Ladder Safety

Loss Control Bulletin

Ladders are simple tools but still require worker safety training. Workers will use ladders that are readily accessible, so all ladders need to be kept in good condition.

Most ladder-related injuries result from falls of less than ten feet because ladders may move, tilt, or shift due to unstable or slippery base surfaces. Other causes include misstep, slip of the foot, loss of balance, over-reaching, or as a result of the ladder being struck by an object or vehicle. By selecting the correct ladder to use and following instructions about safe erection and use, many injuries can be avoided.

When purchasing a ladder, an employer needs to consider several important factors including duty rating of the ladder, composition of the structural parts, and type of ladder needed for the tasks to be performed. A review of factors follows:

There are 5 ladder duty ratings:

- Type IAA 375 lbs. Super heavy duty
- Type IA 300 lbs. Extra heavy duty
- Type I 250 lbs. Heavy duty
- Type II 225 lbs. Medium duty
- Type III 200 lbs. Light duty (household)

For industrial and commercial applications, employers should only consider purchasing the higher rated Type IAA, IA, or I ladders and be guided by the variability of the employees who will use the equipment, and the tasks they will be expected to perform.

The composition of the ladder structural materials is limited to metal, fiberglass, and wood. Each of the material has distinct advantages and disadvantages as outlined below.

Wood:
Advantages: Less Expensive
Disadvantages: Less stable in larger sizes; heavier than aluminum; more prone to damage; requires more care and maintenance

Aluminum:
Advantages: Sturdy; lightweight; resists corrosion/weathering
Disadvantages: Dangerous near electricity

Fiberglass:
Advantages: Sturdiest construction; most weather resistant; safe near electricity
Disadvantages: Most expensive
For commercial and industrial applications, fiberglass ladders offer the best option for employers

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because they are more rugged and safe to use where electrical hazards may exist.

There are many types of ladders, some designed for very specific tasks. Ladder Types include:

- Articulated
- Combination Step & Extension Ladder
- Extension
- Extension Trestle
- Fixed ladders
- Platform ladder
- Rolling ladder
- Sectional ladder
- Side-rolling ladder
- Stepladder
- Step stool
- Straight ladder
- 2- Way Stepladder

Portable metal ladders placed in service after 4/18/1999 must meet requirements of ANSI A14.2-1990 or ANSI A14.10-2000. Portable metal ladders placed in service prior to that date must meet requirements of ANSI A14.2.

When selecting which ladder to use, the following will help determine which ladder is best to use.

- The ladder must be tall enough to prevent the need to overreach.
- Is the ladder to be used for storing or retrieving materials and how frequently will this be done?
- Is there any potential for exposure to electrified equipment?
- Is the ladder to be used as a means of accessing a roof or raised platform and how often will it be used?

Certain responses to the above may indicate the need for fixed or more specialized ladders. For example:

For stocking and retrieving merchandise, a rolling platform ladder or a side-rolling ladder allow for easier movement and provide more secure means of access.

For frequent access to rooftops or raised platforms, fixed ladders provide more security and convenience.

Three key steps to preventing ladder accidents:

1. Purchase high quality, high rated ladders appropriate to the tasks.
2. Implement an effective ladder inspection and maintenance program
3. Provide initial and refresher hands on training to all staff demonstrating safe set up and use of ladders.

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Straight and Extension Ladder Set Up and Use Guidelines

- Keep the ground area below ladder clear of other personnel.
- Make sure the ground surface is level and hard enough to prevent the side railings from sinking and destabilizing the ladder.
- Don't exceed the weight of capacity of the ladder.
- Inspect the ladder for damaged railing and rungs.
- Do not use any ladder found damaged in anyway. Tag and remove from service any damaged ladder.
- If a damaged ladder cannot be repaired properly, throw it away.
- Do not use a metal ladder if there is exposure to electrified equipment lines.
- Make sure the ladder base has slip-resistant feet or is secured to prevent sliding.
- When using an extension ladder, make sure that minimum overlap length is maintained between sections. Minimum overlap of 3 feet is required for extension ladders measuring 36 feet or less.
- Minimum overlap of 3 feet is required for extension ladders measuring 36 feet or less. Minimum overlap of 4 feet is required for ladders measuring between 36 and 48 feet. A minimum overlap of 5 feet is required for ladders measuring between 48 and 60 feet.
- If ground is uneven, make sure that ladder has adjustable height footings. When accessing a roof or elevated surface, make sure the ladder extends at least 36 feet above surface.
- Maintain a 4:1 ratio of height to distance of the base of the ladder from the structure when leaning a straight or extension ladder against a structure.
- Securely tie off the top of the ladder. Do not use an extension ladder in a strong wind.
- When transporting ladders, keep front end up higher than head height to prevent collision with other workers.
- Use three-point contact rule at all times when climbing, descending a ladder.
- Wear only work shoes with slip resistant soles and low heels when using any ladder
- Make sure hands and shoes are dry and not slippery or muddy.
- Position ladder front-on to the work; never work sideways,
- Don't climb or descend while holding objects in your hands. Use a line or bucket to raise tools or materials.
- Face the ladder at all times.
- Keep both hands on side rails, not on rungs, when climbing or descending.
- Do not overreach. Keep you belt buckle between the rails. Move the ladder if necessary.

Stepladder Set Up and Use Guidelines

- Don't exceed the weight capacity of the ladder.
- Use three-point contact rule at all times when climbing, descending a ladder.
- Inspect the ladder for damaged railing and rungs.
- Do not use any ladder found damaged in any way. Tag and remove from service any damaged ladder.
- Do not use a metal ladder if there is exposure to electrified equipment or lines.
- If a damaged ladder cannot be repaired properly, cut it up and throw it away.

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- Make sure that spreaders work properly.

- When transporting ladders, keep front end up higher than head height to prevent collision with other workers.
- Keep the surface area below ladder clear of other personnel.
- Position ladder front-on to the work: never work sideways.
- Wear only work shoes with slip resistant soles and low heels when using any ladder.
- Make sure hands and shoes are dry and not slippery or muddy.
- Face the ladder at all times.
- Only one person at a time is allowed to stand or climb a standard ladder.
- Do not overreach, Keep your belt buckle between the rails. Move the ladder if necessary.
- Do not stand on the top step or cap of a stepladder.
- Never sit or stand on the top cap of a stepladder.

Ladder Inspection Program

Employers should adopt a formal program of regularly scheduled inspections of all ladders kept both on and off premises. Periodic inspections will help identify the need to replace damaged ladders before they can cause an injury. Defective ladders need to be tagged and taken out of service or disposed of if they cannot be repaired. Maintain written records of all inspections to ensure that repairs are completed prior to ladders being returned to service. Some items to check include:

- Are rungs and rails dry, clean, free from wet paint, oil, mud, etc.?
- Are there cracks in rungs or rails? Are there any missing or loose rungs?
- Painted surfaces of ladder possibly concealing damaged wood?
- Are spreaders damaged or bent? Is there warping or splintering of wood?
- Is there metal corrosion?
- Are there sharp edges or dents on metal ladder?
- Are metal rungs bent or damaged? Are rivets and joints, nuts, and bolts tight?
- Are slip resistant footpads in good condition?
- Are the rubber slip resistant footer caps in good condition?

The guidelines provided in this bulletin are only intended to provide an overview of some of the more important steps that can be taken by management to establish a safe workplace. The guidelines are not considered exhaustive of all measures and controls that can be implemented by management to address all potential loss or injury producing causes. Ultimately it is the responsibility of management to take the necessary steps to provide for employee and customer safety. It is not intended as an offer to write insurance for such conditions or exposures. The liability of

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