
LOYOLA UNIVERSITY CHICAGO
GUIDANCE FOR LADDER USE

PURPOSE:

These guidelines will help ensure that staff use a ladder in a safe and consistent manner.

REGULATORY:

Occupational Safety and Health Administration (OSHA) Ladder Safety Standard 29 CFR 1926.1053.

29 CFR 1926.1053 - Ladders. | Occupational Safety and Health Administration (osha.gov)

29 CFR 1910.22 – General Requirements. | Occupational Safety and Health Administration (osha.gov)

29 CFR 1910.23 - Ladders. | Occupational Safety and Health Administration (osha.gov)

29 CFR 1910.145- Specifications for accident prevention signs and tags. | Occupational Safety and Health Administration (osha.gov)

Construction, Care, and Use of Ladders, A14 (ANSI ASC A14)

- ANSI ASC A14.2-2017: Ladders – Portable Metal – Safety Requirements
- ANSI ASC A14.3-2008 (R2018): Ladders – Fixed – Safety Requirements
- ANSI ASC A14.5-2017: Ladders – Portable Reinforced Plastic – Safety Requirements

IMPORTANT NOTES:

1. A ladder must be inspected before initial use in each work shift and more frequently, as necessary.
2. If anything is found to be wrong with the ladder, it must be tagged as defective and placed out of service.
3. Ladders must be properly maintained at all times.

LADDER RATINGS:

Although there are many different kinds of portable ladders, they all receive a rating based on their maximum intended or working load – that is the total weight that they can safely support. This rating includes the weight of the worker, tools, and materials.

These ratings must meet certain American National Standards Institute (ANSI) standards and are indicated on the duty rating sticker or manufacturer's label. These labels must not be removed or defaced and must be legible. ANSI requires that every ladder be labeled with this information so users can determine if they have the correct type of ladder for the task/job. Before a ladder is used, check its rating to ensure that it is the correct one for the job. Never subject the ladder to a workload greater than its rated capacity.

See Appendix A for additional information.

LADDER LABELS:

Manufactured ladders must have warning markings and labels, such as "CAUTION" and "DANGER," which are usually in red or yellow. They often also have "SAFETY" labels which give information on how to use the ladders safely and correctly. Always check the manufacturers' labels before use and follow their recommendations.

Besides their ratings, labels and markings found on manufactured ladders contain product information, such as:

- Manufacturer's name
- Ladder's model number/name
- Month and year of manufacture
- Ladder's size/length, maximum working length
- Highest standing level

See Appendix B for additional information.

Workers should always read manufacturers' labels before use and follow those recommendations. If a worker takes a few minutes to select the correct ladder for the job, an injury may be prevented.

LADDER INSPECTION:

Each type of ladder will have its own unique list of items to inspect. Ladders must be inspected before initial use in each work shift and more frequently, as necessary, to identify any visible defects that could cause employee injury. At a minimum, the following items should be inspected.

1. Labels are readable and haven't been painted over or damaged.
2. No cracks
3. No splits
4. No dents
5. No bends
6. No corrosion
7. No missing hardware
8. Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced when the ladder is in position for use.
9. Rungs are free from grease, dirt, and/or other slippery substances.

Any ladder with structural or other defects shall immediately be tagged "Dangerous: Do Not Use" or "Out of Service" or with similar language in accordance with 29 CFR 1910.145 and removed from service until repaired in accordance with 29 CFR 1910.22(d) or replaced.

CLIMBING OR DESCENDING A LADDER

When climbing a ladder, a worker must have both hands free and face the ladder. This allows for three points of contact with the ladder at all times and reduces the chances of falling. Three-point contact is two hands and one foot or one hand and two feet. A worker should stay centered between the side rails at all times. Workers should have footwear in good condition and with good traction to prevent them from falling from the ladder.

TYPES OF LADDERS:

“A” Frame

The “A” frame ladder is one that looks a bit like a capitol letter A when viewed from the side. There are two legs that are angled upward, coming together at the top so that from the side, the legs of the ladder and the floor form a triangle. There are spreader or locking hinges between the front and back legs that lock the legs to stabilize the ladder during use. The front or back legs of the “A” frame ladder may have rungs on which the user can climb to get to the top. Never climb the back legs of an “A” frame ladder unless it is designed for that use. There are varying heights for an “A” frame ladder.

How to use an “A” frame ladder:

- Open up the ladder legs completely and lock the spreader bar braces. Level support is required for all four sides.
- Don’t stand on the top step or top cap.
- Don’t lean the ladder against a wall to use it as a straight ladder to climb up to a higher surface.
- Don’t sit on the top cap and straddle the ladder by placing feet on both sides of the ladder working off both sides of the ladder.

