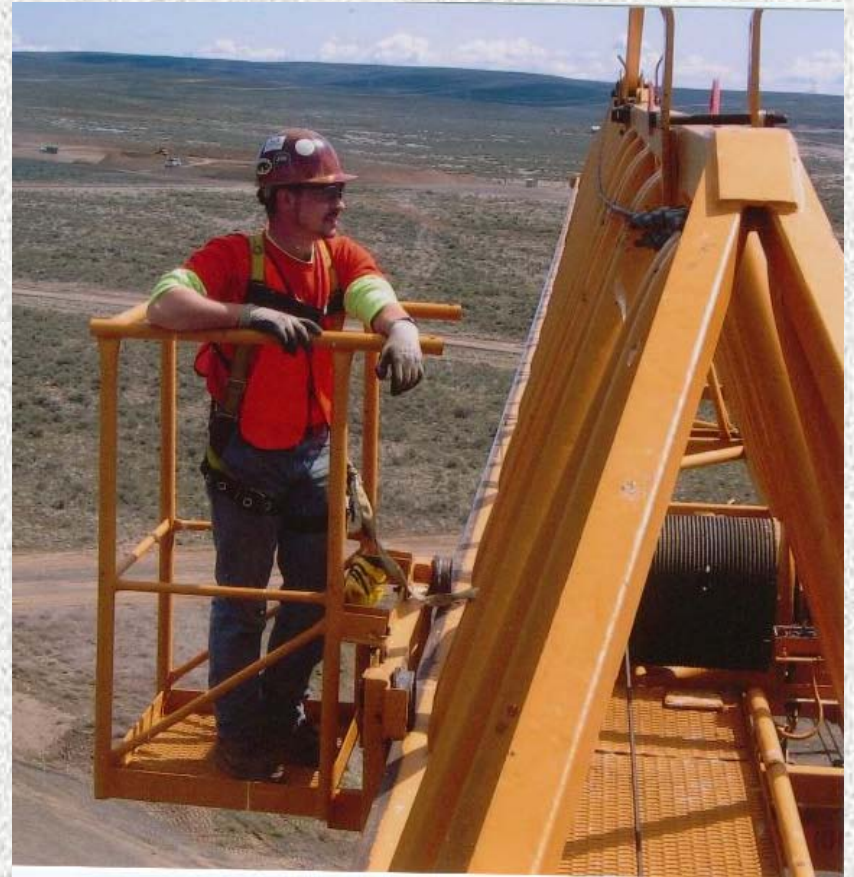
Accidents are preventable!

FALLS FROM LIFTS AND PLATFORMS



Accidents are preventable!

FALLS FROM PLATFORMS



Accidents are preventable!

FALLS FROM LIFTS AND PLATFORMS

What
prevents the
lift wheel
from falling
into the
hole?

**COVER THIS
HOLE!**



Accidents are preventable!

FALLS TO WORK SURFACE

Caused by slipping, tripping or falling while walking or working:

- On unstable, loose or uneven, or oily surfaces
- In slippery, wet , or muddy conditions
- By tripping over obstacles, objects, materials or scrap



What's wrong here? Name the obstacles.

Accidents are preventable!

KNOW WHERE YOU ARE AT ALL TIMES

- Know your surroundings when walking
 - Be aware of tools and materials in walking/working areas, especially pneumatic or electric tools with hoses and cords



Accidents are preventable!

FALLS FROM LADDERS

- Keep manufactured and job-made ladders in good condition
- Inspect ladders *before* each use. Look for broken rungs or other defects. Destroy or repair defective ladders.
- Place ladders at the proper angle (1 foot out from the base for every 4 feet of vertical rise)



Accidents are preventable!

- Secure ladders near the top and/or at the bottom to prevent them from slipping



What's wrong here? Is this safe?

Accidents are preventable!

