SUNY Cortland-Environmental Health and Safety Office

Ladder Safety – Portable and Fixed

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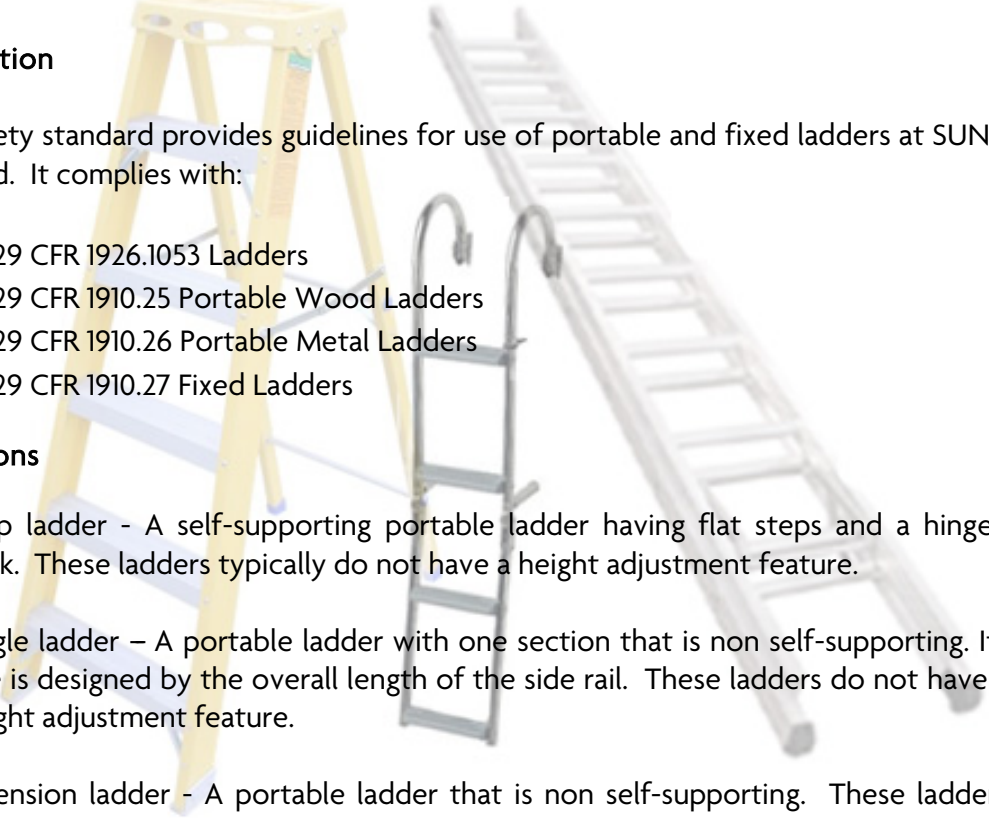
Contents



I. Introduction

This safety standard provides guidelines for use of portable and fixed ladders at SUNY Cortland. It complies with:

- 29 CFR 1926.1053 Ladders
- 29 CFR 1910.25 Portable Wood Ladders
- 29 CFR 1910.26 Portable Metal Ladders
- 29 CFR 1910.27 Fixed Ladders

II. Definitions

Step ladder - A self-supporting portable ladder having flat steps and a hinged back. These ladders typically do not have a height adjustment feature.

Single ladder – A portable ladder with one section that is non self-supporting. Its size is designed by the overall length of the side rail. These ladders do not have a height adjustment feature.

Extension ladder - A portable ladder that is non self-supporting. These ladders have a height adjustment feature.

Fixed ladder – A ladder that is permanently attached to a structure, a building, or equipment.

Spreaders – Devices that hold the front and back sections of a step ladder in the open position.

III. Foldout or Step Ladders

Requirements and guidelines for foldout or step ladders include:

1. Metal spreaders or locking devices must hold the front and back sections in an open, locked position when in use.

2. All four legs must be on solid, level ground.

3. The top two levels must not be used for sitting or standing.

4. Never use the back portion of a foldout or step ladder for climbing.

5. Never stand on a bucket shelf.

6. Never lean a foldout or step ladder against a surface for use as a straight ladder.

IV. Straight or Extension Ladders

Requirements and guidelines for straight or extension ladders include:

1. For elevated platforms, select a ladder that will extend at least 3 feet above the point of support.

2. Position a straight ladder so that the base is one-fourth the ladder's length from the vertical plane of the top support (see Figure 1 on page 7).

