

Ladder safety

Introduction

Most accident statistics suggest that working men and women in America abuse and misuse ladders in the workplace as a rule, rather than the exception; thereby contributing to the tens of thousands of injuries involving ladders that occur annually. While perhaps more commonly used in the construction trades, ladders are also used frequently in manufacturing and other workplace settings. OSHA studies have indicated that most ladder falls are from heights of more than 10 feet, occur during climbing, and usually involve portable (extension) ladders. The following outlines the key factors of ladder safety.

There are a number of factors that must be considered to work safely from a ladder, including:

- Ladder selection
- Maintenance and inspection
- Carrying and moving ladders
- Ladder set up
- Preparation and making the climb

Ladder selection

Ladders may be fixed, portable extension or stepladders, and may be manufactured from wood, metal, plastic or fiberglass. They can be light, medium, heavy or extra-heavy-duty.

The materials from which ladders are constructed have advantages and disadvantages in weight, durability, flexibility, conductivity, and strength. The intended use of the ladder should determine the type purchased, and only American National Standard Institute (ANSI) approved ladders should be used. One major caution is that metal ladders should never be used in locations where the ladder or its user could come into contact with electricity.

Maintenance and inspection

Ladders should be inspected before use: check for cracks, loose rungs, splinters and sharp edges. Never paint ladders, as the paint can hide potentially dangerous conditions. Wooden ladders can be coated with linseed oil or an oil-based wood preservative to keep them from drying out and caking. Allow ladders to dry thoroughly before using them or the rungs may be slippery. The rungs and siderails of ladders must be kept free of oil, grease and mud, etc.

Carrying and moving ladders

When physically moving a ladder, it should first be determined whether or not the ladder is too long or heavy to be moved alone. If so, help should be obtained in moving the ladder. Prior to making the move the area should be surveyed to check for obstructions, including overhead power lines, etc. Ladders should be carried horizontally rather than vertically. When moving a ladder to a new location after it has been positioned vertically, it should be taken down and set up at the new location. Once vertical, a ladder can only be moved horizontally if it is a lightweight ladder or under eight feet tall.

Ladder set up

Ladders should be set at, or as near as, a 4:1 angle as possible. That is, for each three or four feet of rise from the base to the upper resting edge of the ladder, the base should be one foot out from a vertical line from the upper resting edge of the ladder to the working surface. The base of the ladder must be firmly set so that there is no possibility of slippage or settling into soft ground. The resting edge of the ladder should have both siderails in contact with the object (building or tree) it is against. When setting a ladder against a tree, set the ladder in the crotch of two limbs so that it cannot slide in either direction. Whenever there is any question as to the stability of the ladder, additional effort should be made to stabilize the ladder as it is being climbed.

Ladder safety

Tying the top of the ladder to the supporting structure can also keep the ladder from slipping or sliding. A ladder should be long enough so that when it rests against the upper support the user can perform his work without his waist being higher than the top rung of the ladder or above the rung at which the siderails are resting against the upper support, and the ladder extends at least three feet beyond the roof edge or support point. This means that the top three rungs of a straight ladder, or the top two steps of a stepladder, should never be used for the feet.

The lower ends of the siderails should be equipped with slip-resistant pads, particularly if the ladder is to be used on hard surfaces. The same is true for the upper ends of the siderails if they are to rest against a surface.

Preparation and making the climb

Ladders should be inspected prior to use, after being used by other workers, and after being used in one location for an extended period of time. Items of concern include missing or loose rungs, split bent or dented siderails, defective hardware and splinters. If any of these conditions exist, the ladder should be replaced or repaired.

A frequent cause of ladder accidents is attempting to reach too far left or right. This point emphasizes the need for selecting the proper ladder and proper ladder placement and setup. When working on a ladder, the person's belt buckle should never extend beyond the siderails. Reaching further can cause the ladder to slide in the opposite direction. Never attempt to shift the position of the ladder while you're on it. Tying the ladder to the structure supporting it can prevent this and is a recommended practice. Only one person should be on the ladder at a time.

When climbing a ladder always maintain three points of contact and face the ladder. Workers should have both hands free to hold the ladders siderails, not the rungs, when climbing or descending. Small tools may be carried in a tool belt, not in the hands; but a better choice is to raise tools and supplies with a rope. Never raise or lower power tools by the cord or while they are plugged into an electrical source. Only shoes with heels should be worn when climbing ladders; users should be taught that the rung or step of the ladder should be just in front of the heel, under the arch of the foot. Stepping or standing on a ladder with the front part of the shoe is inviting a slip and fall. Always face the ladder when climbing or descending.

Makeshift ladders, chairs, boxes and barrels should never be used as a substitute for a ladder. The risk of an accident is far too great.

Conclusion

The frequency and severity of injuries resulting from the improper use of ladders is a major concern. Formalizing your program to include employee training on ladder selection, use and maintenance will help you to eliminate ladder-related accidents.

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