

# Focus Four

A Construction Safety Leadership  
Workshop





# OSHA Focus Four

The focus Four are the top 4 things that cause fatalities in Construction.

- Poll Question #1

- What is the number one cause of fatalities in Construction? (only one)

- Electric Shock

- Falls

- Caught Between

- Struck By

# Falls in Construction

Falls kill!

Falls are the leading cause of fatalities in construction.

- Over 400 annually.
  - That's over 30% of the construction fatalities.
- Over 10,000 serious injuries due to falls each year.
- Over 40% of construction industry injuries are related to falls.

# The Six Foot Rule

OSHA standards require that employees are protected from falls while at work. The specific standard for construction states:

*“Each employee on a walking/working surface with an unprotected side or edge which is 6 feet 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”*

Is this worker at risk.



# Falls - Fall Arrest

## Fall arrest systems

- Harness and lanyards
- Other components
  - Beam straps, SRL's, etc...
- 100% tie off





# Falls - Guardrails



The best method of fall protection is guardrails.

- This provides the most freedom of movement.
- It is the most common method.

# Falls - Guardrails

## Wooden guardrails

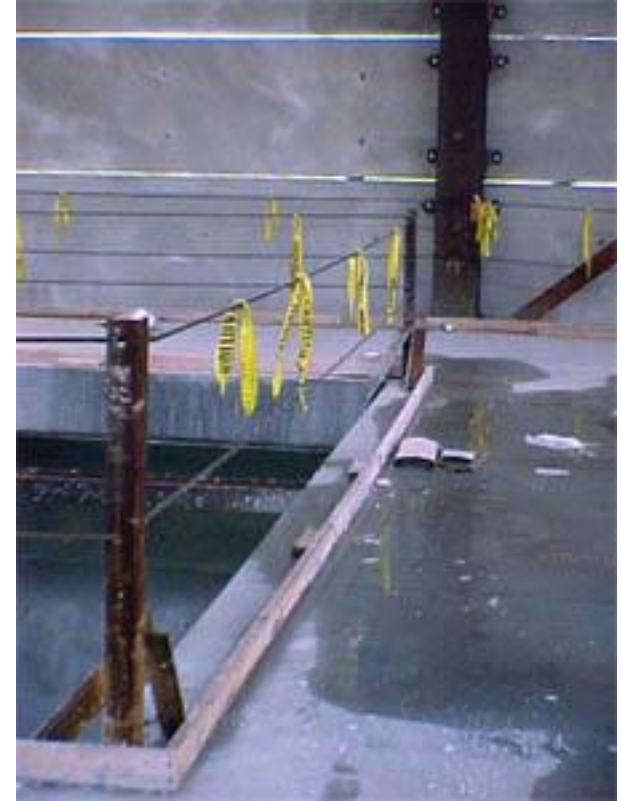
- Top height to be 39 to 45 inches from walking/working surface.
- Capable of supporting 200 pounds of pressure out or down.
- Vertical posts are minimum 2X4 lumber
- 8 foot max. between vertical posts
- Midrails
- Toeboards



# Falls - Guardrails

## Wire rope or cable guardrails:

- Wire rope should be at least 3/8" in diameter
- Not more than 3 inches of deflection
- Flag the cable every 6 feet with a visible material



