



fast facts

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Extension Ladders

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Extension ladders, which are also known as non-self supported ladders, are probably one of the most used and misused pieces of access equipment. They are a versatile tool with plenty of limitations and inherent dangers. This type of ladder should be used for short-term light work, for no more than 30 minutes. Choosing the right ladder and knowing how to use it is important. Research gathered by the Bureau of Labor Statistics show that falls are one of the top four causes of fatal occupational injuries from 1992 through 2009.

Purchasing the right types of ladders and maintaining them so that they comply with applicable standards is the responsibility of the employer. Employers are required by the Occupational Safety and Health Administration (OSHA) to provide training on the safe use of ladders as per OSHA 29 CFR§ 1926.1060. Safety inspections for ladders should be done on a regular basis to prevent injury. If a ladder is found to be damaged, it should be marked with a tag saying “Do Not Use”, and removed from service.

Choosing the Right Ladder

Extension ladders are made from wood, aluminum and fiberglass and come in various lengths. Choosing the right ladder for the job is very important. Because wood and metal are great conductors of electricity, it would be best to use a fiberglass ladder if you are doing electrical work.

Height Restrictions

Ladder Height	Maximum Reach	Highest point ladder will touch
16 feet	15 feet	9 feet max.
20 feet	19 feet	9 to 13 feet
24 feet	23 feet	13 to 17 feet
28 feet	27 feet	17 to 21 feet
32 feet	31 feet	21 to 25 feet
36 feet	34 feet	25 to 28 feet
40 feet	37 feet	28 to 31 feet

Extension ladders range in length from 16 feet up to and exceeding 40 feet. All non-self supported ladders should extend a minimum distance of 3 feet past the edge they rest against but not more than 4 feet. As with any ladder, extension ladders should be at the proper height and angle for optimum safety and stability.

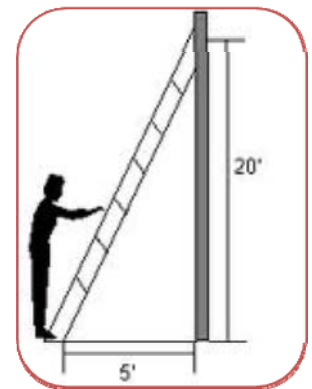


Figure 1 - 4:1 Ratio

When determining proper working height/angle, non-self-supporting ladders should be set at a 4:1 ratio (see Figure 1) from the foot to the top support. Each section of a multi-section ladder must overlap the adjacent section by at least 3 feet for ladders up to 36 feet and 4 feet for 40 feet or longer extension ladders. For example, a 24-foot extension ladder will consist of two sections each 12 feet long, but the maximum extended length will be 21 feet, because the sections overlap by no less than 1½ feet when the ladder is at maximum extension.

Load Limits

Even though they may all look the same, each ladder has a different load limit, as shown in the ladder load limit table on the right. Your weight and the weight of the tools or equipment being carried are factored into the load limit of the ladder. You want to make sure that the ladder you are using can handle the combined weight of the person and the tools or equipment being carried up and down the ladder, otherwise the ladder may become unstable and cause injury.

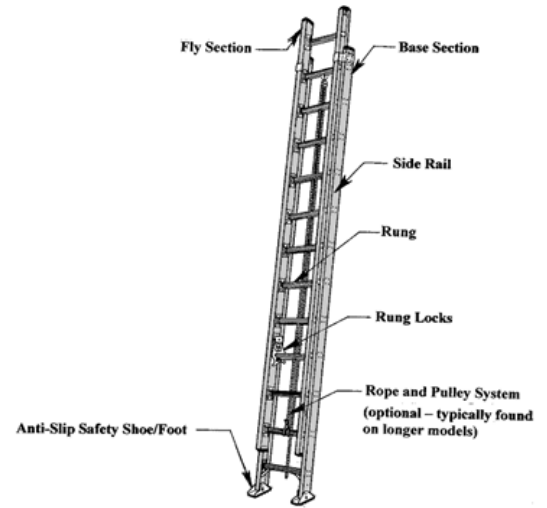
Ladder Type	Load Limit	Description
Type 1-AA	375 lbs.	Special Duty
Type 1-A	300 lbs.	Heavy Duty Industrial
Type I	250 lbs.	Heavy Duty
Type II	225 lbs.	Medium Duty
Type III	200 lbs.	Light Duty

