



Ladder Safety

From October 2004 through September 2005 OSHA collected over 1.1 million dollars in fines citing violations of the ladder standard... 98% of those fines were applied to the construction industry.

Ladders are often viewed as very simplistic tools, tools that only take “common sense” to use. Unfortunately, this line of thinking can leave a workplace full of hazards and incidents waiting to happen and leave employees hanging in the wind, literally. “Common sense” is often confused with “common knowledge”. Employers can not take for granted that all employees have the common knowledge to use a ladder safely. It is up to the employer to provide the knowledge to its employees. This is one piece of the puzzle that is often missing and one that can lead to series consequences.

Loads

Self-supporting (foldout) and non-self-supporting (leaning) portable ladders must be able to support at least four times the maximum intended load, except extra-heavy-duty metal or plastic ladders, which must be able to sustain 3.3 times the maximum intended load.

Angle

Leaning ladders need to be positioned at such an angle that the horizontal distance from the top support to the foot of the ladder is about 1/4 the working length of the ladder. Basic rule of thumb: 1 foot out for every 4 feet of ladder height. For example, a twelve foot ladder would be placed three feet from the vertical wall. This provides rigid support and keeps the ladder within its designed center of gravity.

In the case of job-made wooden ladders, the angle should equal about 1/8 the working length. This minimizes the strain of the load on ladder joints that may not be as strong as on commercially manufactured ladders. Basic rule of thumb: 1 foot out for every 8 feet of ladder height.

Rungs

Ladder rungs, cleats, or steps must be parallel, level, and uniformly spaced when the ladder is in position for use. Rungs must be spaced between 10 and 14 inches apart.

For extension trestle ladders, the spacing must be 8-18 inches for the base, and 6-12 inches on the extension section.

Rungs must be so shaped that an employee's foot cannot slide off, and must be skid-resistant.

Slipping

Ladders are to be kept free of oil, grease, wet paint, and other slipping hazards.

Wood ladders must not be coated with any opaque covering, except identification or warning labels on one face only of a side rail.

Other Requirements

- Foldout or stepladders must have a metal spreader or locking device to hold the front and back sections in an open position when in use.
- When two or more ladders are used to reach a work area, they must be offset with a landing or platform between the ladders.
- The area around the top and bottom of ladder must be kept clear.
- Ladders must not be tied or fastened together to provide longer sections, unless they are specifically designed for such use.
- Never use a ladder for any purpose other than the one for which it was designed.

Ladder Inspection

Ladders need to be inspected by a competent person on a periodic basis and after any occurrence that could affect their safe use. Portable ladders with structural defects, such as broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, must either be immediately marked in a manner that readily identifies them as defective, i.e., tagged with "Do Not Use" or similar language, and must be withdrawn from service until repaired.

Center of Gravity

Step ladders are designed to be used at the center of gravity and if you stand on the top two steps of any step ladder, your weight is past the center of gravity and can easily tip over the step ladder.





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The belt buckle rule: Keeping the center of your body between the rails helps maintain the center of gravity while on a ladder. If you lean out past the side rails, the center of gravity of your body and the step ladder can cause the ladder to fall to one side.

When ascending or descending a ladder, always face the ladder, holding both hands on the rails. If you must use materials or tools, hoist them up with a rope or other device. You need both hands when climbing up or down a ladder.

Metal Ladders

Never use a metal or aluminum ladder when working with electricity. That means even when you're changing a light bulb. The metal or aluminum ladder could easily contact an energized electrical wire and serve as an excellent conductor of electricity and you can imagine the result. Don't use metal or aluminum ladders near electricity.

Also protect metal ladders from corrosion, rusting and other caustics that could weaken or damage the ladder. This is particularly important in areas where chemicals and other chemical substances are used around metal ladders.

Roof Access

When using leaning ladders make sure the ladder extends past any landing or roof, at least three feet. This provides you with hand support when getting on or off the roof. It is highly recommended that ladders be tied off in some manner to prevent it from slipping from side to side.

Case Study:

An employee of a home builder was responding to a customer request to perform minor maintenance on a foyer window. The work height was approximately 12 feet high and could easily be reached with a ladder. The home owner asked the employee to protect the hardwood floor from the feet of the ladder so as not to damage the flooring. The employee placed a tarp on the floor and a carpet over the tarp. The ladder was a straight ladder and the ladder feet were placed on the carpet and tarp. As the employee ascended the ladder the tarp and carpet began to slip on the floor, the ladder collapsed to the floor and the employee, subsequently fell severely injuring his back.

What could have been done to prevent this?

As we all know pleasing the customer is a huge part of business but we should not take it to lengths that will put ourselves or our employees in harms way.

- Did the employee have common understanding about proper set up of the ladder?
- Did the employee use the proper Ladder for the job? This is unconfirmed but was this ladder the best one for the job? Or was it most likely the only ladder he had to do the job? A request like this probably happened before. Could a ladder with rubber, non-slip feet have worked? This ladder may have been an outdoor ladder with metal feet meant to dig into the ground. Just a thought, one ladder most likely will not work for all occasions. Think about the application, not just the cost, in the long run it may end of costing you more.

Setting up Straight and Extension Ladders

- Step 1:** Lay the ladder on the ground with the base resting against the bottom of the wall and the top pointing away from the wall.
- Step 2:** Starting at the top of the ladder, lift the end over your head and walk under the ladder to the wall, moving your hands from rung to rung as you walk.
- Step 3:** When the ladder is vertical, and the top touches the wall, pull out the base of the ladder until the distance is one-quarter of the height to the support or resting point.
- Step 4:** Reverse this process to take the ladder down. When you are taking the ladder down you will be walking backwards so be sure to check the area for obstacles before you begin. Make sure to lower the ladder slowly to keep it under your control and prevent it from falling on you or someone else.

OSHA's Ladder Requirements can be found at www.osha.gov. The construction industry should look in 29 CFR 1926 Subpart X and general industry look in 29 CFR 1910.25, 29 CFR 1910.26 and 29 CFR 1910.27.

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