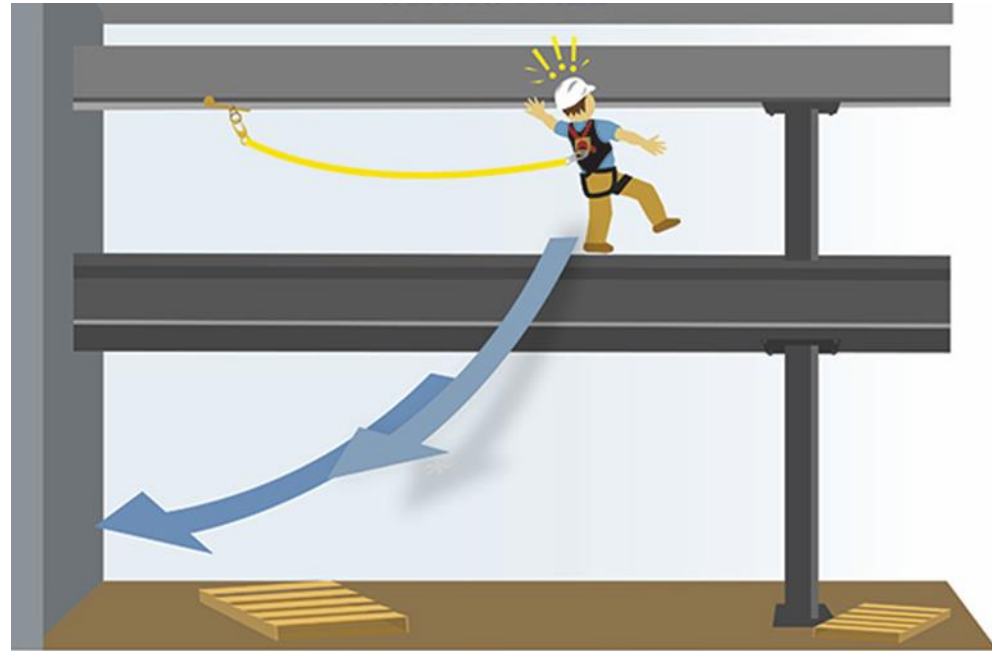
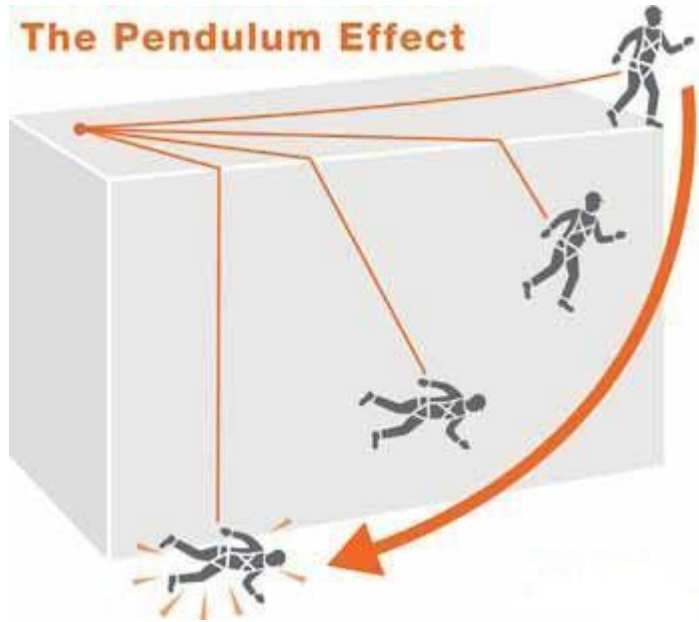
# Fall Arrest

## In fall arrest

- The harness distributes the force of the fall
- The lanyard absorbs a large portion of the force of the fall
- The impact force to the body is greatly reduced.



# Fall Hazards – Swing Fall



Using Retractable Lanyards and going beyond a 30-degree angle from the anchorage point can cause a swing fall effect if a worker falls. Workers could strike walls, objects or the ground. Warn workers of swing fall hazards.

