



Best Practices for Portable Ladder Safety

Scope

The scope of this best practice is to provide guidelines for injury prevention by safely using portable ladders. Portable ladder safety is included in OSHA's General Industry Standards 29 CFR Part 1910 Subpart D – Walking-Working Surfaces and OSHA Construction Standards 29 CFR Part 1026.1053 (Subpart X – Stairways and Ladders). The reader must be thoroughly familiar with these regulations as they apply to portable ladders. In cases where the standards may differ, the most stringent and safer of the standards will apply.

Key Points

- Consider a “ladder last” guideline. Ask if a ladder is the best tool for each job.
- Ladders shall be inspected before use for defects and other hazards, such as slippery surfaces.
- Maintain three points of contact when on a ladder.
- Use the “belt buckle rule” when on a ladder. This means the centerline of the body must be maintained between the side rails.
- Refer to Table 1 for a quick summary of best practices related to tying off, holding, and using fall protection when on a ladder.

Portable Ladder Types

This best practice applies to the following primary portable ladder types: step ladders, platform ladders, straight ladders, and extension ladders. Descriptions of each follow:

- Step Ladder: A self-supporting ladder, non-adjustable in length, having flat steps and a hinged back.
- Platform Ladder: A self-supporting ladder that is non-adjustable in length, with a platform provided at the highest intended standing level. It has a hinged design for ease of storage and is intended for use by one person. The top platform is surrounded on three sides by a railing that is at least 20 inches higher than the platform surface.
- Single Straight Ladder: A non-self-supporting ladder that is non-adjustable in length, consisting of one section.
- Extension Ladder: A non-self-supporting ladder, adjustable in length, consisting of multiple straight telescoping sections.

Ladder Composition

The rails on a ladder are generally composed of wood, metal, or fiberglass. The following information outlines important details regarding the different properties of these materials as they apply to ladders.

- Wood Ladders: Wood ladders are electrically non-conductive and are the best natural insulator against heat. However, they can be electrically conductive if wet. Wood



ladders are heavier than metal and susceptible to rotting and splitting in the absence of a protective finish.

- **Metal Ladders:** Metal ladders are relatively strong and lightweight, but they are prone to dent, bend, and conduct heat. They must not be used when working on or near electrical wires or when working around energy sources. Metal ladders must be labeled with a “DANGER” sticker indicating an electrocution hazard.
- **Fiberglass Ladders:** Fiberglass ladders are strong and electrically non-conductive, but they are generally heavier than metal ladders. Fiberglass may chip or crack upon impact, and when overloaded, fiberglass may crack to the point of failure.

Ladder Selection

The type and composition of a ladder necessary for a particular job shall be determined based upon the specific task and requirements. The American National Standards Institute (ANSI) requires that a duty rating sticker be placed on the side of each ladder. When selecting a ladder, ensure that the ladder has an adequate proper duty rating to support the combined weight of the user and the material. Materials include the weight of clothing, protective equipment, and supplies being carried or stored on the ladder.

Ladder Storage and Transport

As a best practice, ladders should be stored in a location out of direct sunlight and away from chemicals or materials that may cause decay, damage, or a slipping hazard. Materials shall never be stored on a ladder or hung from a ladder in storage. All ladders shall be secured during transport to prevent damage.

Before Use

Consider adopting a “ladder last” guideline. Ask if using a portable ladder is the right tool for each job. Would a scaffold or aerial lift be safer? Consider a Job Safety/Hazard Analysis if there’s any doubt.

Inspect portable ladders prior to each use. Do not use portable ladders with slippery material on the rungs, rails, or feet or having structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components. These shall be immediately marked or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired. Ensure the capacity of the ladder is legible on the ladder and that the selected ladder is adequate for the job to be performed.

Ladder Setup and Securement, General

Employees shall ensure that the following “proper use” criteria are met prior to setup:

- Ladders shall be set-up on a flat, level surface. When faced with uneven ground, most people use a brick or a board to build up the low side of the ladder, but best practice and OSHA recommendations are to dig out the high side of the ladder instead;



- Ladders shall not be placed in front of a door opening unless the door is blocked open, locked, or guarded;
- Ladders shall not be placed in areas used by pedestrians or vehicles unless the area is properly barricaded or guarded;
- Ladders shall not be used horizontally as a platform, a runway, or scaffold;
- Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height;
- The area around a ladder must remain clear from debris, equipment, etc.;
- Ladders shall not be setup or used on slippery surfaces such as snow, ice, or oily deposits;
- Check for overhead hazards, such as hot/sharp surfaces, electrical hazards, etc. when setting up a ladder;
- Ladders shall not be used by more than one employee at a time unless the ladder is specifically designed for more than one climber; and
- No ladder shall be used to gain access to another location unless the top of the ladder extends at least 3 feet above the point of support, at eave, gutter, or roofline.