See Appendix C for additional information.

Extension Ladder

Extension Ladders are built with either two or three adjustable telescopic sections. The maximum extended length is dependent upon the number of sections as well as the duty rating of the ladder as follows:

Duty Rating/Type	Two-Section (feet)	Three-Section (feet)
Extra heavy duty- Type 1A	60	72
Heavy duty -Type I	60	72
Medium Duty- Type II	48	60
Light Duty- Type III	32	---

Selection of proper extension ladder size requires knowledge of the height of the top support point. In the event the top support point is a roof eave, the top of the extension ladder must

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extend three feet (3') above the roof eave if the climbers' intent is to access the roof. The ladder must also be tied to the upper access level before climbing onto or off the ladder at the upper level. The user must take care when getting on or off the ladder at the upper level to avoid tipping the ladder over sideways or causing the ladder base to slide out.

The telescopic sections of an extension ladder, also known as fly sections, are held in their adjusted position by extension locking devices known as rung locks. Rung locks come in a variety of designs including gravity, spring-action, rope-operated, or stationary types. Some extension ladder fly sections incorporate locks that result in the elimination of one rung and, therefore, do not meet the requirements for use as a single ladder. In lieu of a safety sign, the fly sections must be held into the base section of the extension ladder by permanently attached stops (i.e. stops that require some type of forcible means to achieve fly section removal).

When an extension ladder has previously been used as a single ladder, care should be exercised in properly reassembling the sections to ensure that the interlocking guides or brackets are properly engaged before use.

Extension ladders may be equipped with rope and pulley systems to assist the user when extending the fly sections. The rope must have a minimum breaking strength of 560 pounds. On three-section extension ladders, a wire cable may be utilized in place of the rope providing the cable has a minimum 1/8-inch diameter.

Adjustment of extension ladders must be made by the user when standing at the base of the ladder so that proper engagement of the rung locks can be observed. Under no circumstances is an extension adjustment to be made when anyone is standing on the ladder. It is also the user's responsibility to make sure the extension rope is tracking correctly in the pulley.

The base section of an extension ladder must be equipped with slip-resistant feet such as safety shoes, spurs, spikes, conformable shoes, with flat or rounded edged tread feet.

See Appendix D for additional information.

How to use an extension ladder:

- Make sure the extension ladder is set up at a 4:1 angle with secure footing on a firm level surface. This means for every four feet of ladder length measured from where the ladder contacts the support point, the base of the ladder should be one foot away from the supporting structure.
- For accessing an upper level, make sure the extension ladder is set up at a 4:1 angle on a firm, level surface and the side rails extend at least 3' above the surface to be accessed. Lastly, make sure the extension ladder is secured at the top and bottom with the rung locks engaged.
- The anti-slip feet at the bottom of the extension ladder side rails must be present and in good condition prior to using the ladder. The ladder must not be used on ice, snow, or slippery surfaces unless suitable means to prevent slipping is employed.

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- The user must avoid setting up an extension ladder upside-down. That is, with the fly section at the bottom and the base section at the top with the rung locks engaged.
- Extension ladder sections must not be tied or fastened together to provide a longer length unless specifically designed for that purpose.
- Depending on the size of a ladder, a worker may need additional help setting up an extension ladder safely.
- Carry tools in a tool belt or use a hand line/pulley system to lift tools. Never climb a ladder while holding tools in your hands. Always maintain three points of contact.

One way for a worker to ensure a proper angle is to stand with their feet at the base of the ladder and extend their arms straight out. If their hands just touch the ladder at shoulder height, the ladder will be very close to the 4 to 1 ratio.

See Appendix E for additional information.

LADDER SAFETY

Ladders are indispensable tools. They are taken for granted in day-to-day work and are used extensively in virtually all industries. Though they come in many sizes, shapes, and styles, they all serve the same purpose which is to help move workers vertically. They're simply built and easy to use, but they're not always user friendly. Most injuries occur from falls of less than 10 feet.

In general, most ladder falls involve portable ladders that move, tilt, or shift while a person is climbing or descending. Primary reasons ladders fail include unstable or slippery base surfaces, misstep or a slip of the foot, loss of balance, an overreach, or improper ladder set up.