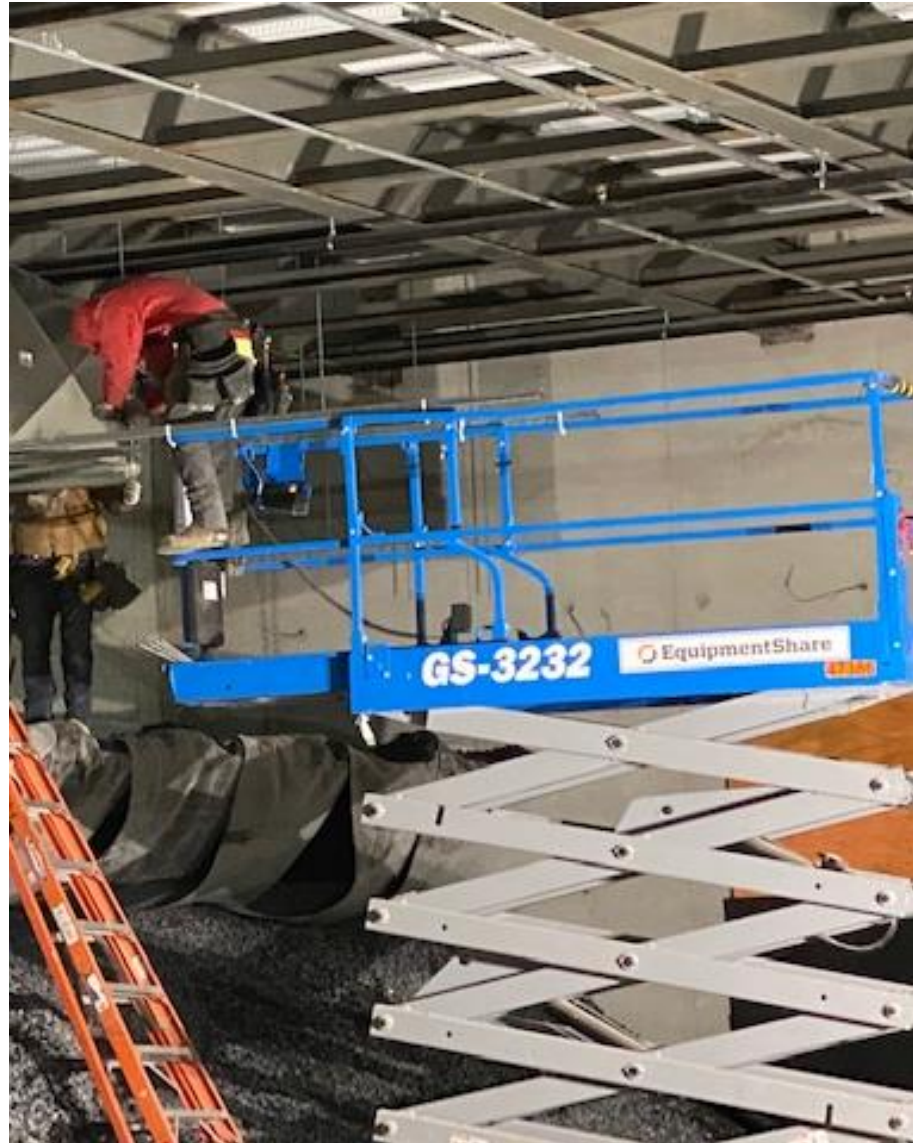
# Falls - Aerial Lifts

- Poll Question #2
- Which of the following equipment does OSHA require workers to tie off in? (check all that apply)
- What fall protection rules apply when working from a scissor lift and articulated boom lift?



# Falls - Aerial Lifts

- What fall protection rules apply when working from a scissor lift and articulated boom lift?



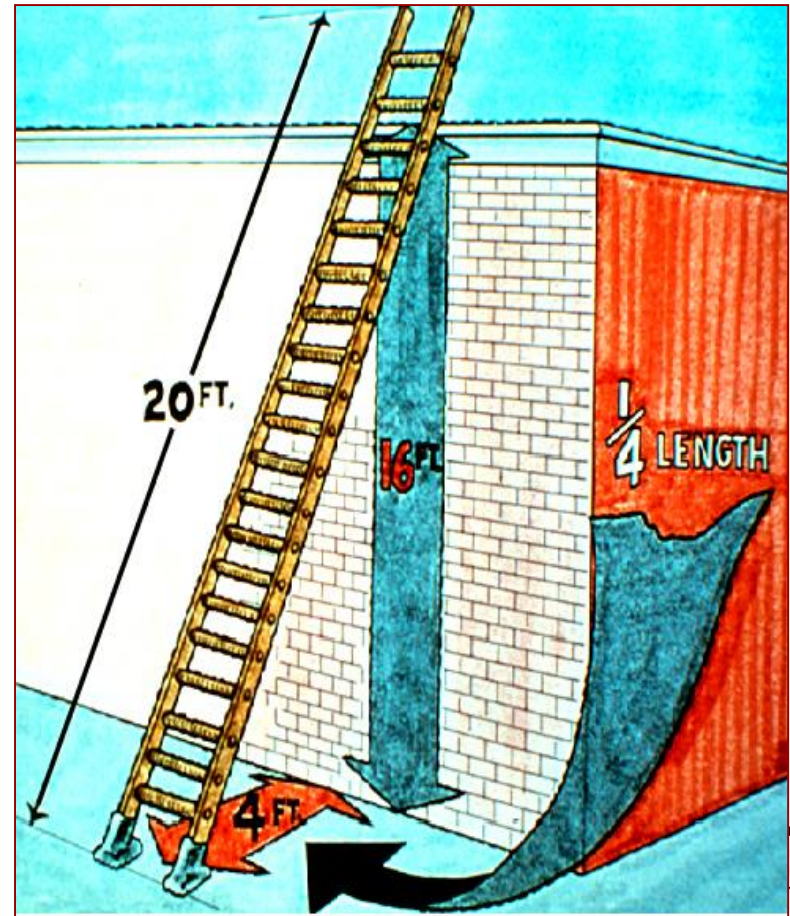
# What's Wrong With This Picture?





