7 Ladders and Scaffolding

Ladders provide access to heights that cannot be reached from the ground or to areas where stairs and mechanical lift equipment are not practical. They are an item commonly used, both at home and at work. Ladders are frequently abused and almost never regarded as a potential hazard. Consequently, many accidents can occur that injure, maim and occasionally kill.

The major hazard in using ladders is free fall. Other hazards include splinters, slivers and slips resulting in sprains, bruises and abrasions. Major causes of falls are from carrying loads, climbing or descending too fast, jumping from and reaching out too far while working from ladders. Metal ladders introduce an electrical hazard as they are excellent conductors if contact is made with an electrical source.

The major source of wear, and possible weakened structure, to ladders is usually handling rather than use. The only exception to this generalization occurs when the ladder is used incorrectly or carelessly, which may shorten not only the life of the ladder, but that of the user as well.

7.1 Safety Rules for the Use of Ladders and Scaffolding

SR 7.1.1 If the bottom of a ladder is placed on an insecure surface, secure ladder in a safe appropriate manner or have a co-worker hold it.

SR 7.1.2 Never stand on the top rung or step of a ladder to work.

SR 7.1.3 Only one person shall be on a ladder at one time.

SR 7.1.4 Metal ladders shall not be used in the vicinity of electrical circuits.

SR 7.1.5 Rolling scaffolds shall not be moved while an individual is on the scaffold.

SR 7.1.6 Scaffolding shall not be erected or used in or around electrical equipment until the power has been turned off, locked and tagged out, or otherwise made safe.

SR 7.1.7 All scaffolding and ladders shall be inspected before and after each use. Defective ladders and scaffolding shall be reported immediately to the appropriate supervisor so it can be tagged out with an "UNSAFE: DO NOT USE" tag until it is repaired or replaced.

SR 7.1.8 No ladder may be used for reaching items above staircases unless it has been specifically designed for that purpose and is code approved.

SR 7.1.9 No ladder is to be used on unlevel surfaces or above a height of 10 feet unless another employee is present to steady the ladder.

7.2 Safety Procedures To Prevent Accidents and Possible Injury

7.2.1 Wood ladders shall be periodically inspected for hazardous defects. If any defects are found, the ladder shall be repaired or disposed of immediately to prevent use. The University is in the process of
replacing all wood ladders on Campus. Please report the presence of any wood ladders to EHRM for identification and potential replacement.

7.2.2 Never paint ladders as painting may hide defects. Wood ladders should be sanded to remove splinters and treated only with clear wood preservative.

7.2.3 Wood ladders shrink over a period of time. In a step-ladder, this may cause steps or back bar members to become loose. Hold the rods beneath the steps with pliers and tighten the nut at the end with a wrench to maintain strength and steadiness.

7.2.4 Non-skid feet shall be used, on all straight and extension ladders.

7.2.5 Straight ladders form a triangle when placed against a wall or object for climbing. When properly placed, the bottom side of the triangle should be about one-fourth as long as the vertical side (i.e., if the ladder is leaned against a wall 8 feet high, the feet should be set two feet out from the wall).

7.2.6 When using a straight ladder, it should be long enough to extend at least three rungs above the level to which the user is climbing.

7.2.7 Never use a ladder as a horizontal plank, platform or scaffold. The increased strain placed upon it will weaken it or break it.

7.2.8 Never carry articles in hands while climbing. Use a hand line to raise and lower tools and materials or suspend them suitably in a tool belt.

7.2.9 Clean muddy or slippery shoes before climbing.

7.2.10 Keep rungs and steps clean and free of grease and oil.

7.2.11 Short ladders shall not be spliced together to form temporary extensions.

7.2.12 If it is necessary to place a ladder near a door or aisle where there is potential traffic, set up warning signs or take other precautions to prevent accidental contact that might upset the ladder.

7.2.13 Always face a ladder when ascending or descending it and have free use of both hands.

7.2.14 Ladders should be stored in a manner so as to provide ease of access for inspection and to prevent danger of accidents when removing one for use.

7.2.15 Wood ladders, when not in use, shall be stored in a dry, well-ventilated area. Ladders should not remain exposed to the elements, nor should they be stored near radiators, stoves, steam lines or other equipment.

7.2.16 Wood ladders stored in a horizontal position should be supported at a sufficient number of points to prevent sagging and permanent deformation.
7.2.17 Ladders carried on vehicles must be securely fastened to minimize chafing, the effects of shock and to prevent accidental loss. Any ladder over length forward or aft of vehicle shall be flagged during transport.

7.2.18 Ladders shall not be placed on boxes, barrels or other unstable bases to obtain additional height.

7.3 Scaffolding
A scaffold is a temporary work platform used for supporting both personnel and materials. The major hazards involved in scaffolding work are falls and falling materials. Falls usually result from unsafe work practices or improper guardrails.

To assist in eliminating most types of scaffold related injuries, the following guidelines are provided:

7.3.1 All elevated work platforms over 10 feet high shall have a guardrail constructed of 2 x 4 inch lumber or the equivalent of no less than 36 inches or more than 42 inches high with a mid-rail of 1 x 4 inch lumber or equivalent.

7.3.2 Toe boards shall be installed along the base of the elevated work platform to eliminate the possibility of material being knocked off the platform. Toe boards shall be a minimum of 4 inches high and constructed of wood or other suitable material. When there is a possibility of materials being stacked in such a manner that toe boards would not eliminate their being knocked off the platform, plywood, expanded metal or other suitable material shall be used to fill in the open area between the platform base and upper rails.

7.3.3 All scaffold planking shall be cleated on each end to prevent movement.

7.3.4 When scaffolds are erected above work or walk areas, these areas shall be evacuated and posted to warn individuals to stay clear of the area.

7.3.5 Scaffolds shall not be overloaded.

7.3.6 No equipment shall be left on the platform when moving a scaffold.

7.3.7 Caster brakes shall be engaged while the scaffold is at rest.

7.3.8 There has to be at least one-trained person (competent person) in a crew that is assembling or using scaffolding. Untrained personnel are not allowed to assemble or work from a project that requires scaffolding.