



Ladder Safety

On the final day of Fall Prevention Week, we bring you resources to remind you of the importance of ladder safety. When it comes to ladder and scaffold safety, it's best to stay on top of things—**because one wrong step can lead to a “rung” conclusion.**

“
I will follow safe work practices when climbing, descending or working from ladders.

Discuss/Verify/Confirm

- Workers use 3-points of contact technique, keeping their body facing the ladder and near the middle of the ladder when ascending/descending.
- Fall arrest systems are being utilized when required per local requirements.
- Workers tied-off when working from ladders with greater than or equal to 6' (2 m) fall potential.

Watch this video for a quick overview of the importance of inspecting your fall protection system.



AFPM Resources

- Ladders: The Facts
- Safety Toolbox: Things You Should Never Do with a Portable Ladder
- 3 Points of Control and Discussion Outline
- Falls from Ladders Can be Prevented
- Falls from Scaffolds Can be Prevented
- Falls from Ladders
- Scaffolds

Other Industry Resources

- Hazard Alert from CPWR: Ladders
- Hazard Alert from CPWR: Scaffolds
- Toolbox from Energy Institute—toolbox.energyinst.org/home

Questions for Leaders and Supervisors

- How do you assess the risk of working from ladders, at your work location/s?
- How do you communicate the 3-points of contact technique to your workers?

After reviewing the resources—test your knowledge



Practice sharing documents are meant to share information on process or occupational safety practices in order to help improve safety performance and awareness throughout industry. The goal is to capture and share knowledge that could be used by other companies or sites when developing new safety practices or improving existing ones. The practices being shared have been used by an industry member, but this does not mean they should be used or that they will produce similar results at any other site. Rather, it is an option to consider when implementing or adjusting programs and practices at a site. This remains true even if a practice sharing document uses mandatory language, such as shall, must, never, etc., which only reflects a potential option to consider.

By themselves, the practice sharing documents are not standards or recommended practices. They are not intended to replace sound engineering judgment. They do not preclude the use of alternative methods that comply with legal requirements. A subject matter expert should be consulted prior to determining whether a practice sharing document can be used in any specific situation.



LADDERS

The Facts

Ladders are an important tool that are frequently used by both employees and contractors. The two keys to ensure we use ladders safely are: 1.) Select the correct ladder for the job and 2.) Make sure you are using it properly. See below for example of ladder requirements.



Inspections

- Quarterly Inspections
 - Documented and Marked on the Ladder
- Pre-Use Inspections, look for:
 - broken rungs, split side rails, and loose components



A-Frame Ladders

- Fully open ladders and lock spreaders before climbing
- Do not stand or sit on the top two rungs
- Ensure ladder is set up on level stable ground

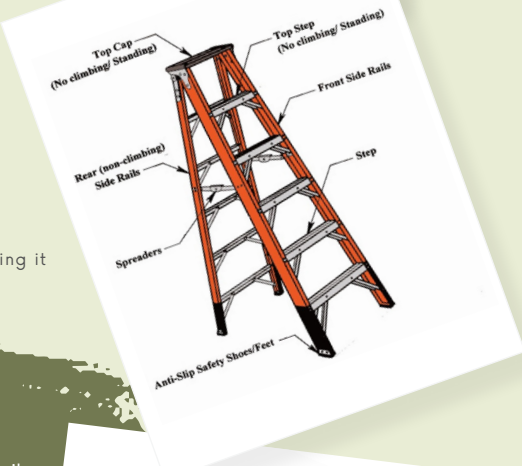


Extension Ladders

- Secure the foot of the ladder on level surface before extending it
- Base should extend 1ft for every 4ft of height
- Secure the ladder at the top to prevent slippage

APPENDIX D LADDER INSPECTION CHECKLIST		
YES	NO	Is the ladder sturdy?
YES	NO	Are all ladder steps firmly attached to the side rails?
YES	NO	Are the side rails free from cracks or splits?
YES	NO	Is all the hardware secure and in good working order?
YES	NO	Are ladder feet secure and in good working order?
YES	NO	Is the ladder free from sharp edges, burrs, etc.?
YES	NO	Is the ladder free from excessive dirt, grease, etc.?
YES	NO	Are ropes, pulleys and locks on extension ladders in good condition?
YES	NO	Are locks and spreader on stepladders in good condition?

If a "NO" is answered for any of the above or if a defect is observed, the ladder should be tagged as unusable and removed from service. If the defect cannot be corrected, the ladder should be destroyed or discarded.