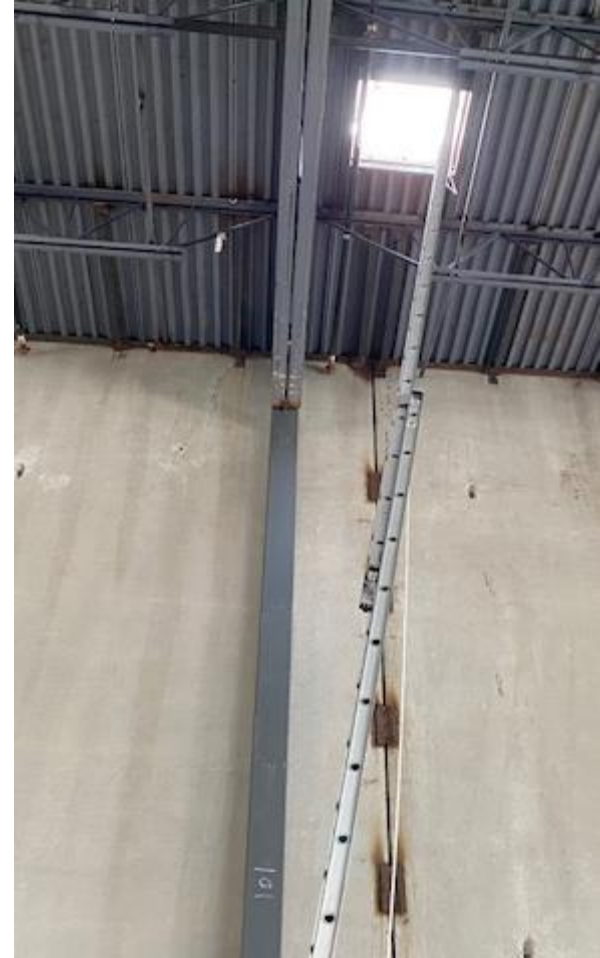
# Falls - Straight Ladder Setup

- Poll Question #3
  - Which of the following rules apply to safe ladder use? (check all that apply)
- Setup on 4:1 ratio
  - Correct angle can be found by placing feet at base of ladder and reaching out to rung at shoulder level. If you can barely grab rung, angle is correct.



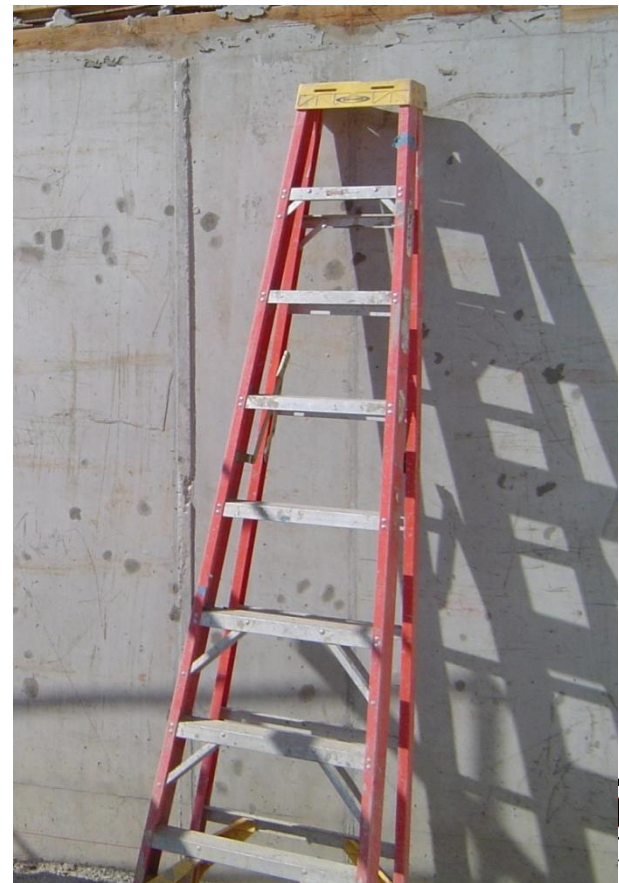
# Falls - Straight Ladder Setup

- Setup on 4:1 ratio
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# Falls - Step Ladder Setup

- Fully open and lock spreader bars.
- Do not setup near holes or slab edges where feet could slide off edge.
- **DO NOT** lean step ladder against wall or other structure unless it is designed for this setup.



# Falls - Step Ladder Setup

**New  
Ladder  
Design**



# Falls - Safe Ladder Rules

- Don't overreach
- Belt buckle rule
  - What is this?
- Don't carry items up or down ladders
- One person on ladder at a time
- Keep area around ladder free from tripping hazards