Workers can reduce risks when using a ladder by doing the following:

- Frequently inspect and maintain ladders
- Match tasks to appropriate ladders
- Set up ladders correctly
- Do not load the ladder beyond its rated load
- Do not use ladders in close proximity to electrical wiring/equipment
- Climb and descend ladders properly maintaining 3 points of contact at all times
- Pay attention to what you are doing at all times
- Do not overreach while on the ladder. Keep your body centered between the rails.
- Do not stand on the top step or top cap
- Do not move, shift or extend a ladder with a person or equipment on the ladder
- Do not leave tools, materials, and/or equipment unattended on the ladder

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- Ladders placed in locations such as passageways, doorways, or driveways where they can be displaced by other activities or traffic should be secured to prevent accidental displacement; or guarded by a temporary barricade, such as a row of traffic cones or caution tape, to keep the activities or traffic away from the ladder.
- Ladders must be used on a stable and level surface that is not slippery unless it has been secured (top or bottom) to prevent displacement.
- Do not place a ladder on boxes, barrels, or other unstable bases to obtain additional height.

ADDITIONAL SAFETY INFORMATION:

1. Wooden ladders of any type should not be used.
2. Ladders should be kept in a secure location to prevent unauthorized use.

See Appendix F for additional information.

Appendix A – Ladder Ratings

RATING	MAXIMUM LOAD	USES
Type I-AA	375 lbs	Special duty industrial use, such as CATV, utilities, contractors, and higher capacity needs
Type I-A	300 lbs.	Extra-heavy-duty industrial use, such as utilities and contractors
Type I	250 lbs	Heavy-duty industrial use, such as utilities and contractors
Type II	225 lbs	Medium-duty work, such as painting, offices for building maintenance, and light industrial use
Type III	200 lbs	Light duty work, such as household use

★
200_{lbs} Light Duty
 Household
 use
 Type III

★★
225_{lbs} Medium Duty
 Painter &
 Handyman
 Type II

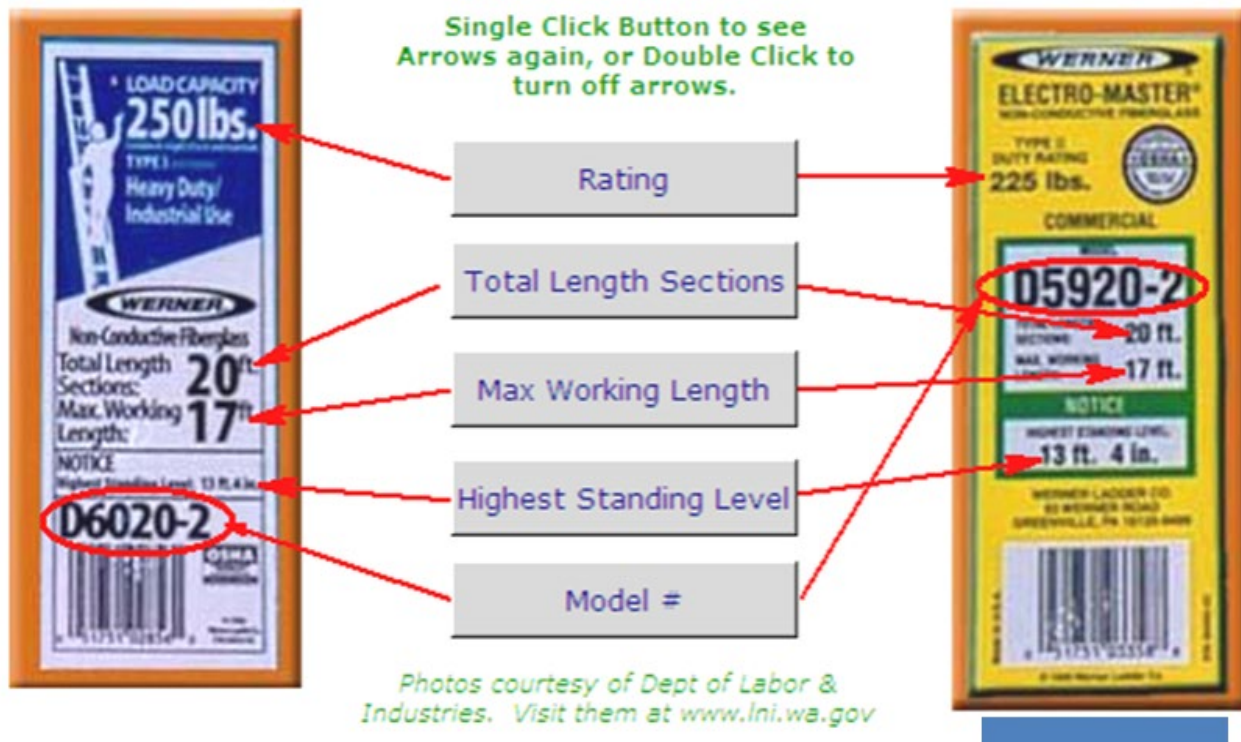
★★★
250_{lbs} Heavy
 Duty
 Industrial
 Type I

