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PV Safety

Critical OSHA Topics for Solar Safety:
(Most Common for solar installation work.)

- Falls
- Electrocution
- PPE
- Other – Ladders, Excavations, Power Tools

Falls

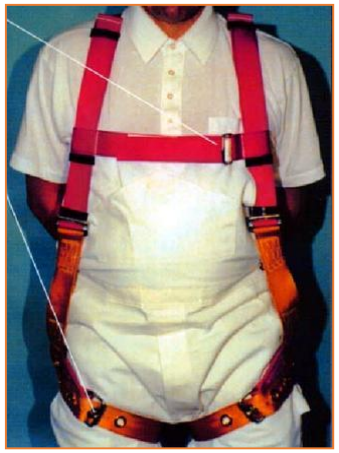
- Part of the OSHA Focus (Fatal) Four
- Largest killer of construction workers – 34%

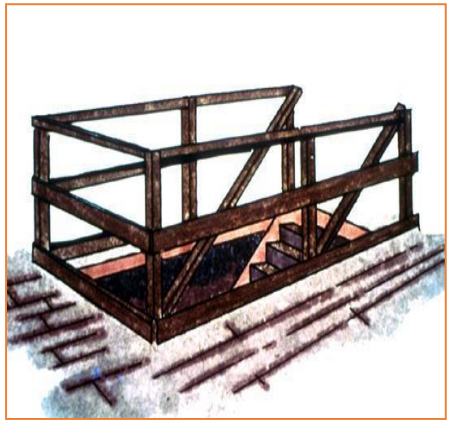
Fall protection is required when working 6’ or higher.

(Pictures throughout courtesy of OSHA training materials.)

Fall Protection Options

1. PFAS (Personal Fall Arrest System) – Most used
2. Guardrails – Most used
3. Safety Nets
4. Strong Cover
5. Safety Monitors





Fall Protection Options

1. PFAS (Personal Fall Arrest System)

Each anchor point must hold 5000 lbs.

- **You must be trained how to properly use PFAS.**
- **PFAS = anchorage, lifeline and body harness.**

Fall Protection Options

2. Guardrails

- **Top rails between 39 and 45 inches tall**
- **Toeboards at least 3 1/2 inches high**
- **Must be able to support 200 lbs.**

Electrocution

- Part of the OSHA Focus (Fatal) Four
- 2nd Largest killer of construction workers – 10%

Electrocution

There are four main types of electrical injuries:

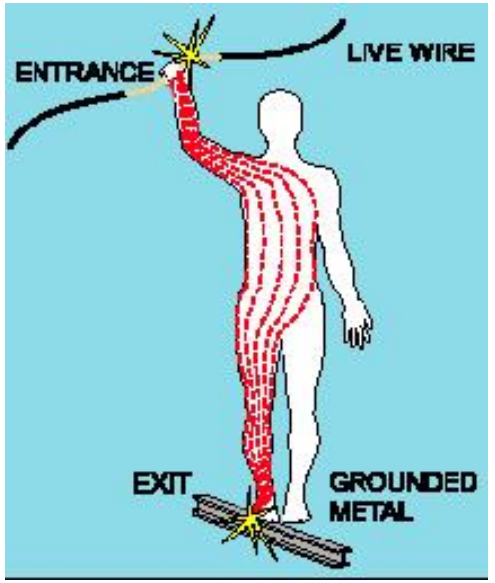
1. Electrocution or death due to electrical shock
2. Electrical shock
3. Burns (caused by arc flash or arc blast)
4. Falls (caused by shock)

Electrocution

Severity of the shock depends on:

- Path of current through the body.
- Amount of current flowing through the body (amps).
- Duration of the shocking current through the body.

- LOW VOLTAGE DOES NOT MEAN LOW HAZARD



Electrocution

- Currents above 10 mA* can paralyze or “freeze” muscles.
- Currents more than 75 mA can cause a rapid, ineffective heartbeat -- death will occur in a few minutes unless a defibrillator is used.
- 75 mA is not much current – a small power drill uses 30 times as much.

* mA = milliampere = 1/1,000 of an ampere

Electrocution

Burns:

- Most common shock-related injury.
- Occurs when you touch electrical wiring or equipment that is improperly used or maintained.
- Typically occurs on hands.
- Very serious injury that needs immediate attention.

Falls:

- Electric shock can also cause indirect injuries.
- Workers in elevated locations who experience a shock may fall, resulting in serious injury or death.