# What's wrong with this picture?



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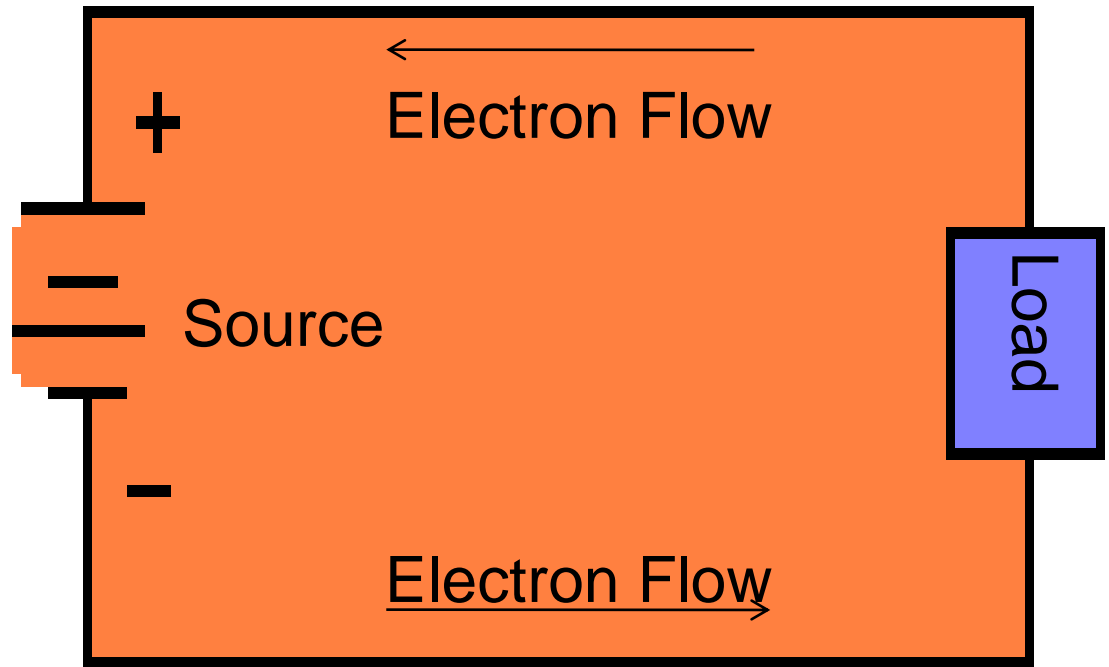


# What's wrong with this picture?



# How Does Electricity Work

- Current flows from a generating source thru conductors, to a load.
- Complete circuits are needed.



# What are the Dangers of Electric Shock

## AC Current (amps)      Effects on the Body

<b>.001</b>	<b>Perception threshold</b>
<b>.005</b>	<b>GFCI trip level</b>
<b>.010</b>	<b>Paralysis threshold</b>
<b>.030</b>	<b>Respiratory paralysis</b>
<b>.075</b>	<b>Heart fibrillation – usually fatal</b>
<b>5</b>	<b>Tissue burn – often fatal</b>

# Electric - How Do We Protect Ourselves?

- OSHA requires either:
  - Ground fault circuit interrupters (GFCIs); or
  - Assured Grounding Conductor Program



# Electric - Protection Form Shock

- A GFCI is designed to protect people from severe or fatal electric shocks. It is a fast-acting circuit breaker that senses small imbalances in the circuit caused by current leakage to ground



# Electric - Protection From Shock

- A GFCI shuts off electricity in a circuit when it senses an imbalance of 5 milliamps between the “coming” and “going” currents
- Test daily



## • Poll Question #4

- GFCI protection is optional on construction sites? (yes or no)

# Clues of Electrical Hazards

A cord pulled away from the plug.

- A hazard of contact with live electrical parts.



