LADDERS

In reducing the hazards of falls, the safe utilization of ladders is one of the main factors in a successful safety program. Specific requirements for the many types of ladders are found in the Occupational Safety and Health Act, CFR 1910.26 and 1910.29.

General:
1. Loading. The minimum design live load shall be a single concentrated load of 200 pounds. The number and position of additional concentrated live load units of 200 pounds each, as determined from anticipated usage of the ladder, shall be considered in the design.
2. Slope or pitch. Portable (rung and cleat) non-self-supporting ladders shall be erected at a pitch of 75-1/2 degrees for maximum balance and strength. A simple rule for setting up a ladder at the proper angle is to place the base a distance from the vertical support equal to 1/4 of the working length (the length along the ladder between the foot and the top support) of the ladder.
3. Inspection and Tagging. Ladders shall be inspected frequently and those with defects shall be removed from service and tagged or marked "DANGER--DO NOT USE!" and discarded properly.
4. Dressing. All wood parts shall be smoothly machined and dressed on all sides so as to be free from sharp edges and splinters.
5. Ladders with broken, split or otherwise defective rungs or spreader bars must not be used. Report defective ladders to your supervisor.
6. Access to Landings. Ladder rails shall extend at least 36 inches above landings.
7. Be sure a ladder is firmly set down before you climb it; if necessary, block it at the bottom and lash it at the top. The foot should set one-fourth of the ladder length away from the wall against that the ladder is leaning.
8. Leaning sideways or overreaching, while working from a ladder, may cause the ladder to slip or you may lose your balance.
9. When working with A-type ladders, always open or spread fully and make sure the spreaders are in place before you attempt to work from the ladder.
10. Tools left on top of stepladders are liable to fall and injure someone. Keep tools in a bucket or box lashed to the ladder or in tool pouches.
11. Face the ladder when going up or down and keep one hand free for support.
12. Stepladders must not be used for straight ladders; they are not designed for this purpose.
13. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.
14. Other precautions:
   a. Before a new ladder is placed in service, it should be equipped with rubber shoes and wall grips.
   b. When straight or extension ladders are used on hard surfaces, they must be held or firmly lashed.
   c. Forbidden Practices:
      1. lashing sections together to lengthen
      2. over reaching from ladder
      3. Used in horizontal position as platform or scaffold
      4. Overloading
Portable Wood/Metal/Fiberglass Ladders:
Ladders provided by the employer shall be in accordance with ANSI Standard. Construction, design and testing requirements are different for each type ladder because of the variety of materials and hardware used; therefore, additional detail specifications for ladders described herein or for other special type ladders not covered, if required, shall be obtained from the reference standard.

Fixed Ladders:
This section is intended to cover general requirements for fixed ladders of the individual rung and rail type construction. Because of the different design and specification requirements, more detailed information, if needed, should be obtained from ANSI Standard.

1. Pitch or Slope Angle. The preferred pitch of fixed ladders shall be considered to come in the range of 75 degrees and 90 degrees with the horizontal. Ladders having a pitch in excess of 90 degrees with the horizontal should not be permitted.

2. Construction of Fixed Ladders:
   - Ladders shall be designed to support a live load of at least 200 pounds.
   - Rungs, cleats, and steps shall be free of splinters, sharp edges, burrs, or projections.
   - Side rails that might be used as a climbing aid shall be of such cross section as to afford adequate gripping surface without sharp edges, splinters, or burrs.
   - Combination of Metals. When different types of materials are used in the construction of a ladder, the materials used shall be so treated as to have no deleterious effect, one upon the other.
   - Electrolytic Action. Adequate means shall be taken to protect dissimilar metals from electrolytic action when such metals are joined.

3. Maintenance and Preservation:
   - Maintenance. Ladders shall be maintained in safe condition. Ladders shall be inspected regularly.
   - Deterioration of Metal. Metal ladders and appurtenances shall be painted or otherwise treated to resist corrosion and rusting when location demands.
   - Deterioration of Wood. Wood ladders, when used under conditions where decaying occurs, shall be treated with non-irritating preservative, and the details shall be such as to prevent or minimize the accumulation of water on wood parts.

