



## Purchase and Proper Use of Ladders<sup>1</sup>

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Ohio State University Extension<sup>2</sup>

No matter what type of ladder you use or what you use it for, it pays to take some extra precautions. Any fall can be serious, and a fall from the height of even a low ladder can mean a painful and incapacitating injury. The U.S. Consumer Product Safety Commission estimates that in one year 65,000 individuals receive emergency room treatment because of ladder accidents.

Taking proper precautions with ladders begins with choosing the ladder. Consider the type of work the ladder will be used for, the weight the ladder must carry, and the condition of the ladder.

Most ladders sold for household use are Type III light-duty ladders. These are rated for a maximum load of 200 pounds (user plus materials). If the ladder needs to carry more weight than this, select a Type II medium-duty ladder (225 pounds) or a Type I heavy-duty ladder (250 pounds). Most ladders will be labeled with their duty rating. Buy a ladder long enough for any use you may have for it. You should not stand on the top or top step of a stepladder, or the top three rungs of a straight or extension ladder. Keep in mind that the length of a ladder is different from its usable length. The height these ladders can safely reach is reduced by the angle at which the ladder must be set up.

When purchasing a new ladder, there are certain defects and features that are potentially dangerous. On metal ladders, check for sharp edges, dents and bent steps, rungs or rails. Wooden ladders should be free of splits, cracks, chips and all but small, tight knots. No

ladder should have loose rungs or steps. Steps on wooden stepladders should be reinforced with metal rods or angle braces securely attached to the step and side rail. The bottom step of all stepladders should have metal angle braces. The stability of an individual stepladder can be checked by standing on the first step from the bottom and twisting the ladder. If it feels unsteady, choose another ladder. All metal ladders should have slip-resistant rubber or plastic feet. Metal stepladders should have slip-resistant steps. Some wooden stepladders also have this desirable feature. When using a ladder near power lines, use a wooden or fiberglass ladder since metal ladders conduct electricity.

Even a rigidly constructed ladder can be involved in an accident if proper precautions are not taken. Read and follow all instructions accompanying the ladder, set up the ladder properly, and use good sense while working on the ladder.

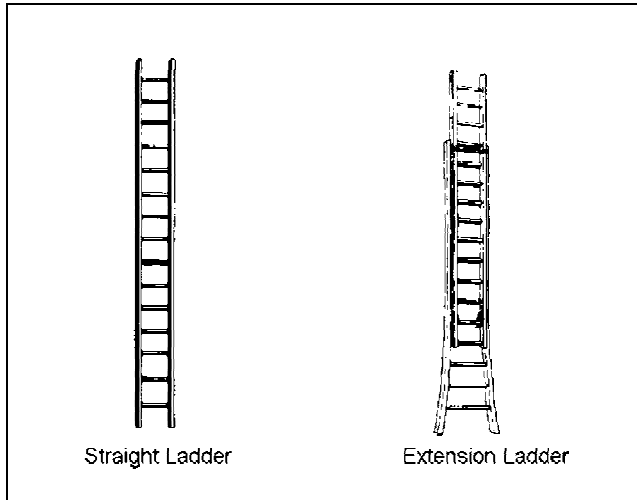
### STRAIGHT AND EXTENSION LADDERS

Taking proper precautions with ladders is an important step in preventing these accidents. To raise a ladder, brace the lower end against a wall and then grasp the top rung with both hands. Raise the top end and walk underneath the ladder, moving down the rungs until the ladder is vertical. Figure 1 gives an illustration of a straight ladder and an extension ladder.

When using an extension ladder, raise it to the desired height, being sure the locks engage properly on

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**Figure 1.** Straight and Extension Ladders

both sides of the ladder. To position the ladder properly, place it against the wall so the distance between the wall and the base of the ladder is  $\frac{1}{4}$  of the length along the ladder from the base to its point of support ( $\frac{1}{4}$  of its working length). Since the rungs on ladders are normally one foot apart, the approximate distance is easy to compute. If the ladder is to be used for getting onto a roof, there should be 3 feet of ladder (at least three rungs) extending beyond the edge of the roof. The ground under the ladder should be both level and firm. Large flat wooden boards placed under the ladder can level a ladder on uneven ground or give a ladder better footing on soft ground. If possible, secure the ladder. One way to do this is to have someone hold the bottom of the ladder.

Other points to remember when raising and positioning a ladder are:

- Never use a ladder in a strong wind.
- The point where the ladder rests against the wall should be flat and firm.
- A ladder should not be placed in front of a door that is not locked, blocked or guarded.
- Before positioning the ladder, check for insect or bird nests under the eaves; the top of a ladder is no place to discover a wasp nest.

Face the ladder when climbing or descending and use both hands. Mount the ladder from the center, not from the side. Tools should be carried in the pockets, in a bag attached to a belt, or raised and lowered by rope.

Be sure that the soles of your shoes are clean and dry. Work facing the ladder, holding on with one hand. If it is ever necessary to work with both hands, hook one leg over the rung. Don't lean too far to the side while working. A good general guide is to keep your body centered between the rails of the ladder. Instead of leaning to the side, get down and move the ladder. In case of sudden dizziness or a panicky feeling, bow your head, drape both arms over the rung in front of you, close your eyes, and wait until the feeling passes.

Do not use a ladder as a scaffold or for any purpose except what was intended. Be very careful when using a metal ladder around electrical wires or equipment. Many fatalities occur when a metal ladder brushes against power lines while being moved. Use only double-insulated or properly grounded electrical tools on a metal ladder. To be safer, use only a dry wooden or non-conductive fiberglass ladder when working around electrical wires or equipment.

## STEPLADDERS

Many of the suggestions for using straight and extension ladders also apply to stepladders. Figure 2 shows an illustration of a stepladder. When using a stepladder:

- Erect a stepladder only on a flat level surface. Do not place it on a table or any similar platform for added height.
- Never use a stepladder as a straight ladder.
- Before climbing a stepladder, make sure that its legs are fully extended and the spreader locked. The locking device on some ladders may present a pinching hazard, so keep fingers clear when setting up the ladder.
- Do not step on the top platform or top step.
- Do not step on the bucket shelf or attempt to climb or stand on the rear section supports. They are not designed to support the weight of a person.
- Finally, no matter what kind of ladder you are using, never leave a raised ladder unattended. It could fall unexpectedly and injure someone.



**Figure 2.** Stepladder

### **STORAGE AND MAINTENANCE**

To keep a ladder in good condition, proper storage and maintenance is a necessity. Ladders should be stored in a sheltered area. Wooden ladders affected by exposure to heat combined with dampness and need a dry, well-ventilated storage area. A wooden ladder used outdoors should be shellacked, varnished or given two coats of linseed oil as a protective coating. Some new ladders may already have protective coatings; this will vary with the manufacturer. Never paint a wooden ladder; the paint can hide defects. 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 sagging and warping. Inspect a ladder before each use for wear and damage. This is particularly important after a long period of storage or after a ladder has been dropped. Have repair work done only by a competent repair shop. If there is major damage, discard the ladder. Do not attempt to straighten a bent metal ladder. Never use a damaged ladder. Periodically tighten the reinforcing rods under the steps of a stepladder, the spreader hinges and other hardware.

### **SOURCE**

U.S. Consumer Product Safety Commission, Fact Sheet No. 56: *Ladders* (March 1976).

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