

## Portable Ladder Safety

The information in this bulletin deals only with portable wood and portable metal ladders. These types of ladders are widely used throughout general industry. Because they are portable and widely available, they present a very serious hazard if not used properly.

Falls caused by loss of balance or by the ladder being placed on slippery or uneven surfaces account for most ladder injuries. Most of these injuries include fractures, sprains, and lacerations. According to a U.S. Consumer Product Safety Commission study, there were 239 deaths as a result of falls from ladders and 16 deaths due to ladder associated electrocutions.

### Portable Wood Ladders

Before using any ladder, it should be inspected for defects such as split or loose rungs or steps; damaged or worn non-slip bases; and loose nails, bolts, or other metal parts. All discovered defects should be repaired immediately, tagged "Out of Service" until repaired, or the ladder disposed of and destroyed.

The length of the ladder should be suited to the job and the work to be performed. The user should not climb (or need to climb) higher than the third rung from the top on a stepladder. In placing the ladder, the horizontal distance from the top support to the foot of the portable rung or cleat ladder should be one-quarter of the working length of the ladder, as shown in the diagram. If a straight ladder is being used to gain access to another level such as a roof or platform, it should be long enough to extend at least three feet above the supporting point (also shown in the diagram).

The ladder should be positioned to prevent slipping and/or it should be tied or held in position. Non-slip bases or safety shoes should be provided, but should not be treated as substitutes for careful placement or tying off of the ladder when used on metal, concrete, or slippery surfaces.

*When using an extension ladder, it should be adjusted while standing at the base of the ladder. This is to allow the user to see when the locks are properly engaged. Adjustments should never be made while the user is standing on the ladder. The following practices should be observed when using portable ladders.*

- Only one person should be on the ladder at a time.
- Side rails should be secure. The top rest for rung and cleat ladders should be reasonably rigid and strong enough to support the load.
- Ladders should not be placed in front of doors opening towards the ladder. If this is necessary, the door should be blocked open, locked, or guarded.
- Ladders should never be placed on boxes, barrels, or other objects with unstable bases.
- Always face the ladder when ascending or descending.
- Use ladders only for their intended purpose – never for braces, guys, horizontal platforms, runways, or scaffolds.
- The bracing on the back of stepladders should not be used for climbing.
- A stepladder should not be used as a straight ladder.
- Do not paint wooden ladders with solid color paints. This may mask cracks in the wood and make them hard to see. Clear wood preservative can be used to protect bare wood.

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## Portable Metal Ladders

Because of the wide variety of metals and design possibilities, no specific construction or design requirements can be discussed. However, a few general rules can be offered. When purchasing ladders, it is important to make sure they don't have structural defects. The type of metal selected must be sufficiently strong to meet the test requirements (a one-man working ladder based on a two hundred-pound load.) The metal must be protected against corrosion unless the metal used is non-corrosive. The rungs and steps must be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated in a manner to minimize the possibility of slipping.

Stepladders should not exceed twenty feet in height. Insulating, non-slip material must be used at the bottom of all four rails. A metal spreader capable of securely holding the ladder open must be provided and be free of sharp edges or points.

The following safe practices should be used in caring for portable metal ladders:

- Hardware fittings should be frequently checked to make sure they are in good operating condition.
- Never use a metal ladder when working on or near electrical wires.
- Ropes or cables should be inspected routinely and replaced if necessary.
- If a ladder falls, immediately inspect it for rail dents or bends; damaged rungs, rung connections, hardware connections; and possible rivet shear.
- If exposed to excessive heat, make a visual inspection and test for deflection and strength.
- A protective coating should be applied to ladders that will be exposed to corrosives, acids, or alkaline solutions.
- Ladders should be cleaned of oil, grease, or other slippery materials.
- Defective ladders must be taken out of service until repaired. If they can't be repaired, they should be destroyed and disposed of properly.
- Portable metal ladders should not be used in areas containing electrical circuits unless appropriate safety measures are taken. Wood ladders should be used in these environments whenever possible to prevent electric shock.

Some other recommended "do's" and "don'ts" applicable to both portable wood and portable metal ladders are listed below:

- The spreader on stepladders should be fully opened and locked before climbing.
- Don't use ladders in a strong wind, except in an emergency and then make sure ladders are securely tied.
- Don't leave ladders unattended unless they are secured at both the top and bottom.
- Store ladders in well-ventilated places not exposed to the weather.
- Hang ladders horizontally on wall brackets. Use more than two brackets for long wood ladders to prevent warping.
- When using a ladder don't carry things in your hands when ascending and descending. Use both hands to hold onto the rails or rungs. If material must be handled, a rope can be used to raise or lower it.
- Make sure shoes are not slippery.
- Don't over-reach from a ladder.

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