Additional Ladder Setup and Securement, Step Ladder

- For step ladders, check the spreader to ensure that it is locked prior to use. A step ladder shall not be used in a folded position.

Additional Ladder Setup and Securement, Straight and Extension Ladders

- The proper angle for setting up a straight or extension ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface;
- Shorter ladders shall not be spliced together to create longer sections;
- The minimum overlap for any two sections on an extension ladder shall be at least three feet; and
- At a minimum, the bottom shall be securely blocked against a fixed object such as a cleat, tied to the base of the wall, or footed against another person.

Ladder Climbing and Standing

When climbing or standing on a ladder, the following safety precautions shall be followed:

- Best practice is for straight and extension ladders to be tied off at the top to prevent movement while in use and if left unattended. If it isn't possible to tie off the top of the ladder, best practice is for someone to hold the ladder for the individual working on the ladder. See Table 1;
- When working from straight, extension, and step ladders, best practice is to require fall protection if working more than 4 feet off the ground. Platform ladders are designed a platform and railing, so fall protection is not needed. See Table 1;
- Use the ladder as intended;
- When ascending or descending, the user must face the ladder;



- At least one hand must be free to grasp the ladder at all times. Maintain at least three points of contact with the ladder (two feet and one hand or two hands and one foot) when climbing the ladder;
- Maintain three points of contact when working from straight, extension, and step ladders;
- The top two steps of a stepladder and the top two rungs of a straight or extension ladder shall not be used for standing unless designed to do so, such as a platform ladder;
- Shoes and rungs shall be free of mud, soil, paint, ice, or other slippery materials;
- The top rest for straight and extension ladders shall be rigid and have strength to support the load;
- Do not stand on the pail shelf of a step ladder,
- Do not stand on the back bracing of a step ladder,
- Do not straddle the front and back of a step ladder,
- Supplies or equipment shall not be hand carried by the worker on the ladder; instead, a rope, block, tool belt, or pulley system shall be used to carry tools or equipment;
- When working to the side of a ladder, the centerline of the body must be maintained between the side rails. Do not overreach or lean too far to one side. Follow the “belt buckle rule,” keeping one’s belt buckle between the rails;
- Do not move, shift, or extend ladders while in use;
- Never climb onto the back side of a ladder, slide down the rails of a ladder, or sit on ladder rails;
- If one feels sick or dizzy while climbing or standing on a ladder, do not try to climb down in a hurry. Drape your arms around the rungs and rest your head against the ladder until you feel better. Then climb down slowly; and
- If conditions such as inclement weather or wind occur while working, work shall be abandoned on the ladder until work conditions improve.

Ladder Type	Tie Off Ladder when in Use?	Tie Off Ladder when Ladder Left Unattended?	Use Fall Protection >4'?
Step Ladder	No	No	Yes
Platform Step Ladder	No	No	No
Fixed Ladder	Tie off ladder or hold if ladder can't be tied off	Yes	Yes
Extension Ladder	Tie off ladder or hold if ladder can't be tied off	Yes	Yes

Table 1 – Summary of Ladder Securement and Fall Protection Best Practices

Work Near Energized Circuits or Equipment

Safe work practices shall be maintained to prevent electrical shock or other injuries caused by contact with energized electrical equipment or circuits. Under no circumstances shall metal or



wet wooden ladders be used where contact could occur with energized electrical equipment or circuits.

Training

The employer shall ensure that each employee has been trained by a competent person in the following areas of portable ladder hazards, as applicable:

- The nature of fall hazards in the work area;
- The proper construction, use, placement, conductivity, method to secure, and care in handling of portable ladders;
- The maximum intended load-carrying capacities of portable ladders used.

Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with this section. Best practice is to conduct recurring training every two to three years, or more frequently based on incidents and changing conditions or equipment.

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