

SECTION 15

Ladders

SECTION 15: LADDERS

Overview

Ladders are one of the most commonly used pieces of equipment in industry. They are easy to carry, versatile and can be used in a variety of jobs. While they can make many tasks easier, they can also be a safety hazard. You can take steps to protect yourself and others from ladder-related injuries. This section provides you with information about selecting the appropriate ladder for a job and how to use it safely. It also contains information about inspecting, maintaining, and storing ladders.

What Type Of Training Do I Need Before Using A Ladder?

You must receive ladder safety training before using ladders, and refresher training as necessary. Training must be provided by your supervisor or someone with specialized knowledge in ladder safety.

Training must cover the proper selection, use, placement, and care of portable stepladders and extension ladders. This must include the maximum load capacities of ladders and information about fall hazards in your work area.

Selecting The Right Ladder For The Job

There are two basic types of portable ladders: self-supporting stepladders, and non-self-supporting straight and extension ladders. Either type can be made of metal, wood, or fiberglass. All ladders have weight limits which must be considered by the user. You must consider both the type and weight limitation of a ladder when making a selection.

Portable Ladder Duty Ratings
Type IAA – Special duty, up to 375 pounds
Type IA – Extra heavy duty, up to 300 pounds
Type I – Heavy duty, up to 250 pounds

Manufacturers give ladders duty ratings based on the maximum weight they can safely support. The ladder rating must be affixed to the side of the ladder. Only Type IAA, Type IA, and Type I heavy duty ladders can be used for commercial purposes or on a construction job site.

The duty rating must exceed your weight plus the weight of any tools and materials you carry with you. Ladders must not be subjected to loads greater than their duty rating.

There are specific applications for wooden, aluminum, and fiberglass ladders. Table 15.1 provides a summary of the advantages and disadvantages of each type of ladder. Keep these in mind when selecting one to use.

Table 15.1 – Ladder Selection Guide

Type of Ladder	Pros	Cons
Wood	<ul style="list-style-type: none">• Good insulation against heat and cold	<ul style="list-style-type: none">• Require protective coating of varnish to keep wood from drying and splitting• Heavy

Type of Ladder	Pros	Cons
Aluminum	<ul style="list-style-type: none"> Lightweight Corrosion-resistant Will not crack or chip with rough handling 	<ul style="list-style-type: none"> Does not insulate well against heat Conducts electricity (never use aluminum ladders near energized electrical lines)
Fiberglass	<ul style="list-style-type: none"> Durable and weather resistant Nonconductive when clean and dry Will not dry out or split Provides better insulation against heat than aluminum 	<ul style="list-style-type: none"> Heavier than comparable aluminum or wood Can chip or crack with improper handling



What are the differences between stepladders and extension ladders?

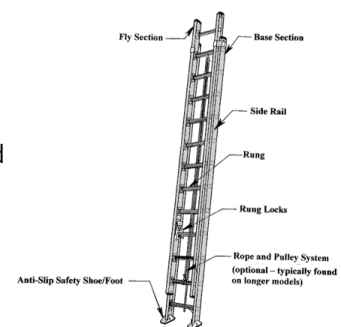
The standard stepladder has flat steps and a hinged back. They must have metal spreaders or locking arms.

Stepladders are self-supporting, nonadjustable, and intended for use by only one worker at a time. They cannot be longer than 20 feet as measured along the front edge of the side rails. If you need a longer ladder, select an extension ladder.

Only use stepladders on surfaces that have a firm, level footing such as floors, platforms, and slabs. Never stand on the top step or top cap when using a stepladder.

Extension ladders offer the greatest length in a general-purpose ladder. They are considered non-self-supporting because they must be leaned against a stable surface such as a wall for support.

Extension ladders consist of two or more sections that travel in guides or brackets, allowing adjustable lengths. The sliding upper section must be on top of the lower section. Each section must overlap its adjacent section a minimum distance, based on the ladder's overall length. The overall length is determined by the lengths of the individual sections, measured along the side rails.



