

## **LADDER SAFETY PROGRAM**

### **Purpose, Application, and Scope**

The purpose of this program is to define practices and procedures for the use of ladders safely. Wichita State University developed this program to describe all aspects of ladder safety including a ladder safe use policy, personal accountability, hazard assessment and proper ladder selection, safe work practices, training requirements, and record keeping.

The Ladder Safety Program educates employees to recognize and avoid hazards related to the use of fixed and portable ladders. This Program applies to any use of ladders three (3) feet in height/length or greater by employees of the University as part of their normal work activities.

### **Definitions**

**Articulating ladder** --- Also known as a “Combination ladder”, “Sectional ladder”, or “Multi-Position ladder”, this is a portable ladder capable of being used as either a stepladder, a single ladder or an extension ladder.

**Cage** --- A cage is a guard that may be referred to as a cage or basket guard, which is an enclosure that is fastened to the side rails of the fixed ladder or to the structure to encircle the climbing space of the ladder for the safety of the person who must climb the ladder.

**Cleats** --- Ladder cross pieces of rectangular cross section on edge upon which a person may step while ascending or descending. Also known as “rungs”.

**Combination ladder** --- A portable ladder capable of being used either as a stepladder or as a single or extension ladder.

**Competent Person** --- One who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

**Extension ladder** --- A non-self-supporting portable ladder adjustable in length. It consists of two or more sections traveling in guides or brackets or the equivalent and so arranged as to permit length adjustment.

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

**Ladder** --- a device incorporating or employing steps, rungs, or cleats on which a person may step to ascend or descend.

**Individual-Rung ladder** --- A fixed ladder, each rung of which is individually attached to a structure, building, or equipment.

**Ladder Stand** --- A mobile fixed size self-supporting ladder consisting of a wide flat tread ladder in the form of stairs. The assembly may include handrails but does not include a platform.

**Platform** --- A landing surface that is used as a working or standing location.

**Rail** --- The side members joined at intervals by either rungs or steps.

**Rungs** --- Ladder crosspieces upon which a person may step while ascending or descending. Rungs are usually 'round' in cross-section, while cleats usually are rectangular in cross-section.

**Single ladder** --- A non-self-supporting portable ladder, non-adjustable in length, consisting of one section.

**Side rails** --- The side members joined at intervals by rungs, steps, cleats, or rear braces.

**Step stool (ladder type)** --- A self-supporting, foldable, portable ladder, non-adjustable in length, 32 inches or less in size, with flat steps and without a pail shelf, designed so that the ladder top cap as well as all the steps can be climbed on. The side rails may continue above the top cap.

**Step ladder** --- A self-supporting portable ladder, non-adjustable in length, with flat steps and a hinged base.

**Top Cap** --- The uppermost horizontal member of a portable stepladder.

**Top Step** --- The first step below the top cap of a portable stepladder. Where a ladder is constructed without a top cap, the top step is the first step below the top of the rails.

**Working Length** --- The length of a non-self-supporting portable ladder measured along the rails from the base support point of the ladder to the point of bearing at the top.

**Working Load** --- Maximum applied load, including the weight of the user, materials, and tools, that the ladder is to support for the intended use.

## **Roles and Responsibilities**

**EHS Department** is responsible for the following:

- Ensures that a written program is in place
- Reviews the program periodically and monitors to ensure compliance with this program
- Ensures that employees receive appropriate training, and that training is documented

**Manager/Supervisor** is responsible for the following:

- Inspect annually and maintain all ladders in their control
- Ensures that employees comply with the guidelines established by this program

- Ensures that employees complete required training, and that training is documented

**Employees** are responsible for the following:

- Complies with this program
- Completes required training
- Selecting the appropriate ladder for the task, inspecting the ladder prior to the task, and using the safe work practices defined in this program
- Notifies the supervisor/manager of concerns or problems with department ladders

**Contractors** are responsible for the following:

- All contractors working at WSU shall be responsible supplying and using their own portable ladders on WSU campus.

### **Ladder Construction Requirements**

Fixed and portable ladders and step stools shall at minimum meet the appropriate Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) A14.1 materials and construction specification. Portable ladders shall display the appropriate legible ANSI standard compliance marking and other ladder safety markings.

Wichita State University requires at the minimum the Duty Rating of a “Type II” ladder for any work activities where ladders are used for elevated work projects where the user is not handling large or heavy objects during ladder use. All Maintenance/Trades are recommended to use “Type I” or stronger ladders for their work activities.

### **Rules for Ladder Use**

#### **Intended Use**

Ladder use shall be restricted to the purpose for which the ladder was designed.