Ladder Load Limits

Safety Inspection

Employees are required by OSHA to conduct safety inspections to assist in preventing injury, detecting corrosion, and identifying normal wear and tear. Inspect **all** extension ladders for loose rungs. Rungs should be sturdy, clean and not slippery from dirt or oil. Inspect the rung locks for any cracks or bends that could prevent them from working properly. The side rails should be strong and visibly free of cracks, breaks, splits and bent edges. Nails, bolts, screws and other fasteners should be tight. Any rope and pulley system should be inspected for fraying and rotting, and checked for loose pulleys and metal spurs that could cause rope damage. Last but not least, examine the feet and make sure the non-slip pads are in good shape.

Remember: Turn broken ladders in for repair or take them completely out of service marking them “Do Not Use”, to protect co-workers and others from needless injury.



Extension Ladder

Extension Ladder Do's

- Select the appropriate ladder for the job.
- Inspect before use.
- Make sure the ladder rises at least three feet above the landing (figure 2).
- Secure the ladder near the top to prevent swaying or walking.
- Secure the base by either staking or burying to prevent slipping.
- Make sure that the ladder is on a secure firm base and that you have utilized the 4:1 ratio.
- When climbing up or down the ladder, always face the ladder.
- Maintain 3-point contact with 2 hands and a foot or both feet and a hand.

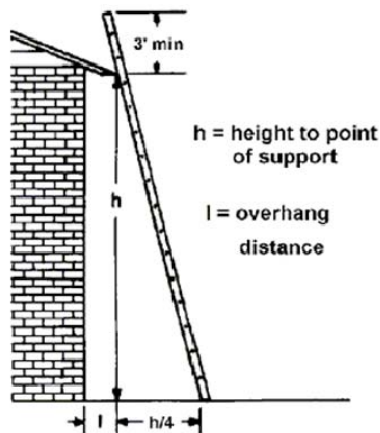


Figure 2. The base of a straight ladder should be one foot out of every four of height to the point of support



3 Point Contact

- Be sure that all locks on an extension ladder are properly engaged.
- Use a tool belt to keep your hands free or pull materials up with a line.
- Use an extension ladder for access, not as work platforms. It is safer to work from scaffolding, scissor lifts or boom lifts.
- Only allow one person on the ladder at a time.
- Read and follow all labels/markings on the ladder.

Extension Ladder Don'ts

- Do not move or shift a ladder while a person or equipment is on the ladder.
- Do not stand on the three top rungs of a straight, single or extension ladder.
- Do not use ladders near energized electrical wire; maintain 10 feet minimum clearance of all electrical or power lines.
- Never balance the ladder on other objects to reach higher jobs.
- Never over reach to do your work.
- If you are leaning to the right, left or backwards move the ladder into a better position.
- Do not exceed the overlap required for safety.
- At a minimum, there should be a 3 feet overlap to safely maintain the load limit requirements.
- Do not exceed the maximum load rating of a ladder.
- Do not place ladder feet or base on moveable objects or unsecured surface.



Improper footing

Remember: Always keep ladder on secure footing. Even if you're just a few feet off the ground, an awkward fall can kill you or cause serious injury.

Training Requirements

OSHA requires employers to provide training. The program shall enable the employee to recognize hazards related to ladders and how to minimize them. A competent person shall be designated to train employees on the following:

- the nature of fall hazards in the work area;
- correct procedures for placement and care in handling ladders;
- maximum intended load-carrying capacities of ladders used; and
- ladder inspection points.

Retraining shall be provided for each employee as necessary to maintain understanding and knowledge.

fast stats

OSHA Top 4 Violations 2009 – Extension Ladders

§1926.1053 (b)(1) - Failure to extend a portable ladder at least 3 feet above the upper landing surface to which the ladder is used to gain access.

§1926.1053 (b)(4) - Using ladders for a purpose other than for which they were designed.

§1926.1053 (b)(16) - Failure to mark portable ladders with structural defects as such or withdraw them from service until repaired.

§1926.1053 (b)(22) - Employee carrying an object or load that could cause him or her to lose balance and fall.

Safety standards for portable ladders can be found in ANSI A14.1-2000 through 14.5-2000 and OSHA 29 CFR §1910.25 and §1910.26, §1926.1053. Training falls under 29 CFR §1926.1060.



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