Determining The Correct Length

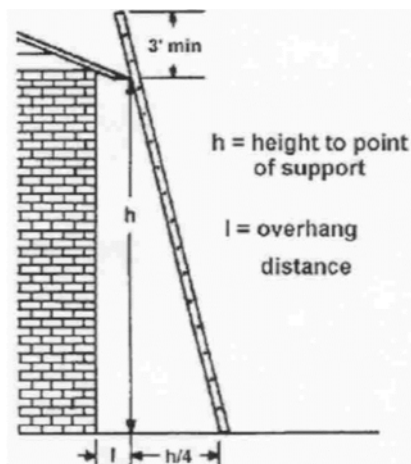
Stepladders

When working on a stepladder, you should be able to reach about four feet above the top of the ladder while standing two steps down from the top. For example, most workers should be able to reach an eight-foot ceiling on a four-foot ladder. Never use the top cap of a stepladder as a step.

Extension ladders

Select a ladder that is seven-10 feet longer than the vertical distance to the upper contact point on the support structure (e.g., a wall or roofline). The ladder must extend at least three feet (minimum of three rungs) above the roof. Never stand on the ladder rungs that extend above a roofline.

Erect the ladder so that the bottom section “faces” a wall or other supporting surface. Place the ladder feet so that the horizontal distance between the feet and the top support is one-quarter of the working length of the ladder.



How do I set up an extension ladder?

You must use proper methods to set up an extension ladder. Unless done correctly, the ladder can be damaged, and you can be injured.

Begin by laying the ladder on the ground with the base resting against the bottom of the wall and the top pointing away from the wall.

Next, 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 go.

When the ladder is vertical, and the top touches the wall, pull out the base so that the distance away from the wall is about one-fourth of the height to the point of support.

Reverse this process to take down the ladder. Remember that you will be walking backwards, so check for obstacles in your path before starting. Lower the ladder slowly to keep it under control and keep it from falling.

Ladder Safety Procedures

Always place ladders on stable bases. Never use boxes, barrels, or other unstable surfaces to obtain additional height. When necessary, ask a co-worker to hold the base of the ladder to help stabilize it. If no one is available, securely fasten the ladder at the top and bottom to prevent it from slipping.

Falls frequently result from slipping on the rungs of ladders. Metal rungs can be especially slippery in certain conditions. To minimize slipping, rungs of metal ladders must be corrugated, knurled, dimpled, or coated with skid-resistant material.

No matter what type of ladder you use, always wear shoes with slip-resistant soles that are free of mud or grease to avoid slips and falls.

Never stand higher than the third highest rung from the top when using an extension ladder. When using a step ladder, do not stand on the top step or top cap of the ladder. Climbing above these levels makes the ladder unsteady and leaves climbers without a handhold.

Inspecting, Maintaining, And Storing Ladders

Ladders must be regularly inspected by a supervisor or designee for visible defects on a regular basis. They must also be inspected after any incident that could affect their safe use. Use the Ladder Inspection Checklist located in ([Appendix I](#)) for inspections. Copies of ladder inspections must be filed in this manual or electronically and kept for five years.

Portable ladders with structural defects, such as corroded, broken faulty or missing rungs, cleats, steps, or rails must immediately be marked defective and tagged out with a “Do Not Use” tag. Any tagged ladders must be removed from service until repaired.

Ladder Care and Storage

1. Maintain ladders in good condition.
2. Keep all ladder accessories, especially feet, in good condition.
3. Lubricate metal bearings and pulleys of extension ladders on a regular basis. Check before use to see if additional lubrication is necessary.
4. Check ropes on extension ladders on a regular basis as well as before use. Replace worn or frayed ropes.
5. Wooden ladders to be used outside should be treated to prevent weather damage. A clear finish or transparent penetrating preservative should be used.
6. Never paint a wooden ladder. This will cover dangerous cracks or fill and hide them.
7. Never sit on ladder side rails.
8. Never use a metal or fiberglass ladder which has been exposed to fire or strong chemicals; it should be discarded.
9. Be sure that ladders are properly supported and secured when in transit. Vibration and bumping against other objects can damage them.
10. Never store materials on a ladder.
11. Store wooden ladders where they will not be exposed to excessive heat or dampness. Store fiberglass ladders where they will not be exposed to sunlight or other ultraviolet light sources.
12. Store ladders on flat racks or wall brackets, which give them proper support when not in use. Secure ladders to keep them from tipping.
13. Whenever possible, hang extension ladders horizontally.
14. Store stepladders vertically, in a closed position, to reduce the risk of sagging or twisting.

Immediately destroy any ladder that cannot be repaired.

Anyone who uses a ladder can complete minor maintenance such as lubricating hinges and tightening hardware. More extensive ladder repair must be completed by a qualified person or the manufacturer.

Refer to the Ladder Safety Manual for more information.