

Ladder Safety

Portable ladders are one of the most common, simple, and helpful tools we have. Used in nearly every home and most workplaces, ladders are an important tool of every day life. With such widespread use comes the widespread risk for injury. Falls are the 3rd leading cause of unintentional injury-related deaths and the top cause of nonfatal injuries. Proper ladder safety techniques can, however, help reduce the likelihood of accidents and injuries. There are five key components to ladder safety:

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1. **Selection**
2. **Inspection**
3. **Setup**
4. **Use**
5. **Maintenance**

1. Selection

The old saying “use the right tool for the job” certainly applies to ladders. When selecting ladders, there are a few things you should keep in mind:

Ladder Type – Typical ladders include freestanding (step ladders) and non-freestanding (extension ladders), as well as step stools, platform and trolley ladders.

Load Rating – Ladders are rated based upon the weight they can support. Typical ratings include:

- Type I – Industrial: heavy-duty with a load capacity not more than 250 pounds.
- Type II – Commercial: medium-duty with a load capacity not more than 225 pounds. (Suited for painting and similar tasks.)
- Type III – Household: light-duty with a load capacity of 200 pounds.

Material – Ladders are typically constructed of wood, aluminum or fiberglass. Aluminum is lightweight, but should

never be used near electricity or power lines because of its conductive properties. Wood is subject to rot and is susceptible to mold, which can make a ladder slippery. Fiberglass is strong and non-conductive, but can be an expensive alternative to wood or aluminum.

2. Inspection

Be sure to inspect a ladder before each use. An inspection checklist is helpful and will remind you of what you should look for to avoid ladder accidents.

- Check for painted covered surfaces that may hide defects.
- Check the feet to make sure they function correctly, are not broken, and that slip-resistant pads are secure.
- Inspect ladder parts for cracks, bends, splits or corrosion.
- Check all rung and step connections.
- Check rung locks and spreader braces to be sure they are working.
- Check the rope and pulley on extension ladders to make sure they are working properly. The rope should not be frayed.
- Secure all bolts and rivets.
- Oil or grease all rung locks and other movable parts.
- Clean all oil, grease or other materials from the steps, rungs, and all other non-moveable ladder parts.



3. Setup

Proper set up of the ladder before use is essential. Tips for proper setup:

All Types of Ladders:

- Keep all types of ladders at least ten feet away from live overhead power lines and other overhead obstructions.
- Set a ladder on firm, level ground. Use a ladder level on uneven ground. Ladders used on slippery surfaces must always be secured. To secure the ladder, tie it to a stable object or have someone hold it for you. Use ladders with slip-resistant feet.
- Keep the area around the top and bottom of a ladder clear.
- When using a ladder in passageways, doorways, or where traffic or other activities occur, secure the ladder or block off the area.
- A ladder should not be placed in front of a door that is not locked, blocked or guarded.
- Do not place a ladder on a scaffold, box or other object.

Straight and Extension Ladders:

Most accidents with straight and extension ladders occur when the base slips.

- Tie Down – A ladder should be tied down when it is used to climb or descend a roof. The side rails should be at least three feet above the roof.
- Grab-Rails – Job-made ladders should allow access on or off of the ladder by stepping between the rails. If you have to step around a ladder because of rungs, there should be a grab rail attached to the building to help you. (OSHA requires a grab rail and a tie-off if a ladder does not extend at least three feet above the roof.) If there is a high parapet wall, a stairway or other method should be used to access the parapet.
- Angle – Ladders should be setup at a 75-degree angle, using a 4:1 ratio of working height to the base. For example, for every four feet the ladder is raised, the base should be placed one foot away from the surface on which it is leaning.

Step Ladders:

- All four legs must be on solid, level ground.
- The spreaders must be locked fully open.
- Never climb on the cross bracing.
- Never lean a stepladder against a wall.

4. Use

Proper use is vital to avoiding injuries. Some things to remember:

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- Always face the ladder when using it and wear shoes with slip-resistant soles.
- Always maintain at least three points of contact with your hands and feet while on the ladder.
- To avoid tipping over the ladder, keep your body centered between the side rails. Keep in mind the belt buckle rule – “Never let your belt buckle extend beyond the side rails.”
- Never work from the top or top step of a stepladder or from any of the top three steps of a straight or extension ladder.
- Secure tall ladders by lashing or fastening them to prevent movement.
- Do not hold objects in your hand when moving up or down or stepping on or off a ladder. Attach objects to your tool belt or pull them up on a line after you get to your work spot.
- Do not use a ladder when it is windy.
- Never move a ladder that is in use.
- Lower the top section of an extension ladder before it is moved.

5. Maintenance

To keep a ladder in good condition, proper storage, and maintenance is necessary.

- Straight and extension ladders should be stored horizontally on racks or hooks with support points at the top, middle and bottom of the ladder to prevent it from sagging and warping.
- Periodically tighten the reinforcing rods under the steps of a stepladder. The spreader hinges and other hardware should also be checked regularly.
- Do not attempt to straighten a bent metal ladder.
- If a ladder is damaged, mark “DO NOT USE” on the ladder and take it out of service to be repaired by a skilled repair shop. If the ladder is beyond repair, destroy it.
- Wood ladders should be protected with a clear sealer, varnish, shellac, linseed oil or wood preservative instead of paint. Paint could hide defects in the ladder and cause an injury.
- Aluminum or steel ladders should be inspected for rough burrs and sharp edges before use. Inspect closely for loose joints and bolts, faulty welds and cracks. Make sure the hooks and locks on extension ladders are in good condition. Replace worn or frayed ropes on extension ladders at once.
- A surface coat of lacquer should be maintained on fiberglass ladders. If the ladder is scratched beyond normal wear, lightly sand it before applying a new coat of lacquer.

For more information on ladder safety, call the National Institute for Occupational Safety and Health (800.35.NIOSH or go to www.cdc.gov/niosh), or call OSHA (800.321.OSHA or go to www.osha.gov).



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