4. Landing Platforms and Access to Fixed Ladders:
   - Platforms. When ladders are used to ascent to heights exceeding 20 feet, landing platforms shall be provided for each 30 feet of height or fraction thereof, except that, where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each 20 feet of height or fraction thereof.
   - Platform Construction. Landing platforms shall be equipped with standard railings and toe boards so arranged to give safe access to the ladder. Platforms shall not be less than 24 inches in width and 30 inches in length.
   - Access. The step-across distance from the nearest edge of the ladder to the nearest edge of equipment or structure shall not be more than 12 inches, or less than 2 1/5 inches.

5. Clearance. The distance from the center line of rungs, cleats, or steps to the nearest permanent object in back of the ladder shall not be less than 7 inches, except when unavoidable obstructions are encountered.
6. Guards, Cage, Basket and Ladder Wells. Guards shall be provided on ladders of more than 20 feet to a maximum unbroken length of 30 feet. Construction and installation specifications for cage or basket guards and ladder wells vary because of the nature of access and its location. Specific details relating to dimensions, maximum lengths and special application guards shall be obtained from ANSI A14.3.

7. Ladder Safety Devices. Ladder safety devices may be used on tower, water tanks and chimney ladders over 20 feet in unbroken length in lieu of cage protection. No landing platform shall be required in these cases. All ladder safety devices such as those that incorporate life belts, friction brakes and sliding attachments shall meet the design requirements of the ladders that they serve.

Ladders (Window Cleaner's Type):
1. When working on a ladder of this type over 18 feet long, a person shall stand at the foot of it, face it and hold it with both hands.
2. Ladders shall be provided with means, suitable to the bearing surface, to prevent slipping or tipping.
3. Ladder shall be inspected once a month by the person who owns it.
4. The use of ladders with hooks attached, to be hung on or over a parapet wall or other projection is prohibited.

Wood Trestle and Extension Trestle Ladders:
The use of trestle ladders or extension sections or base sections of extension trestle ladders longer than 20 feet is prohibited. The total height of base and extension may, however, be more than 20 feet.