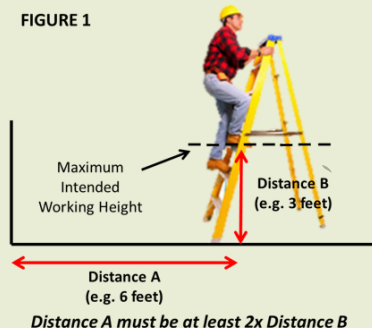


USING A LADDER ON AN ELEVATED SURFACE?

(Use one of the three options below)

1. Set the ladder up so that the distance between you and the guardrail is double the height you must climb (see figure 1).
2. Have scaffold built to extend the height of the guardrail.
3. If neither of the above options are possible, you should find an appropriate tie off location and use fall protection equipment.

FIGURE 1





SAFETY *Toolbox*

Things You Should **NEVER** Do With A Portable Ladder

We've had several toolbox talks about the selection and use of various types of ladders, as well as actions and conditions to avoid when using a ladder. We haven't discussed the ways that people *misuse* portable ladders in ways that they are not intended for use. Listed are a few things you should ***never*** do with a portable ladder.

- ◆ **Never use your portable ladder as a make-shift scaffold stand or scaffold board** : setting up two step ladders and placing a walk board horizontally from one ladder to the other is an invitation to fall.– See picture below: Is this shortcut worth the injuries that are about to happen??
- ◆ **Do not climb up the back side of a step ladder:** The cross braces on the back of your portable step ladder are just that; braces! They are not designed to support your weight and the spacing between the braces are too far apart to climb safely.
- ◆ **Do not use your portable ladder as a tool or equipment rack:** Hanging or laying tools on the side rails or on the rungs of your ladder is an invitation to an accident. Someone may accidentally step on them as they climb up or down the ladder and cause an injury.
- ◆ **Never set up your ladder in the back of a truck bed, on top of a trailer, or in the bucket of a front end loader or other vehicle:** Even though we would like to believe there is no way the vehicle could move and cause your ladder to fall, unintended things do happen on occasion!
- ◆ **Do NOT salvage and use unbroken sections of a broken ladder:** If one part of the ladder is damaged or broken, **TAKE THE ENTIRE LADDER OUT OF SERVICE!**
- ◆ **Last but not least, DO NOT ALLOW two or more people to climb or work from a ladder at the same time:** This usually results in too much weight on the ladder, and also makes the ladder less stable than when used by only one person.



Be Smart! Be Safe!

https://oshatraining.com/wp-content/uploads/OSHA_Training_Toolbox_Talk_-_Seven_Things_You_Should_NEVER_Do_With_Your_Portable_Ladders.pdf



3 Points of Control



3 Points of Control Topic Outline

1. Introduction and Safety Statistics
2. 3 Points of Control Explained
3. Before Using a Ladder
 - a) Proper PPE
 - b) Inspecting the Ladder
4. Using 3-Points of Control
 - a) Ascending a descending ladders using 3PC
 - b) Transitioning to/from ladders using 3PC
5. Maintaining 3PC on Portable Ladders
6. Summary and Closing



3 POINTS OF CONTROL

**USE 3 POINTS OF CONTROL
WHEN YOU CLIMB LADDERS**

**KNOW YOUR SITE-SPECIFIC
REQUIREMENTS**

**INSPECT A LADDER BEFORE
YOU USE IT**

**ENSURE YOU WEAR THE
PROPER PPE**

**Safety is our core value! Use the 3 Points of
Control method every time you use a ladder!**

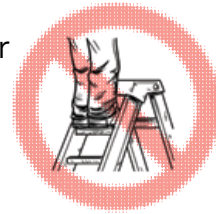


FALLS FROM LADDERS CAN BE PREVENTED!

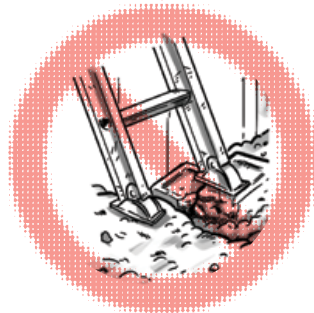
- ✓ Choose the right ladder for the job
- ✓ Maintain three points of contact
- ✓ Secure the ladder
- ✓ Always face the ladder



DON'T
overreach



DON'T
stand on top or on the
top step of a stepladder



DON'T
place the ladder on
uneven footing

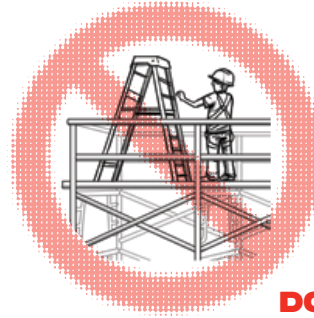


PLAN ahead to get the job done safely.
PROVIDE the right ladder and equipment.
TRAIN everyone to use the equipment safely.