3. Securely lash or bind the top of a straight ladder when it is used to access a roof or a high surface.

4. Never stand higher than the third highest rung from the top of a straight ladder.

5. After setting up an extension ladder, lock the top section in place. Extension ladder sections must overlap: 1) by at least 3 feet for ladders up to 32 feet; 2) by 4 feet for ladders 32 to 48 feet; and 3) by 5 feet for ladders 48 to 60 feet.

V. Fixed Ladders

Fixed ladders are permanently attached to a structure and provide access to specific locations. These ladders have a pitch of 75 to 90 degrees. Requirements, guidelines, and characteristics of fixed ladders include:

1. The rungs of metal ladders must be at least three-quarter inches in diameter. If a ladder is embedded in concrete and serves as an access to pits or atmospheres that can promote corrosion or rust, the rungs must be at least one inch in diameter, or be painted or treated to resist degradation.

2. Rungs must be at least 16 inches wide and uniformly spaced by no more than 12 inches. Additionally, the top rung must be at the level of the landing served laterally by the ladder.

3. Except for a pit or a manhole, hand or side rails must extend 3.5 feet above the landing.

4. A clear width of 15 inches must exist on each side of the center line of a ladder.

5. A minimum clearance of 2.5 feet is required on the climbing side for ladders with a 90 degree pitch. For ladders with a 75 degree pitch, a minimum clearance of 3 feet is required.

6. Seven inches of clearance is required on back of the ladder to assure adequate footing.

7. Ladders that are over 20 feet in length must have a cage or well.

VI. Ladder Use

1. Inspect a ladder before use for integrity and defects (see Ladder Inspection Checklist in Section VIII). If a ladder is defective, immediately remove it from service by observing the guidelines outlined in Section VII for defective ladders.

2. Use a ladder only for its intended purpose. For example, do not use a ladder in a horizontal position to act as a walking platform or scaffold. Additionally, do not use a chair or other surface as a substitute for a ladder.

3. Select a ladder of appropriate length in accordance with the following guidelines:
    - Do not exceed 20 feet in length for wood step ladders.
    - Do not exceed 30 feet in length for wood single section ladders.
    - Do not exceed 48 feet in length for two-section metal ladders.

- Do not exceed 60 feet in length for metal ladders with more than two sections.

4. Do not exceed the maximum load rating of a ladder.

5. Do not tie ladders together.

6. Use two people to carry and set up a ladder whenever it is possible.

7. Set up a ladder correctly to prevent falls. Station the base of a ladder on a firm, stable, and level surface. Avoid stationing a ladder on rocks or boards. When a surface is uneven, use a ladder leveler. When using a ladder to access a high surface, securely lash or bind the ladder (top and bottom) to prevent it from slipping. Additionally, extend the ladder at least 3 feet above a roof or landing.

8. Do not leave a ladder unattended once it is stationed.

9. Spreaders or locking devices must be in the fully open and locked position before use. On extension ladders, make sure that the rung locks are working properly.

10. Do not use metal ladders around electrical conductors. Wood or fiberglass ladders with manufacturer's specifications must be used when electrical hazards are present. Keep all types of ladders at least ten feet away from live overhead power lines.

11. Do not place a ladder in front of a door, including an overhead door that opens toward the ladder unless the door is locked, blocked, or guarded.

12. Do not place a ladder against a window pane.

13. Do not lean a ladder against unstable objects such as boxes or barrels.

14. Do not use a ladder during a strong wind.

15. When ascending or descending a ladder:

    - Allow only one person at a time on a ladder.
    - Always face the ladder, keep your body centered between the side rails and use three points of contact. Additionally, hold on to the rungs only.
    - Make sure that shoes are suitable. Do not use shoes that are greasy, slippery, or muddy.

- Never slide down a ladder or run hands behind the side rails.

16. Never move a ladder during use. Always make sure people and equipment are off the ladder before moving or closing.

VII. Ladder Maintenance

1. Inspect ladders carefully before each use (see Ladder Inspection Checklist in Section VIII). Defective ladders should be tagged and removed from service immediately (see "Do Not Use" tag on page 8). Note: In most instances, defective ladders should be removed from service and destroyed; however, ladders with minor defects can be repaired (e.g., safety foot replacement, loose bolts)

2. Maintain non-slip safety feet in good working order.

3. Check all rungs, step connections, bolts and rivets.

4. Make sure that: 1) the rope and pulley on extension ladders work; and 2) the rope is not frayed.

5. Never paint a ladder as this will cover any defects that may be present.

6. Check rungs, cleats, hand rails, and side rails for splinters, sharp edges, burrs, or other projections that are hazards.