FALLS FROM LADDERS



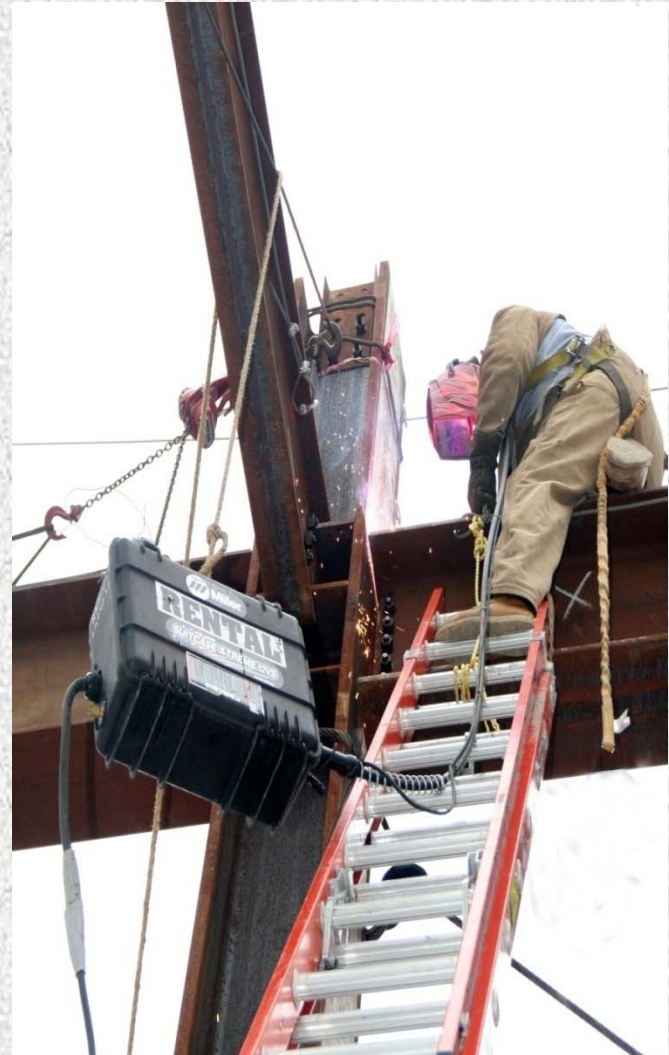
Building it on site?
Make it safe!



Accidents are preventable!

FALLS FROM LADDERS

- Extend ladders at least 3 feet above the landing to provide a handhold and for balance when getting on and off the ladder from other surfaces



Accidents are preventable!

FALLS FROM LADDERS



Use a hoist to move materials and equipment.

KEEP BOTH HANDS FREE FOR YOU

Accidents are preventable!

FALLS FROM LADDERS



- Use ladders only for what they were made – DO NOT USE as a platform, runway, or as scaffold planks.
- Always **face the ladder** and maintain **3 points** of contact when climbing a ladder
- Do not set up a ladder near passageways or high traffic areas where it could be knocked over.

Accidents are preventable!



Does your ladder placement mean a fall PAST other safeguards?

Accidents are preventable!

FALLS SAME LEVEL

- **Wear the proper foot gear.**
- **Walk slowly and never run on slick ground.**
- **Test potentially slick areas by tapping your foot on them.**
- **Keep walkways clear of water, ice, oil and slippery materials.**



FALLS SAME LEVEL

- Watch for tripping hazards.
- Always be sure that you can see over your load.
- Keep your eyes on where you are going.



Accidents are preventable!

FALLS SAME LEVEL

- Avoid tripping hazards
- Any change in elevation is a major source of tripping.
 - Even a change of $\frac{1}{4}$ - $\frac{1}{2}$ " can cause a trip.
 - Curbs, cracks, single steps are all hazards.



- When these helpful hints don't work, and you know you are going to slip, try to reduce your potential injury when falling by:
 - Roll with the fall.
 - Relax as much as possible when you begin to fall.
 - Toss the load you are carrying. Protect yourself instead of the objects being carried.

Accidents are preventable!

- Prevent or mark **jutting material** that may not be seen when walking quickly or with vision obscured (carrying materials or tools)



Accidents are preventable!

FALLS AGAINST OBJECTS



What's missing here?

Accidents are preventable!

FALLS AGAINST OBJECTS

- **USE REBAR CAPS AND GUARDS**



Accidents are preventable!

FALLS AGAINST OBJECTS



MAYBE JUST *ONE* WILL DO?

Accidents are preventable!

FALLS AGAINST OBJECTS



What are the hazards in this picture? Are they corrected?

Accidents are preventable!