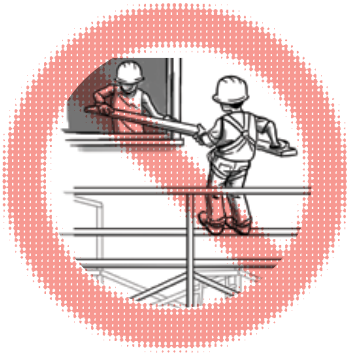


FALLS FROM SCAFFOLDS CAN BE PREVENTED!

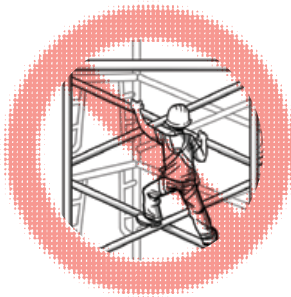
- ✓ Use fully planked scaffolds
- ✓ Ensure proper access to scaffold
- ✓ Plumb and level
- ✓ Complete ALL guardrails
- ✓ Ensure stable footing
- ✓ Inspect before use (by competent person)



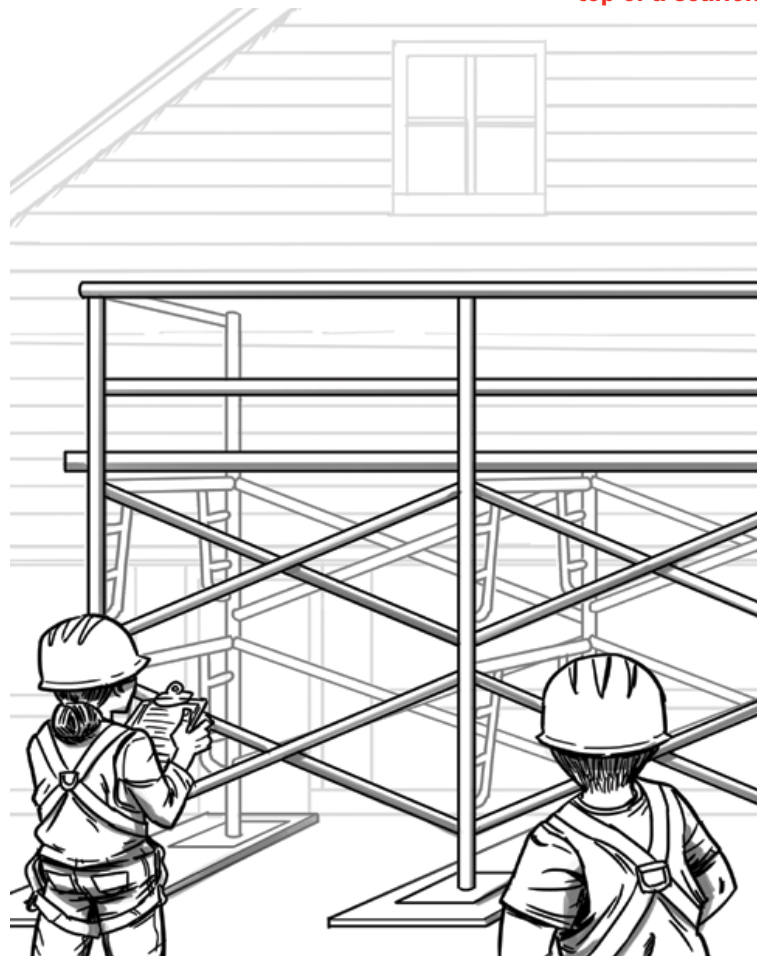
DON'T
use a ladder on
top of a scaffold



DON'T
stand on guardrails



DON'T
climb cross-braces



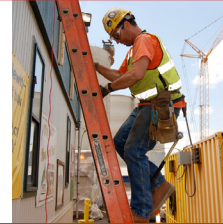
PLAN ahead to get the job done safely.
PROVIDE the right scaffold and equipment.
TRAIN everyone to use the equipment safely.