# What's Wrong With This Picture





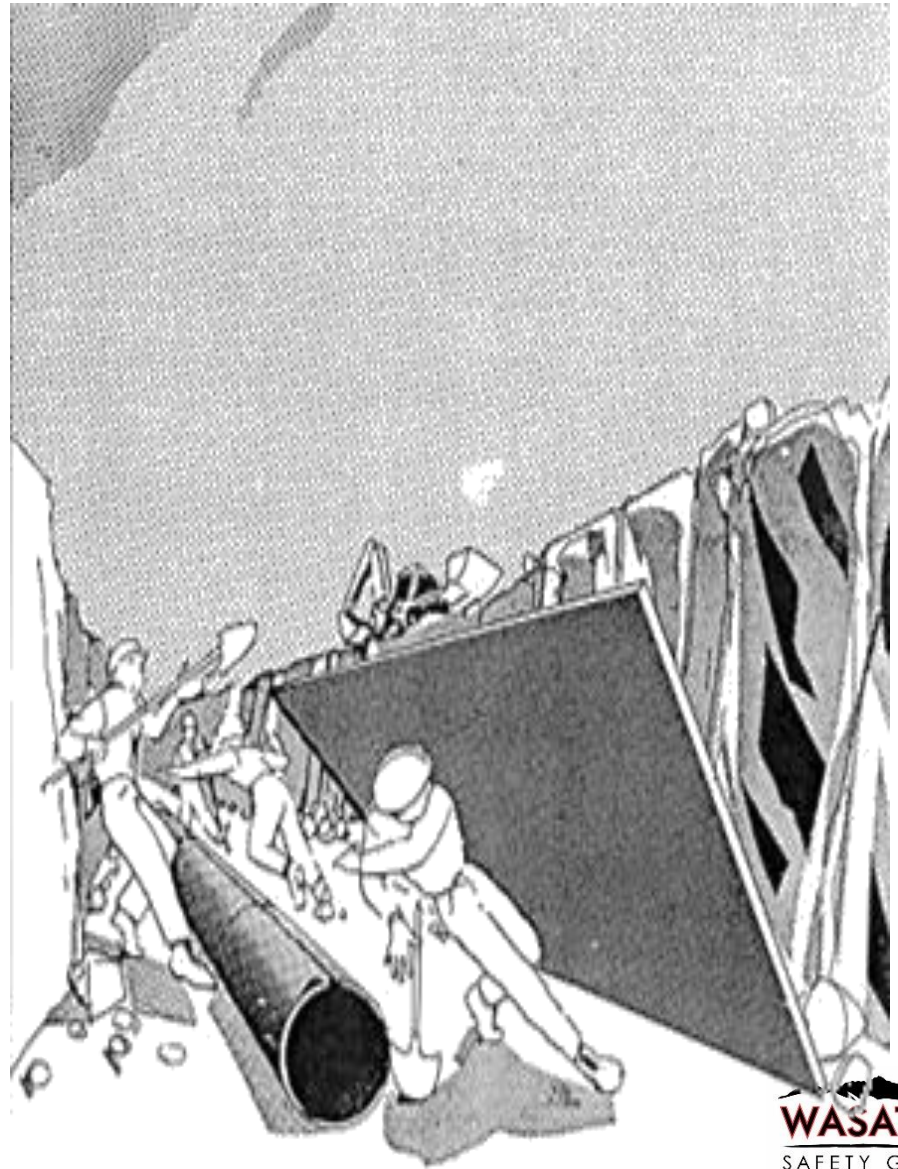
# Caught Between - Report #13

## Brief Description

Four employees were boring a hole and pushing a 20-inch pipe casing under a road. The employees were in an excavation approximately 9 feet wide, 32 feet long and 7 feet deep. ...

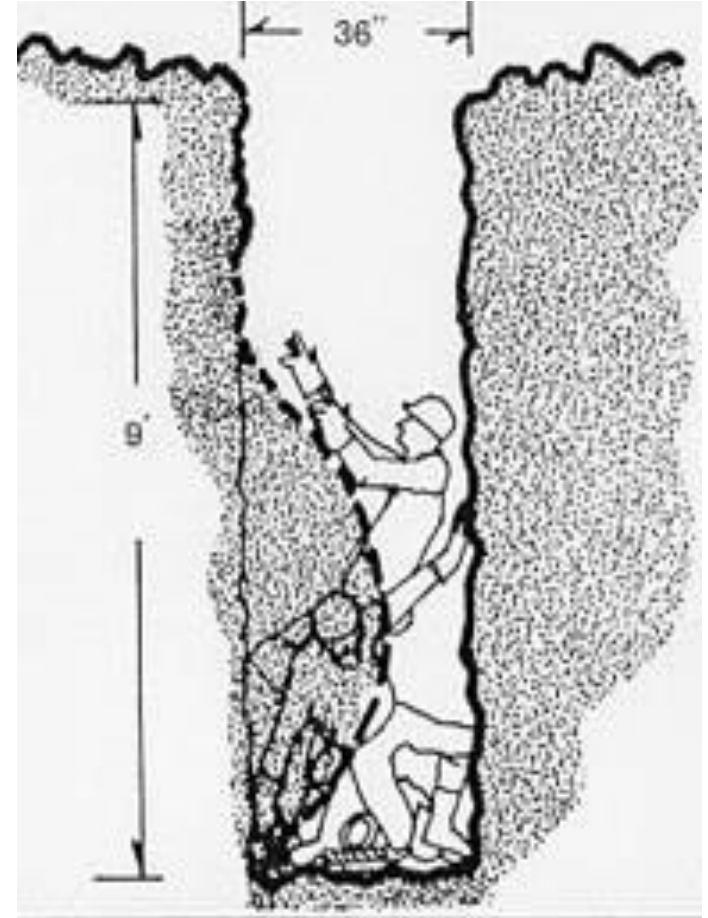
The steel plate on the south wall tipped over, pinning an employee (who was killed ) between the steel plate and the pipe casing.

At the time the plate tipped over, a backhoe was being operated adjacent to the excavation.