FALL AGAINST OBJECTS



Accidents are preventable!

FALL AGAINST OBJECTS

THOSE
MUDDY
BOOTS
COULD
NEVER
SLIP,
RIGHT?



What is missing here?

Accidents are preventable!

FALLS TO LOWER LEVEL

Floor and Wall Openings

- Install guardrails around openings in floors and across openings in walls when the fall distance is 6 feet or more
 - Make sure top rails can withstand a 200-lb load
 - Construct guardrails with a top rail approximately 42" high and with a mid-rail about half that high (21")



Accidents are preventable!

FALLS TO LOWER LEVEL



- Cover all floor openings larger than 2" x 2" with material that can safely support at least **twice** the anticipated working load
- Secure and mark the cover

Accidents are preventable!

FALLS TO LOWER LEVEL



- There is no excuse for not covering and securing and marking every floor and roof opening, regardless of size
- It's actually better to build a guard rail around the opening so that it can be seen

Accidents are preventable!

FALLS TO LOWER LEVEL



Accidents are preventable!



**HOW MUCH PROTECTION DOES CAUTION TAPE
PROVIDE?**

FALLS TO LOWER LEVEL



**HOW MUCH
PROTECTION
IS THIS
BARRIER
PROVIDING?**

Accidents are preventable!

FALLS TO LOWER LEVEL



Accidents are preventable!

FALLS TO LOWER LEVEL



Accidents are preventable!

FALLS FROM VEHICLES

- Step - don't jump - from vehicles or equipment
- Do not board or depart any vehicle or equipment that is moving
 - Watch where you park!



Accidents are preventable!

FALLS FROM STAIRS

- Do not store materials on stairways
- Keep hazardous projections (such as materials, protruding nails, large splinters, etc.) off stairs, treads or handrails
- Correct slippery conditions on stairways *before* they are used



Accidents are preventable!

FALLS FROM STAIRS

- Keep all cords, hoses and welding leads off the stair treads and risers
- Keep stairs clear of **debris**



Could you see this hazard?

Accidents are preventable!

PREVENT TRIPPING



How many ways to trip can you see?

Accidents are preventable!

PREVENT TRIPPING

WHAT COULD YOU DO? OR DO BETTER?



Accidents are preventable!

PREVENT TRIPPING

- Keep tools and supplies out of traffic areas
- Provide enough light for workers to see and to prevent accidents



Accidents are preventable!



Accidents are preventable!