HAZARD ALERT

CPWR 
 THE CENTER FOR CONSTRUCTION
 RESEARCH AND TRAINING

LADDERS



Am I in danger?

If you use a ladder on a construction site, then the answer is **YES**.

Falls are the leading cause of deaths and injuries in the construction industry.

- Each year, more than 4,000* construction workers are injured so seriously by ladder falls that they miss work.
- Each year, more than 70* construction workers die in falls from ladders.



PHOTO COURTESY OF ROBERT CARR, PH.D., P.E.

Electrocution Hazard

Falls aren't the only way to get hurt on a ladder!

Contact with overhead power lines can be fatal. Make sure your ladder is positioned **at least 10 feet away from power lines**.

Aluminum conducts electricity. A fiberglass ladder is a better choice when working near electricity.



A painter was electrocuted when a metal ladder came in contact with a powerline.



*Source: Dong SX, Wang X, Katz R, West G, Bunting J. 2017. Fall Injuries and Prevention in the Construction Industry <http://www.cpwr.com/sites/default/files/publications/Quarter1-QDR-2017.pdf>

To learn more visit:

- ▶ www.StopConstructionFalls.org
- ▶ OSHA's eTool: Falls - Ladder Safety <http://bit.ly/eToolsFallsAndLadders>
- ▶ NIOSH Resources & Ladder Safety App <http://bit.ly/ResourcesAndLadderApp>

To get more of these Hazard Alert cards and cards on other topics, Call **301-578-8500** or visit **www.cpwr.com**

To avoid a fall ...

1 Inspect the ladder before every use

- Inspect the rails, rungs, feet, and spreaders or rung locks for defects or damage **every time** you use a ladder.
- If you see any damage, **tag it "do not use"** and request another ladder in proper working order.
- Always check your ladder's duty rating to make sure it will support you and your toolbelt!



Not every defect is this obvious

2 Position your ladder properly

For all ladders:

- Make sure you have a level, solid footing for your ladder.
- Position the ladder near your work to avoid overreaching.

For extension ladders:

- Set the base one foot away from the building for every four feet of height.
- Tie off the ladder at the top – and bottom where possible!

The minute you take to tie off could save your life.

3 Use the ladder safely

- Maintain three-point contact with the ladder at all times: two hands and a foot or two feet and a hand.*
- Do not use the top step/rung of a ladder unless it was designed for that purpose, or stand on the top three rungs of a straight, single, or extension ladder.*
- Have a co-worker hold the ladder to steady it as you climb up and down.
- Always face the ladder when moving up or down.
- **Do not carry tools and materials while climbing. Use a rope to haul or hoist materials to the upper level.**

*Source: OSHA Quick Card, https://www.osha.gov/Publications/portable_ladder_qc.html



PHOTO COURTESY GREATER PA REGIONAL COUNCIL OF CARPENTERS

Is a ladder the right equipment for the job?

For **work at heights**, consider using a **scaffold** or **aerial lift**. The wider work platform and guard rails can reduce your risk of falls.

If you think you are in danger:

Contact your supervisor.
 Contact your union.

Call OSHA
1-800-321-OSHA



**HAZARD
 ALERT**

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SCAFFOLDS

TIPS FOR SAFE WORK



Am I in danger?

Every year, construction workers are injured or killed falling from scaffolds because there was no fall protection.



This worker is at risk because there is no fall protection.

Falls are not the only hazard.

You can also be injured or killed:

- When a scaffold collapses because it is unstable or overloaded.
- By tools and materials that fall off a scaffold.
- By electrocution. Scaffolds should be at least 10 ft away from overhead powerlines.*



*OSHA Standard 29 CFR 1926.451(f)(6)

If you think you are in danger:
 Contact your supervisor.
 Contact your union.
 Call OSHA
1-800-321-OSHA

To learn more visit:
www.stopconstructionfalls.org

To receive copies of this Hazard Alert and cards on other topics:

call **301-578-8500** or visit
www.cpwr.com

To work safely...



PHOTO COURTESY GREATER PA REGIONAL COUNCIL OF CARPENTERS

1 Set scaffold on a solid base

Scaffolds must be set up with a solid base, decks that are level, and posts or legs that are plumb. The base of the scaffold must have base plates (often part of the screw jack) and mud sills for added support. It should also have screw jacks for leveling inserted in the legs of the scaffold.



*Proper anchorage point, lanyard and harness.

