Portable Ladder Safety

Hazard Alert

Each year, about 50 construction workers are killed by falls from ladders. More than half of the deaths occur to people working from ladders. Twice as many falls occur stepping down compared to going up ladders. The main cause of falls from straight and extension ladders is sliding of the ladder base. For self-supported ladders or stepladders, the main cause is tipping sideways. A lot of workers carrying ladders hurt their backs, too.

Protect Yourself

• Choose the right equipment. Use ladders mainly for climbing to or from other levels. If you can – instead of using ladders to work from – use scaffolds or scissor lifts; they are safer to work from.
• Choose the right ladder length.
• A sticker on a commercial ladder tells you its maximum weight capacity. Use only type I, IA, or IAA ladders, which can support 250,300, and 375 pounds, respectively. OSHA says job-made portable ladders must be tested for strength; a regular ladder must be able to hold at least 4 times its maximum weight capacity.
• Ladder rungs, cleats, and steps must be parallel, level, and evenly spaced (10 to 14 inches for most ladders). The rungs and steps of metal ladders must be grooved or roughened to minimize slipping. Side rails must be at least 11.5 inches apart.
• Do not tie ladders together.
• If you use two or more ladders to reach one spot, they must have a platform or landing between them.
• Ladder parts must be smooth to prevent punctures or cuts or snagging of clothing.
• Wood ladders must not be painted with a coating that can hide defects.
• Employees must be trained in ladder use. A competent person must train employees in site-specific ladder safety.*

Setting up a Ladder

• Use 2 people to carry and set up a ladder, if possible.
• Keep all types of ladders (and tools) at least 10 feet away from live overhead power lines and other overhead obstructions. Aluminum and even wet or dirty wood or fiberglass ladders can conduct electricity.
• Set a ladder on firm, level ground. Use ladder levelers on uneven ground. Secure the ladder – tie it down, use slip-resistant feet, or have someone hold it in place. (A ladder on a slippery surface must be tied in place or held.)
• Keep the area around the top and bottom of a ladder clear. In passageways, doorways, or where traffic or other activities can occur, secure the ladder or block off the area.
• Do not set a ladder on a scaffold, box, or other object.
• **Stepladders:** 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.
• **Straight and extension ladders**: The ladder base should be 1 foot from the building (or top support, such as an eave) for every 4 feet of ladder length up to the resting position. Counting rungs will give you a good estimate of the ladder length; rungs are about 1 foot apart.

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* OSHA says a *competent person* is...capable of identifying existing and predictable hazards...and has authorization to take prompt measures to eliminate them. More information on ladder safety is in the OSHA Construction Standards in the *Code of Federal Regulations*, CFR 1926.1050-1060 (Subpart X).

• After you set up an extension ladder, lock the top section in place. Extension ladder sections must overlap – by at least 3 feet for ladders up to 32 feet, by 4 feet for ladders 32 feet to 48 feet, and by 5 feet for ladders 48 feet to 60 feet.
• Both rails must rest evenly on the resting spot, unless the ladder has a single-support attachment.
• When a ladder is used to get on or off a roof, secure the ladder by tying. The side rails should be at least 3 feet above the roof to be safe. Job-made ladders should let you get on or off a 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 the grab rail and tie-off if a ladder doesn't extend at least 3 feet above the roof.) If there is a high parapet wall, use a stairway or some other way to get on or off the parapet.

Using a Ladder

• Always check a ladder before you use it; recheck it if it has been unattended.
• Always face a ladder when using it.
• Wear shoes with slip-resistant soles.
• Always have a 3-point contact (such as, one hand and two feet).
• Keep your body centered between the side rails of the ladder – so you don't tip over the ladder.
• Never work from the top or top step of a stepladder, or from any of the top 3 steps of a straight or extension ladder.
• If you must work from an extension ladder, consider using a fall protection system attached to a secure anchor point on the building, especially if pushing, pulling, or prying. (The fall protection should be designed by a *qualified* person.**) And keep both feet on the same rung.
• Do not hold objects in your hand when moving up or down or stepping on/off a ladder to an upper level. 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 while someone is on it.
• Lower the top section of an extension ladder before you move it.

Inspecting a Ladder

OSHA says a ladder must be inspected regularly for visible defects by a competent person and after any incident that could affect its safe use. Check your ladder for damage before each use.
If a ladder is damaged, label it, **Do not use**, and take it away until it is fixed. Destroy it if it can't be fixed.

Here is a checklist for inspecting ladders:

• Make sure the feet work and are not broken – and slip-resistant pads on the feet are secure.
• Inspect ladder parts for cracks, bends, splits, or corrosion.
• Check all rung and step connections.
• Make sure rung locks and spreader braces are working.
• On extension ladders, make sure the rope and pulley work and the rope is not frayed.
• All bolts and rivets should be secure.
• All rung locks and other movable parts should be oiled or greased.
• Make sure the steps, rungs and other ladder parts are free of oil, grease, and other materials.

For more information, call your local union, the Center to Protect Workers' Rights (CPWR) (301-578-8500 or www.cpwr.com), the National Institute for Occupational Safety and Health (1-800-35-NIOSH or www.cdc.gov/niosh), or OSHA (1-800-321-OSHA or www.osha.gov). Or go to www.elcosh.org

** OSHA says a *qualified person*...by extensive knowledge, training, and experience can...solve...problems related to the subject matter...

 CPWR is a research, development, and training arm of the Building and Construction Trades Dept., AFL-CIO: CPWR, Suite 1000, 8484 Georgia Ave., Silver Spring, MD 20910. (Edward C. Sullivan is president of the Building and Construction Trades Dept. and of CPWR and Sean McGarvey is secretary-treasurer.) Production of this card was supported by grant CCU317202 from the National Institute for Occupational Safety and Health and grants U45-ES09764 and U45-ES06185 from the National Institute of Environmental Health Sciences. The contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH or NIEHS. 12/2/04