SAFE LADDER PRACTICES

Here are some cardinal safe practices for curtailing ladder accidents:
1. Choose the right ladder for the job; the right type and height; one that precludes your climbing above the third rung from the top of an extension or straight ladder or the second tread from the top of a stepladder. Check to make sure that a ladder is in good shape before you use it for any job no faulty or missing parts; no defect whatsoever.
2. When positioning a ladder for work, be certain that its footing is secure on a level, firm, and non-skid surface. In case of doubt, block, lash, and/or stabilize the base and get an assistant to hold it. If stability cannot be assured, do not attempt to use the ladder.
3. Protect the footing from disturbance when conditions dictate (barricade the base against traffic, lock or block adjacent doors, station an assistant to ward off contacts, etc.) Place the top of the extension or straight ladder about one-fourth of its length away from the wall or other structure it will lean against.
4. Place the top of the extension or straight ladder so that both rails lean squarely against a solid stationary structure; never a weak partition, piled boxes, or other objects that can shift or collapse. The rails should extend about 3 1/2 feet above any top landing. Always face the ladder and hold on with both hands when going up or down. While working, keep your hips between the rails, stay in close to the rungs, and limit your reach to a comfortable arm's length.
5. Don't carry tools or materials by hand while climbing up or down. Place needed items on the shelf (not top) of a step ladder before you ascend, or raise and lower them in a container by means of a hand line...or transport them in a protectively rugged and covered pouch supported by a belt or otherwise suspended so as to leave your hands free.
SCAFFOLDING
Scaffolding shall be furnished and erected in accordance with OSHA standard 29CFR, 1910.28, and ANSI-A92.1 for persons engaged in work that cannot be done safely from the ground or from solid construction or ladders.
1. The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as boxes, bricks, boards or concrete blocks shall not be used to support scaffolding or used in an attempt to level scaffolding. Any minor adjustments needed to maintain scaffolding in a plumb position should be attained by adjustable screw jacks provided in the base section.
2. All scaffolding shall be capable of supporting at least four times the designed working load.
3. All exposed surfaces shall be free from sharp edges, burrs, or other safety hazards.
4. The minimum platform width of any work level shall not be less than twenty inches.
5. The maximum work level height shall not exceed four times the least base dimension of the scaffolding. Higher work levels require the use of outriggers to maintain this 4:1 ratio.
6. Steps or stairs to reach the work platform shall be of slip resistant material.
7. All scaffolding work levels ten feet or higher above ground or floor level, shall have a four inch toe board and handrails no less than thirty-six inches or more than forty-two inches high with a mid-rail.
8. A climbing ladder or stairway shall be provided for proper access and egress, and shall be affixed or built into the scaffolding and so located that it's use will not tend to tip the scaffolding.
9. All scaffolding casters shall be provided with a positive wheel or swivel lock or both to prevent movement.
10. Where uplift may occur, panels or sections shall be locked together vertically by pins or other equivalent means.
11. Scaffolding shall be erected and used only by capable personnel who have been trained in their use. Units shall be inspected thoroughly before and after each use.
12. Overhead protection shall be provided for the work platform when an overhead hazard exists for personnel on the work platform.
13. Where moving vehicles or pedestrian traffic is present in the immediate area, signs, barricades, or ropes will be used to secure the area.
14. Tools and work material will be hoisted or lowered to and from work platform by use of hand lines or suitable containers such as baskets.
15. No locally fabricated scaffolding may be used.
16. No scaffolding shall be erected to exceed fifty feet without written permission from the Safety Director.
17. No one is permitted to ride on scaffolding while they are being moved; and material, tools, or equipment shall not be stored loosely while scaffolding is being moved.
18. Ladders and other objects will not be used on work platform to gain additional height.
19. Personnel shall not work from scaffolding during high winds or inclement weather.

If you have any doubts about the safety of your scaffolding or any other tools or equipment you work with, be sure to consult with your supervisor or the Safety Director.
EXCAVATIONS
Trenching and shoring shall be done in accordance with OSHA standard 29CFR, 1926 when the opening is to exceed five (5) feet in depth.
1. This applies to all open excavations made in the earth's surface. Excavation is defined to include trenches.
2. All surface encumbrances that are located at the excavation site shall be at least two (2) feet from the edge of the excavation.
3. The estimated location of sewer, telephone, fuel, electric, water lines, or any other underground installations that may be encountered during excavation shall be determined prior to opening an excavation. All utility lines shall be protected, supported or removed to safeguard employees.
4. A stairway, ladder, or ramp shall be provided for access or egress for any excavation exceeding four (4) feet.
5. Employees exposed to vehicular traffic shall be provided with and wear vests or garments of high-visibility material.
6. No Employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from vehicles being loaded or unloaded.
7. Mobile equipment shall use a warning system such as barricades, hand or mechanical signals, or stop logs.
8. Adequate precautions shall be taken to prevent employees from being exposed to atmospheric contaminants and excavations exceeding four (4) feet shall be tested before employees enter.
9. Employee shall not work in excavations in that there is water accumulated unless supports, a shield system, or water removal equipment is in use.
10. Structures endangered by excavation shall be secured by shoring, bracing, or underpinning to ensure stability for the protection of the employees.
11. Employees shall be protected from loose rock or soil by scaling and keeping all material and equipment at least two (2) feet from the edge of the excavation.
12. The job foreman shall make daily inspections of the excavations and notify the Safety Department at extension 4532.
13. All regulations shall be applied. In the event a violation is observed, the job will be evacuated until specifications can be engaged.
14. If any questions arise about this statement or exact details of the regulations, please refer to the Code of Federal Regulations 29 part 1926.650