# Hazardous Work

- Working in excavations is one of the most hazardous construction operations
- Most accidents occur in trenches 5-15 feet deep
- There is usually no warning before a cave-in
- On average a worker has 6-8 minutes to live if buried alive.



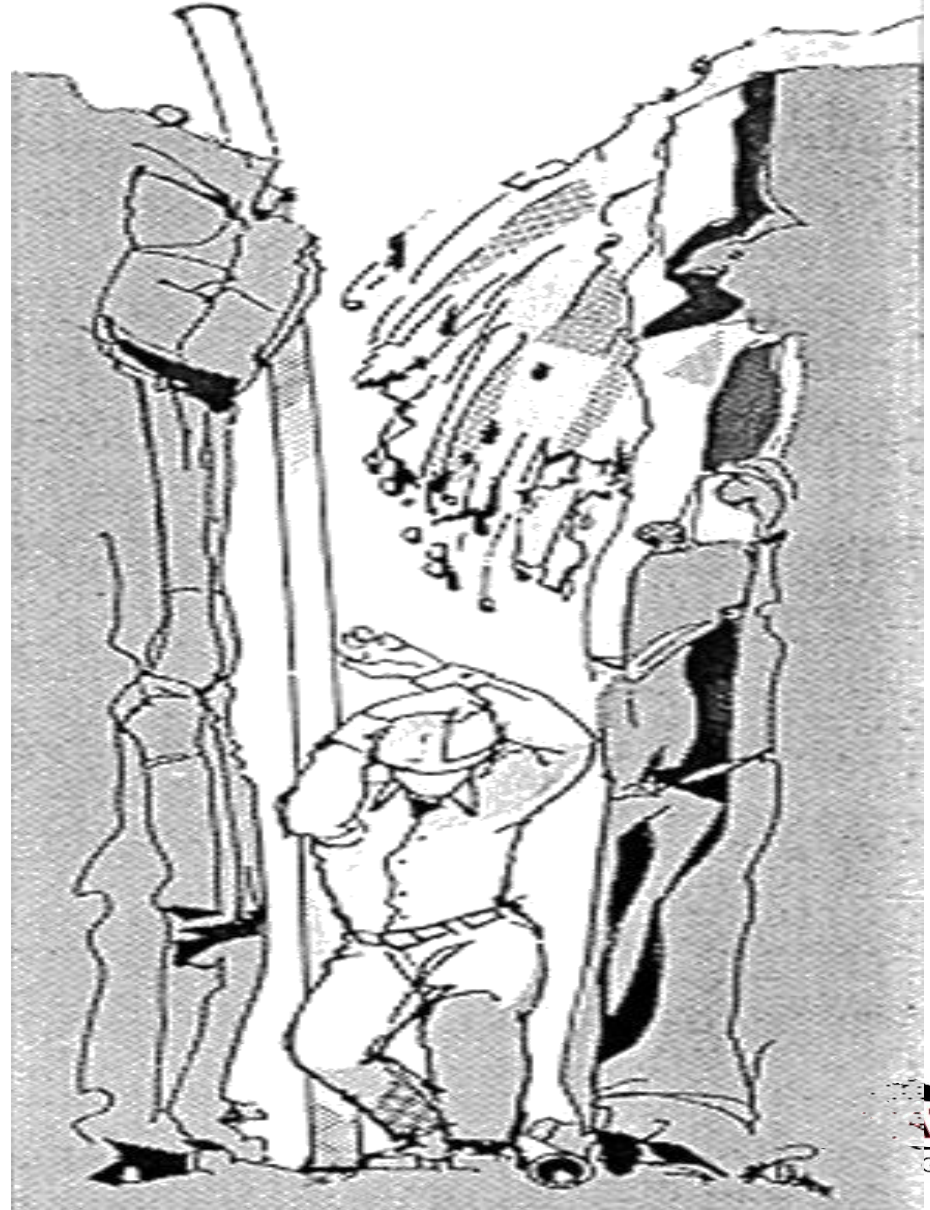
# Excavations/Trenches

- What are the Hazards?
  - Cave ins.
  - Struck by
  - Equipment
  - Gas
  - Electrocution
  - Loose Rocks
  - Falls

# Caught Between - Report #22

## Brief Description

An employee was installing a small diameter pipe in a trench 3 feet wide, 12-15 feet deep and 90 feet long. The trench was not shored or sloped nor was there a box or shield to protect the employee. Further, there was evidence of a previous cave-in. The employee apparently reentered the trench, and a second cave-in occurred, burying him. He was found face down in the bottom of the trench.