TESTIMONIALS

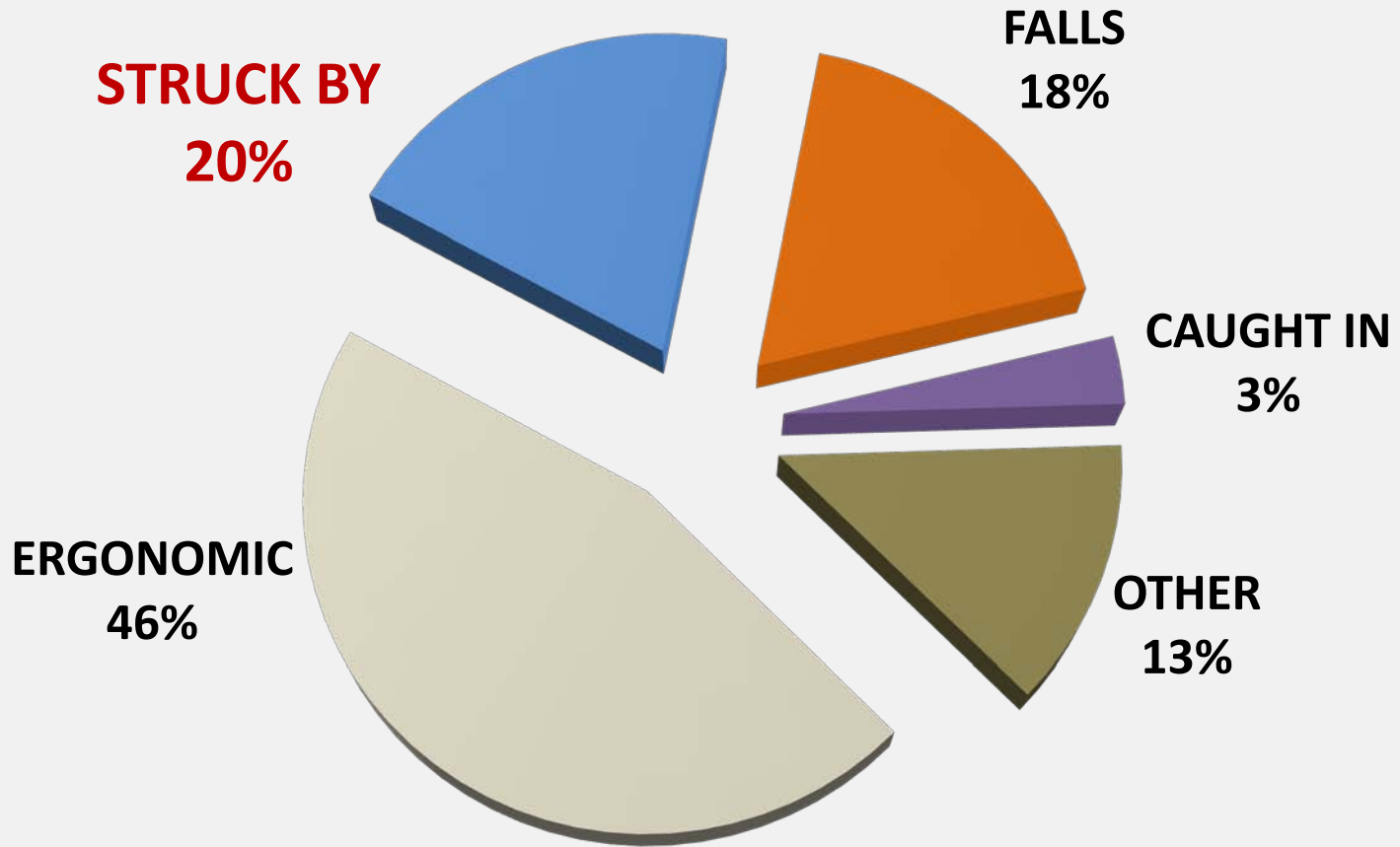
BY PEOPLE WHO HAVE HAD TO LEAVE THE
PROFESSION DUE TO SERIOUS INJURY FROM
FALLS



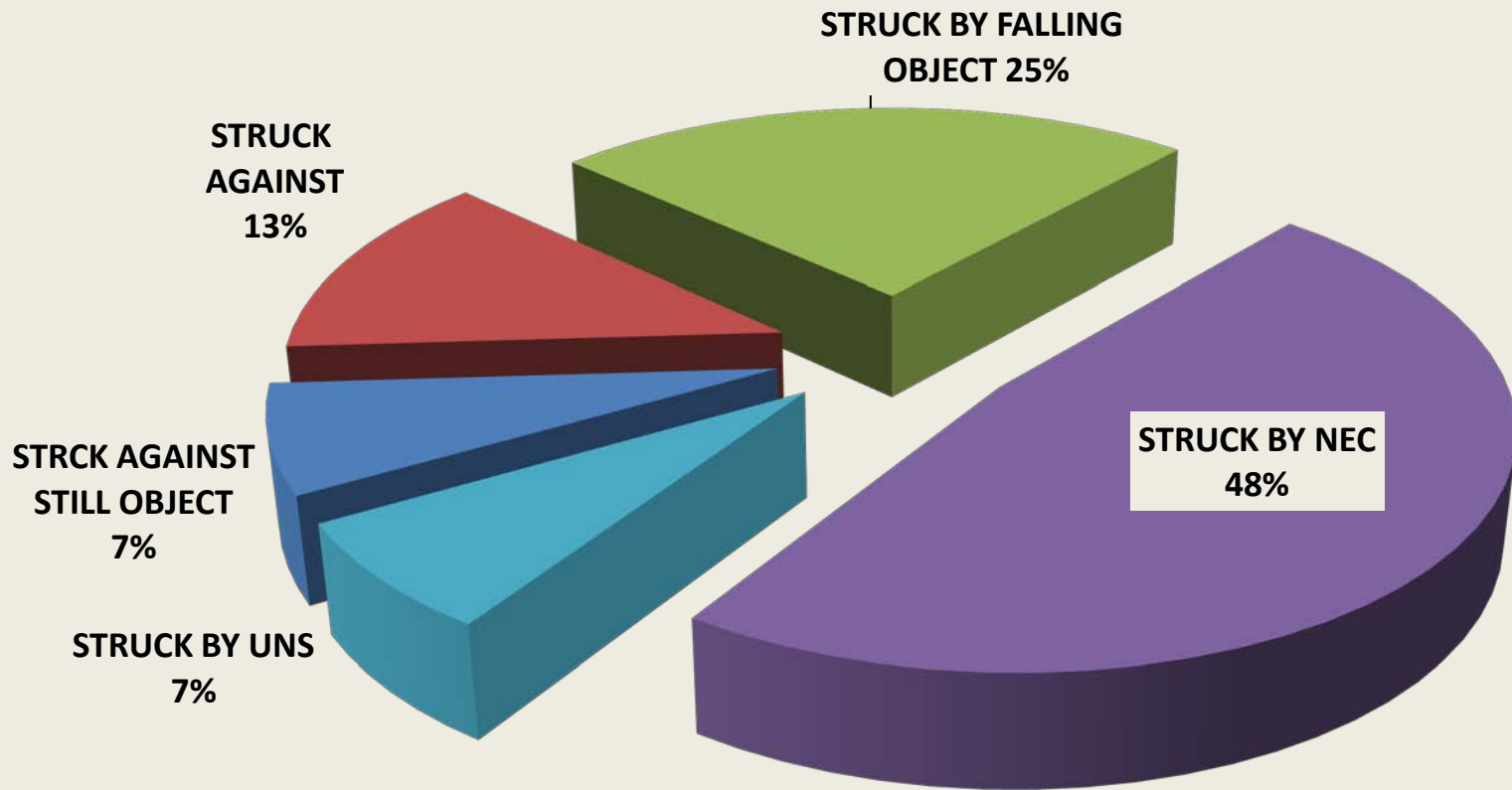
Kuhlman Corp

Accidents are preventable!

CEMENT MASONS ***STRUCK BY*** INJURY RATES 2006-2008



CEMENT MASONS STRUCK BY AND AGAINST INJURIES 2006-2008



Source: Washington State Department of Labor and Industries

STRUCK BY/AGAINST

Struck by/against:

- impact of a part of the body against something or
- hit by a moving or flying objects
- or by noise (noise impacts the ear drum)

When a worker is

- *hit by work tools,*
- *by construction materials,*
- *by a vehicle, by equipment such as a backhoe bucket,*
- *by flying debris,*
- *by earth during a trench collapse, or*
- *by any other object*



Accidents are preventable!

STRUCK BY/AGAINST

- When helping someone to hitch equipment or an implement to a truck or tractor, stand to the side. That way, the driver can see you. Also, you won't be between the truck and the equipment.
- Never work under a vehicle or equipment that is supported only by a jack or stand. The jack or stand could tip, and the raised equipment then will be dropped on the person under it.



STRUCK BY/AGAINST



Accidents are preventable!

STRUCK BY/AGAINST



Accidents are preventable!

STRUCK BY/AGAINST



Accidents are preventable!



Accidents are preventable!

STRUCK BY/AGAINST



Who has potential for being struck on this site? Struck by what?

Accidents are preventable!

