

Smart and Safe Ladder Usage Prevents Falls and Tragedies

Superstitious people consider walking under a ladder to be bad luck, but most real ladder danger arises from misuse or defective ladders. Falls are one of the most common hazards in occupational settings, with falls from ladders making up nearly a third of fall related deaths. The good news is common sense, thinking before climbing, and following safe usage and selection guidelines go a long way towards preventing ladder falls, injuries, and deaths.

Materials and types. Ladders come in a wide variety of lengths, types, and materials. The most common materials are wood, metal, and plastic/fiberglass. OSHA 29 CFR-1910 provides safety guidelines for using ladders. ANSI (American National Standards Institute) provides ladder guidelines with a focus on materials, construction and testing requirements, and labeling. Only Type I (Industrial) and Type II (Commercial) ladders should be used in the workplace; these ladders are constructed for more rugged work conditions and have higher weight capacities. ANSI provides detailed requirements for Wood and Metal ladders:

Wood ladders. ANSI A14.1-2000. Wood ladders should be constructed of a high-density wood and be free of sharp edges and splinters. Visual inspection should reveal no shake, wane, compression failures, decay, or other irregularities.

Metal ladders. ANSI A14.2-2000. For metal ladders, the specific design and construction requirements are minimized because of the wide variety of metals and design possibilities. However, all design need to meet the ANSI performance requirements and shall be without structural defects or accident hazards, such as sharp edges and burrs.

Ladder Inspection. The manufacturer's instructions should always be read before using a ladder for the first time. Before each use, a ladder should be thoroughly inspected. All rungs should be firm and unbroken, braces should be fastened securely, and ropes, pulleys, locks, wheels, joints and other moving parts need to be in good working order. If an inspection reveals damage, the ladder should be repaired or taken out of service.

Ladder Set-up. A good rule of thumb is when standing on the ground at the base of a ladder, the climber should be able to grab the rails with arms extended out straight. If the climber bends at the waist, the ladder is too shallow. If the climber bends their arms, the ladder is too steep. Additional safe ladder set-up guidelines include:

- Place at a 75% degree angle - one foot away from the wall for every four feet of working ladder height
- Ensure feet of a ladder are level and positioned solidly on the ground
- Use boards under the legs for support if ground is soft or uneven
- Ensure both sides of ladder are against a wall or other support
- Do not place on top of other objects
- Do not place in front of doorways
- If a ladder must be used near a door, make sure door is blocked or a second person is at the ladder base
- Do not extend a ladder three or more feet over a point of support
- If near power lines or other sources of electricity, consider fiberglass or wood ladders to avoid electrical shock
- When possible, tie off ladders to prevent slipping
- When using a stepladder, ensure legs are spread fully and locked into position

Ladder Climbing. Safe ladder climbing requires common sense and thinking before you climb.

- Test the ladder to verify it is secure
- Make sure hands, footwear, and rungs are dry
- Have a second person hold the bottom of the ladder
- Have three-points of contact on the ladder at all times - both hands and one foot, or one hand and two feet
- Do not carry heavy materials or equipment when climbing
- Always face the front of the ladder
- Center weight between the side rails
- Do not lean backward or to either side
- Do not stand on the top 2 rungs of a stepladder
- Do not stand on the top 4 rungs of an extension ladder
- Only allow one person on a ladder at a time



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Sources: OSHA: [29 CFR 1910.25](#), [29 CFR 1910.26](#), and [OSHA Guide to Stairways and Ladders](#); ANSI: ANSI A14.1-2007, ANSI A14.2-2007, ANSI A14.5-2007; Grainger; Gowrie Group.