★★★★
300_{lbs} Extra Heavy
 Duty
 Industrial
 Type IA

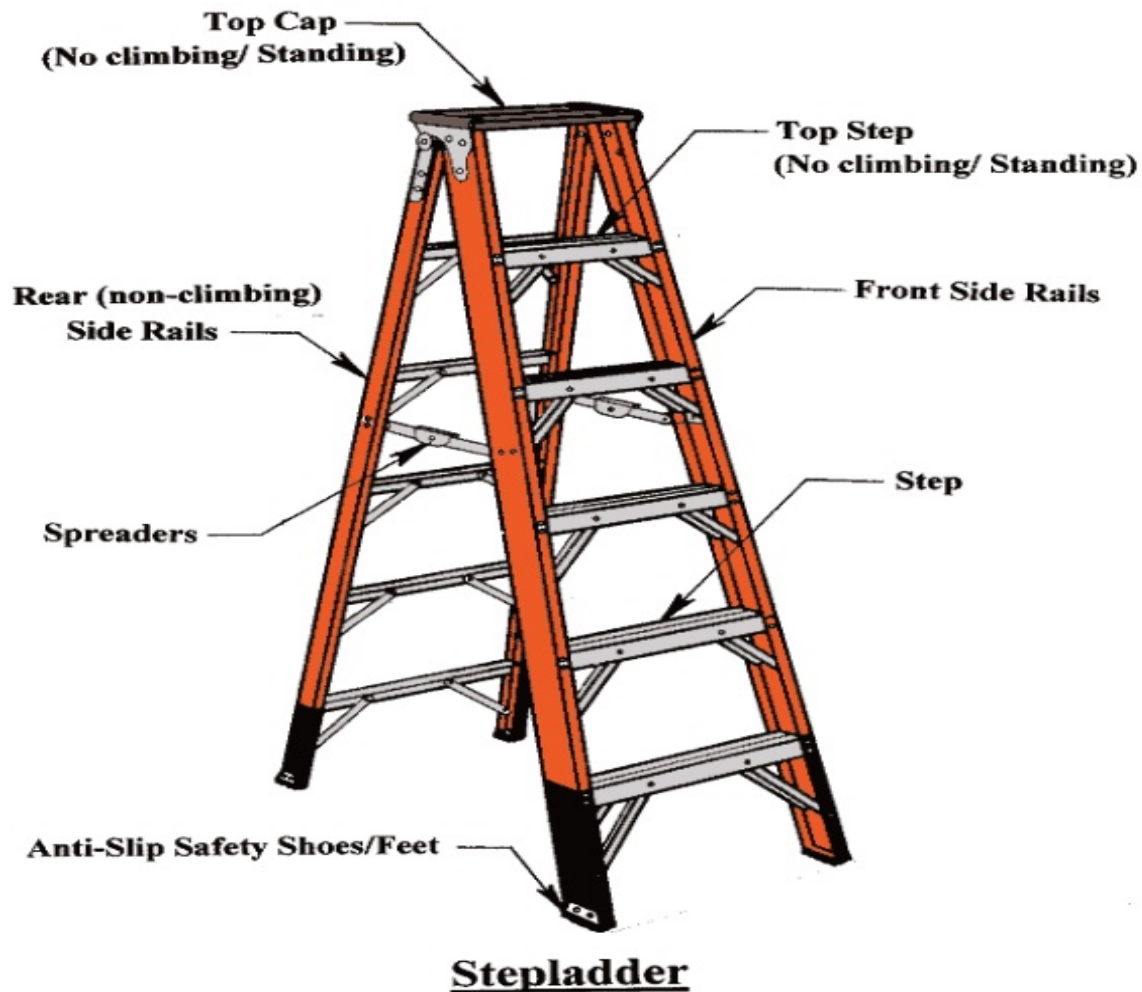
★★★★★
375_{lbs} Special Duty
 Rugged
 Professional
 Type IAA