2 Use proper fall protection

If the working deck on your scaffold is 10 ft or higher, OSHA requires you to have some type of fall protection. Fall protection may be a guardrail system or a Personal Fall Arrest System.*

3 Check for points of scaffold safety

Before use, a **competent person*** must check to make sure:

- There is a way to get on and off the scaffold that meets OSHA rules for access.
- Work areas are fully planked or decked.
- Guardrails are installed properly or alternative fall protection is provided.
- Guys and ties to the building are installed properly and in good condition.

*A competent person is someone who is capable of identifying existing and predictable hazards in surroundings and who has authorization to take corrective measures to eliminate hazards. (Source: OSHA)

Get trained.

There are many types of support and suspended scaffolds. The Occupational Safety and Health Administration (OSHA) requires employers to provide training:

- By a **competent person** to all workers assigned to erect and/or disassemble a scaffold.
- By a **qualified person*** to all workers who work on a scaffold.

Your employer must provide training on the type of scaffold you are assigned to erect, disassemble, or work on. You must be trained to identify dangerous conditions and to work safely.

*A qualified person is someone who by knowledge, training and experience has successfully demonstrated their ability to resolve problems relating to the project. (Source: OSHA)



Module: Working at Heights
Topic: Falls from Ladders

Objective:

This lesson will aid employees understanding the common causes of falls from ladders and how to avoid them.

Key learning objectives:

- Common causes of ladder falls
- How to avoid falls from ladders
- Benefits of working safe from ladders

Group discussion:

Ladder accidents can come from a wide variety of issues, but the following four causes account for the vast majority and if the simple loss prevention tips for each cause are followed ladder accidents can almost be eliminated.

1. Many injuries occur due to ladders being too short for a specific task, workers will place the ladder on something to extend its reach or will stand on the top rung to gain the necessary height.
2. To protect yourself from damaged or broken ladders make sure to thoroughly inspect each ladder before using it. If any damage is found do not use the ladder until it has been safely repaired to the manufacturer's specifications or it has been replaced.
3. 50% of all ladder-related accidents were due to individuals carrying items as they climbed. Always maintain 3 points of contact with the ladder to ensure stability. Also, never attempt to reach for something while on the ladder, it is much safer to get off the ladder, move it, and then climb back up.
4. Ladders should never be placed in front of a door that is not locked, blocked, or guarded. It is important to have a helper support the base while a ladder is being climbed until the ladder is secured at the top.



Key learning knowledge check:

1. What must never be done with a ladder to gain height?
2. What percent of accidents happen because someone is carrying an object while climbing?
3. Ladders should never be placed in front of a door that is not what?

“There is no place for spectators.” We will Break the Trend!

Answers: 1. Place it on something or stand on the top rung; 2. 50%; 3. Locked, blocked or guarded;



Module: Working at Heights
Topic: Scaffolds

Objective:

This lesson will discuss some general guidance about scaffold erection and use as it pertains to fall protection.

Key learning objectives:

- Where and how to tie off
- Work platforms
- Avoiding self-set traps

Group Discussion:

If you're working on a scaffold and you're 6 feet off the ground, you must use fall protection—it doesn't matter what type of scaffold you're working on. In most cases, a personal fall arrest system is a good choice for fall protection. The competent person on site will be able to tell you where you are permitted to tie off. Remember, you are never allowed to tie off to electrical conduits, vents, piping, or equipment that is not designed to withstand 5,000 pounds of force.

If you are involved in scaffold erection, you should:

1. Always work off planks or lumber or fully decked floors, avoid standing or walking on runners as much as possible.
2. Never use cross-braces as a means of access or egress. They may be handy to climb on, but they are not designed for that purpose. Always go up a ladder, internal stairway, or a built-in ladder.
3. It is important to try to tie off overhead first when possible and not below your waist.
4. It is important to complete your work as you go. Do not leave unprotected missing handrails, missing planks, lumber or unprotected holes in the deck. Just because the scaffold is incomplete doesn't mean someone may not try to use it or that you or one of your co-workers might not fall into a self-made trap.



Key learning knowledge check:

1. What should you never tie off to?
2. When erecting a scaffold what surface should you work off of?
3. How can you leave a self-made trap?

“There is no place for spectators.” We will Break the Trend!

Answers: 1. Electrical conduits, vents, piping, or equipment that is not designed to withstand 5,000 pounds of force; 2. Planks, lumber or fully decked floors; 3. By leaving unprotected missing handrails, missing planks, lumber or unprotected holes in the deck.