STRUCK BY/AGAINST

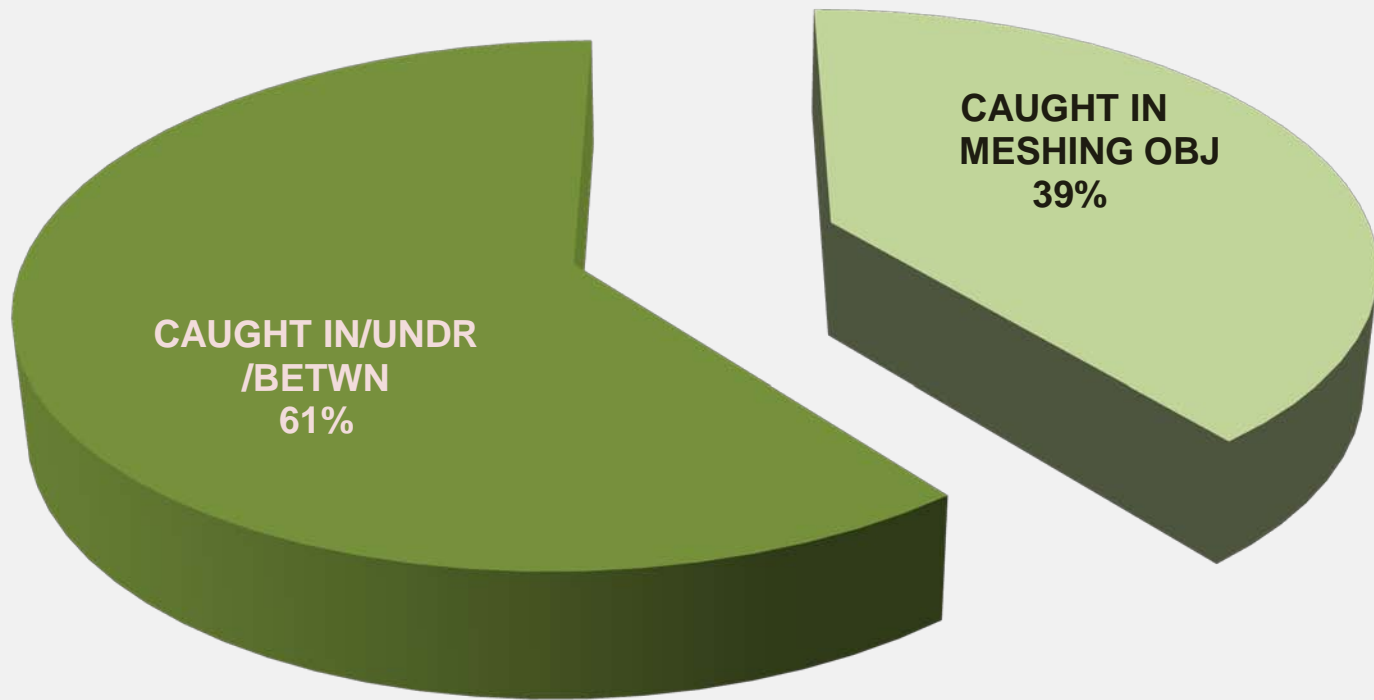


Concrete can “burp back” from the hopper

Stay back from the hopper of the concrete pump.

Accidents are preventable!

CEMENT MASONS *CAUGHT IN* INJURIES 2006-2008



Source: Washington State Department of Labor and Industries

CAUGHT IN & CAUGHT BETWEEN

CAUGHT IN/UNDER/BETWEEN - a part of the body is squeezed, pinched or crushed in machinery or materials

Reasons Caught-In and Caught-Between Accidents Happen

- Working on moving equipment
- Working under mental or physical stress
- Using unsafe equipment
- Lack of training or instructions
- Inadequate guarding on machines
- Incorrect hitching practices
- Distraction



Accidents are preventable!

CAUGHT BETWEEN



Accidents are preventable!

CAUGHT BETWEEN

- Never assume that the driver of a vehicle or equipment operator SEES YOU.



- Vehicle and equipment operators must **always look in the direction of travel.**

Accidents are preventable!

CAUGHT BETWEEN

- Always install safety locks or other safeguards before getting under or between two objects that have the potential of trapping you.
- While unloading or working on equipment, the wheels of equipment need to be pinned to hold them stationary.
 - This procedure is called **chocking**. Position chocks to prevent vehicles from inadvertently *moving in any direction*.



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Accidents are preventable!

CAUGHT IN/BETWEEN

- Safeguard against contact with moving machine parts.
- **Shut off power, perform lockout/tagout, and release any remaining energy before unjamming, servicing, lubricating, or adjusting machinery.**
- Replace guards after servicing and before resuming use of equipment.



Avoid wearing jewelry and tattered or loose clothing around machinery, and wear hair short or tucked inside clothing

Accidents are preventable!



- Avoid stepping or reaching across running equipment or machinery.

Accidents are preventable!

TESTIMONIALS

BY PEOPLE WHO HAVE HAD TO LEAVE THE
PROFESSION DUE TO SERIOUS INJURY FROM
BEING STRUCK BY OR CAUGHT IN



Hoover Dam