7. Stencil all ladders for ownership.

8. Store ladders where they will not be exposed to the weather or harsh conditions. Note: Fiberglass ladders must be protected from direct sunlight or other ultraviolet sources

VIII. Ladder Inspection Checklist

All ladders must be inspected carefully before each use. Whereas, defective ladders must be removed from service and destroyed, ladders with minor defects can be repaired (e.g., safety foot replacement, loose bolts). Additionally, affix a "Do Not Use" tag to all ladders that are removed from service (see "Do Not Use" tag on page 8).

Please use the following checklist for ladder inspections (Note: also observe inspection elements that are posted on the side of a ladder):

1. Is the ladder free of defects, degradation, and irregularities?

2. Is the ladder stable and are rungs tight in the joint of the side rails?

3. Are rungs free of grease and oil?

4. Are the non-slip safety feet present, in good working order, and free of grease and oil?

5. Do moving parts operate freely without binding?

6. Are pulley, wheels, and bearings adequately lubricated?

7. Is the rope in good condition (e.g., not frayed or excessively worn)?

8. Is the ladder free of splinters, sharp edges, burrs, and other projections that are hazards?

Figure 1 – Straight Ladder Positioning

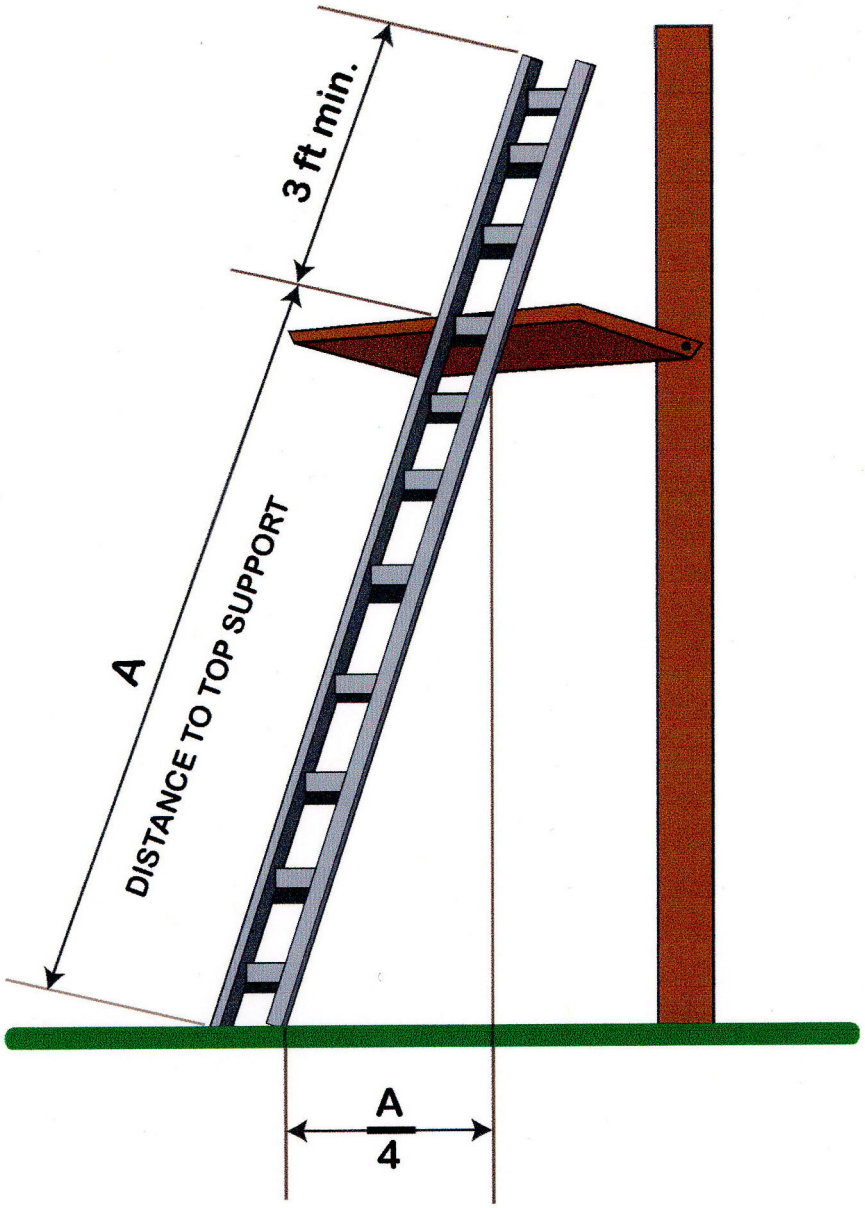


Figure 2 – "Do Not Use" Tag