# Excavations/Trenches

- For trenches deeper than 5 feet you must use one of the 3 S's.
  - Slopes
  - Shield
  - Shores
- Trenches deeper than 4 feet must have access and egress – Ladders, stairs or ramps.
- Poll Question #5
- It's OK to enter an 8 foot deep trench under the following conditions: (check all that apply)

# What's Wrong With This Picture?



# Caught Between - Report #15

## Brief Description

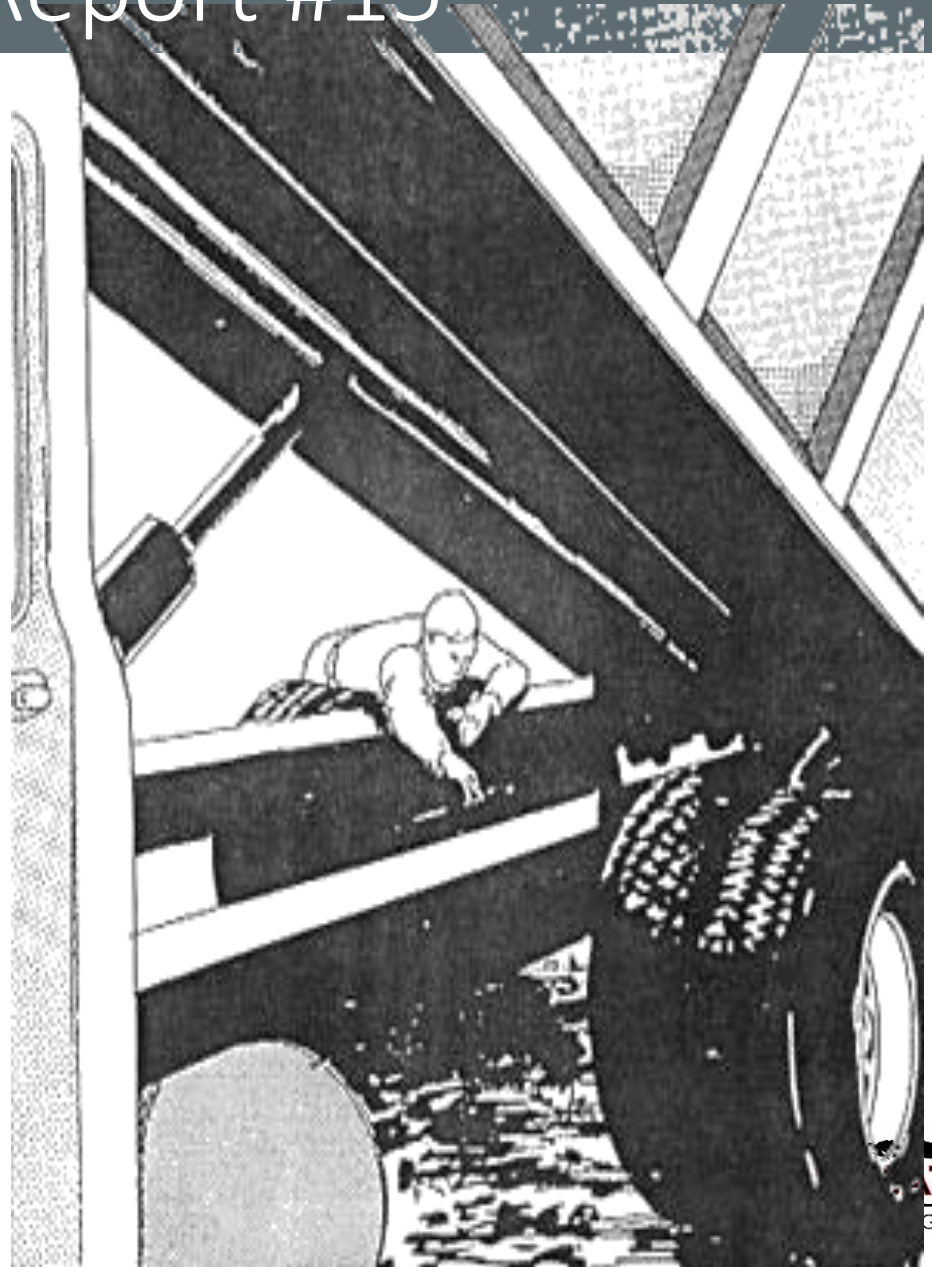
A truck driver was crushed and killed between the frame and dump box of a dump truck.

[see report]...

The dump box then dropped suddenly, crushing his head.

[see report]...

The employee had not received training or instruction in proper operating procedures and was not made aware of all potential hazards in his work.



# What's Wrong With This Picture?





# What's Wrong With This Picture?



# Struck By - Recognize Any Hazard(s)?



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# Struck By - Recognize Any Hazard(s)?



# Struck By - Recognize Any Hazard(s)?