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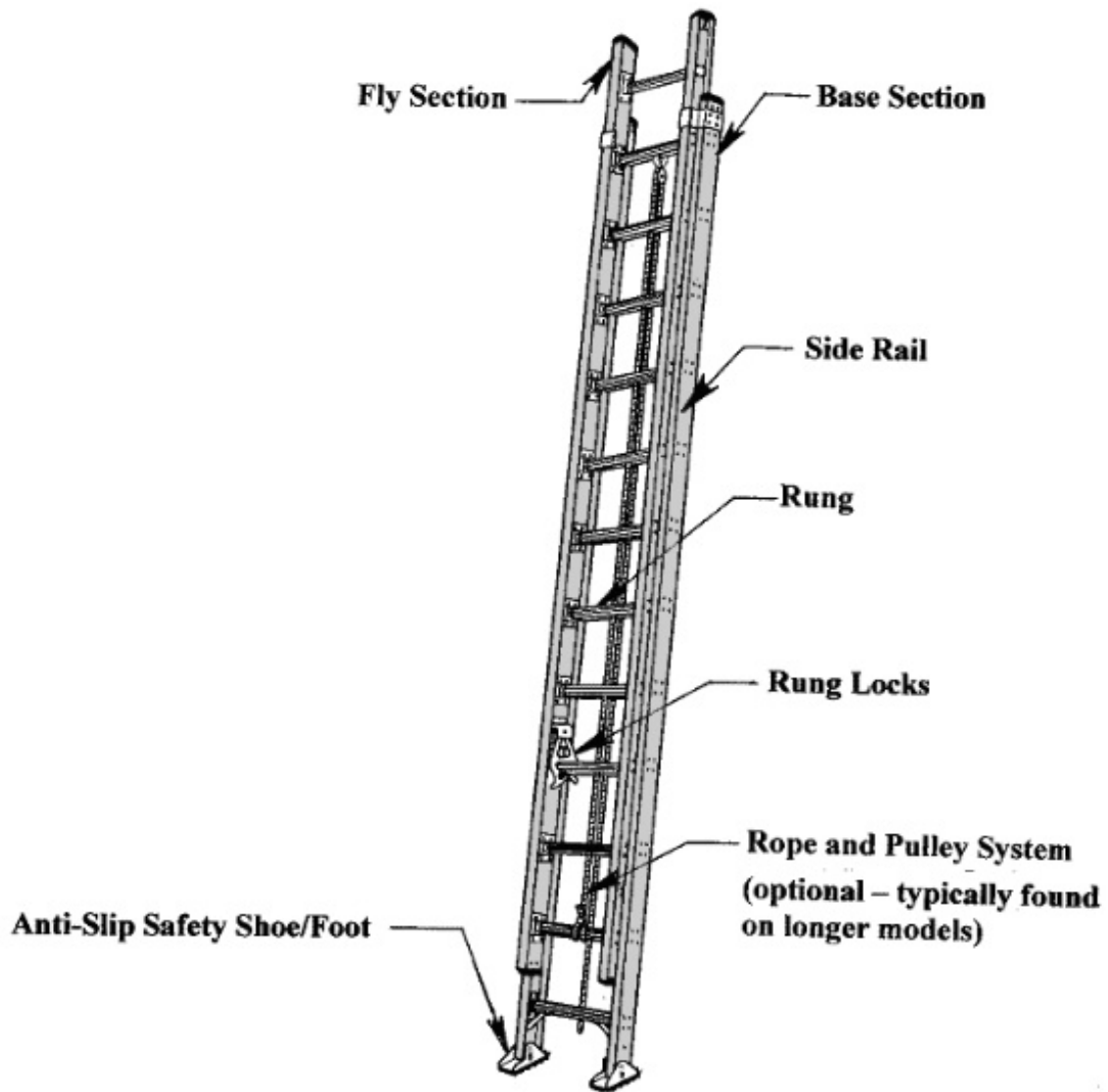
Appendix B – Information labels typically found on ladders



Appendix C – Parts of an A-Frame Ladder



Appendix D – Parts of an Extension Ladder



Extension Ladder

Appendix E

Worker demonstrating the technique to ensure a proper angle of 4 to 1. The base of the ladder should be placed so that it is one foot away from the building for every 4 feet of height to where the ladder rests against the building. This is known as the 4 to 1 rule.



Appendix F

10 Ladder Safety Rules



1
Choose the right ladder



2
Check for damages or issues before each use



3
Ensure physical capability of using a ladder



4
Set up the ladder on a flat and stable surface



5
Set up in a safe place



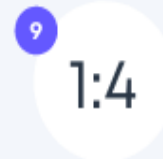
6
Never lean or reach away from the ladder



7
Always maintain a three point of contact



8
Only take small items up or down a ladder



9
Apply the 1:4 rule



10
Climb down cautiously