Electrocution

How to mitigate the chance of an electrical injury:

- Proper grounding
- Using GFCI's
- Using fuses and circuit breakers
- Guarding live parts – Lock out/Tag out
- Proper use of flexible cords
- Training
- DO NOT work on live circuits

GFCI
(Ground Fault
Circuit Interrupter)

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Personal Protective Equipment (PPE)

- Types of PPE
- Engineer out the hazard first, PPE is secondary

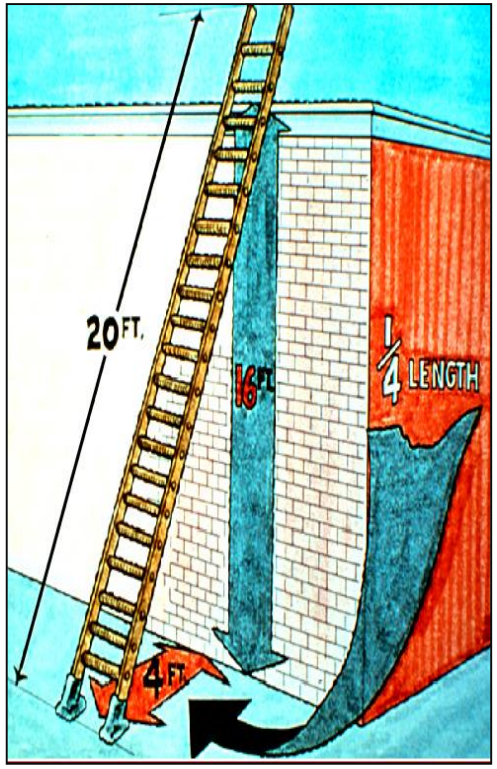
Class E Hard Hat

ANSI Z87.1
Certified
Safety Glasses

Other Solar Safety Topics

Ladder Safety

- Position extension ladder in 1 to 4 ratio
- Extend ext. ladder 3’ above roof surface
- Tie off ext. ladder to roof to secure
- Do not exceed ladder weight capacity
- 3 points of contact on ladder at all times



Other Solar Safety Topics

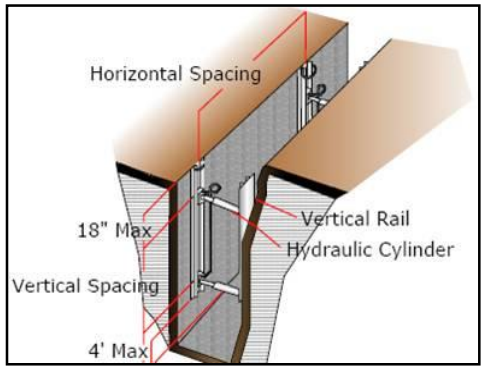
Excavation Safety

Trenches or excavations 5 ft or deeper can be dangerous due to possible cave-in

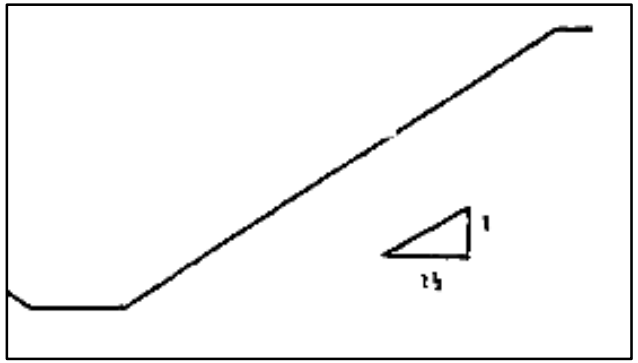
Don’t forget means of egress every 25’

Protective systems

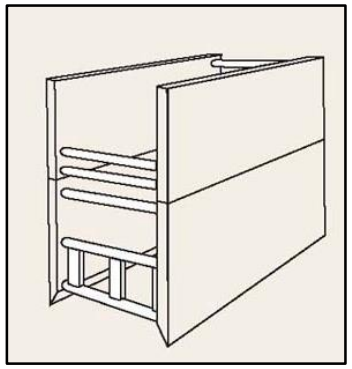
- Support/shoring systems
- Sloping and benching
- Shielding systems (trench boxes)



Shoring



Sloping



Shielding

Other Solar Safety Topics

Power Tool Safety – Common power tools for solar work:

- **Drill**
- **Impact driver**
- **Band saw**
- **Sawzall**

Usage Precautions:

- Disconnect tools when not in use, before servicing and cleaning, and when changing accessories.
- Keep people not involved with the work away from the work.
- Secure work with clamps or a vise, freeing both hands to operate the tool.
- Don’t hold the switch button while carrying a plugged-in tool.
- Keep tools sharp and clean.
- Consider what you wear – loose clothing and jewelry can get caught in moving parts.
- Remove damaged electric tools & tag them: “Do Not Use.”

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Thank You

Be Safe when you install!

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