- The duty rating of the ladder must be clearly indicated on the ladder
- The working load to be placed on the ladder including the person and tools must be less than the duty rating
- Ladders shall not be climbed by more than one person at time unless designed to support more than one person
- Stepladders shall not be used as single ladders or in the closed or partially closed position
- The user shall not step or stand higher than the step or rung indicated on the label marking the highest standing level on a ladder

- The user shall not step or stand on the ladder top cap and the top step of a stepladder, or a combination ladder configured as a self-supporting ladder
- The rear braces of a stepladder may not be used for climbing

### **Angle of Inclination**

Portable non-self-supporting ladders should be erected at a pitch of approximately 75 degrees from horizontal for optimum resistance to sliding, strength of the ladder, and balance of the climber. A simple rule for setting up a ladder at the proper angle is to place the base a distance from the wall or upper support equal to one-quarter the effective working length of the ladder. Effective working length is the distance along the side rails from the bottom of the support point of the upper portion of the ladder.

### **Footing Support**

The ladder base shall be placed with a secure footing on a firm, level support surface. Ladder levelers may be used to achieve equal rail support on uneven surfaces. Ladders shall not be placed on boxes, barrels, or other unstable braces to obtain additional height.

### **Top Support**

The top of a non-self-supporting ladder shall be placed with the two rails supported equally unless it is equipped with a single support attachment. Such attachment should be substantial and large enough to support the ladder under load. It should be used when the ladder top support is a pole, light standard, or building corner, or in tree-type operations.

### **Side Loading**

Portable ladders are not designed for excessive side loading, and such abuse of the ladder shall be avoided. The ladder shall be kept close to the work. The user shall not overreach but shall descend and relocate the ladder instead. When using a ladder, the user shall never push or pull unless the ladder is properly secured.

### **Climbing Ladders**

When ascending or descending the ladder, the user shall face the ladder and maintain a firm hold on the ladder. It is preferable to grasp the rungs with an overhand grip as opposed to grabbing the rails. Grip strength is improved while grasping the rungs. Three points of contact with the ladder should always be maintained. Recommended climbing pattern is hand, hand – foot, foot. Belt buckle area of the body should remain centered on the ladder and never extend beyond the side rails.

### **Electrical Hazards**

Users are cautioned to take proper safety measures when ladders are used in areas containing electrical circuits. These precautions should prevent any contact or possible contact with an energized, uninsulated circuit or conductor to avoid electrical shock or short circuit. Metal ladders shall not be used where they would encounter exposed energized electrical wires. All ladders should be kept away from electrical power lines.

### **Access to Roof or Platform**

When a single section or extension ladders are used to gain access to a roof or platform, the top of the ladder shall extend at least 3-feet above the point of support at the eaves, gutter, platform, or roofline. The user shall take care when ascending from the ladder to the roof/platform to the ladder to avoid tipping the ladder over sideways or causing the ladder base to slide.

### **Doorways**

Ladders shall not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded.

### **Set-Up and Adjustment of Ladders**

Extension Ladders --- Adjustment of extension ladders shall only be made by the user when standing at the base of the ladder so the user may observe when the locks are properly engaged. The user shall check the rope is tracking correctly in the pulley. Adjustments shall not be made while anyone is standing on the ladder. The user shall ensure that both the upper and lower support points are contacting firm support surfaces.

Stepladders --- The user shall ensure that the stepladder is fully opened, with spreaders locked and all feet in contact with a firm and level support surface.

### **Inspection**

A thorough ladder inspection shall be made when the ladder is originally purchased, received, and put into service. The ladder shall be inspected before each use. Working parts and rung/step-to-step connections shall be checked. Where structural damage or other hazardous defect is found, the ladder shall be taken out of service and either discarded or repaired by a competent mechanic.

### **Damaged Ladders**

Broken or bent ladders shall be marked and taken out of service until they are repaired by a competent mechanic or destroyed in such a manner as to render them useless. The user shall not attempt to repair a defective side rail.

## **Maintenance**

Proper ladder maintenance ensures the safe condition of the ladder. Hardware, fittings, and accessories should be checked frequently and kept in proper working condition. All pivoting connections and rung-lock cam surfaces should be lubricated frequently. All bolts and rivets shall be in place and secure before using a ladder, and no ladders shall be used if any bolts or rivets are missing or if the joints between the steps (or rungs) and the side rails are not tight. Ladders with safety shoes or padded feet which are excessively worn shall be taken out of service until repaired.

## **Information and Training**

Employees must be trained on how to properly set-up and use ladders. Training and retraining must include:

- Ladder selection
- Ladder set-up, adjustment, and use
- How to properly inspect a ladder
- How to properly dispose of a ladder

## **Recordkeeping**

The **EHS Department** will:

- Provide Ladder Safety training and retraining and be responsible for maintaining records. Records will include names of the individuals trained, type of training, date of training, and name of trainer.

## **Annual Review**

The Ladder Safety Program will be reviewed by the EHS Department. The review will include current training and any documents associated with this program. When new tasks, procedures, and/or positions are added or modified/revised which affect the Ladder Safety Program, it will be updated to reflect these changes.