



TEXAS TECH UNIVERSITY™

Operating Policy and Procedure

OP 60.12: Ladder Safety Program

DATE: February 6, 2020

PURPOSE: The purpose of this Operating Policy/Procedure (OP) is to ensure that training is provided for each employee who is required to use a ladder during the performance of his/her job. The training will cover the safe operation and pre-use inspection of the portable or fixed ladder.

REVIEW: This OP will be reviewed in September of even-numbered years by the Assistant Vice President of Environmental Health and Safety (EHS) with substantive revisions forwarded through the Associate Vice President for Research and Integrity to the Vice President for Research.

POLICY/PROCEDURE

1. Intent

This policy/procedure applies to any department on campus, at research sites off campus, or on leased property of Texas Tech University where any type of ladder three feet or more in length/height is used. Employees' safety will be accomplished by complying with the guidelines in 29 CFR 1910.25, 1910.26, and 1910.27.

2. Roles/Responsibility

- a. The department owning the ladders must:
 - (1) Assure that ladders purchased/used in the department are code-compliant and appropriate for the needed safe work tasks;
 - (2) Inspect annually and maintain all ladders in their control/ownership;
 - (3) Render unusable and then dispose of any ladders that are not repairable;
 - (4) Provide training to all personnel using their ladders; and
 - (5) Keep records of all training.

- b. Every ladder user must
 - (1) Be trained on and apply the “Ladder User’s Safe Work Rules” for ladder use outlined in section 7 below;
 - (2) Always select an appropriate type of ladder and use a ladder in a safe manner;
 - (3) Alert department management when ladders need repair/replacement;
 - (4) Assess the type of work to determine if fall protection should be worn and seek alternative access methods instead of ladders if necessary;
 - (5) Refuse to use a ladder if he/she thinks its use is unsafe and, instead, use a safer method such as a scaffold, lift pod, or bucket truck;
 - (6) Ensure tasks performed on the ladder include fall protection, if required; and
 - (7) Provide alternative access when a ladder user determines use of a ladder is unsafe because of the required work tasks.
- c. Environmental Health & Safety (EHS)
 - (1) May provide training and periodic audits to assist departments comply with this OP; and
 - (2) Maintains and updates this OP, as needed, or as compliance codes change.

3. Definitions

- a. *A-Frame Ladder* – Also known as a stepladder
- b. *Articulating Ladder* – Also known as a combination ladder, sectional ladder, or a multi-position ladder, this ladder is capable of being used as a stepladder, single ladder, or an extension ladder. It may also be capable of being used as a trestle ladder or stairwell ladder.
- c. *Cage* – A guard that may be referred to as a cage or basket guard. It is an enclosure fastened to the side rails of a fixed ladder or to the structure, and it encircles the climbing space of the ladder for the safety of the person climbing the ladder.
- d. *Cleats* – Ladder crosspieces of rectangular cross section placed on edge upon which a person may step while ascending or descending (also known as ladder rungs)
- e. *Combination Ladder* – Another name for an articulating ladder
- f. *Double Front or Twin Front Ladder* – A self-standing ladder that is designed to allow both sides of the ladder to be climbed safely
- g. *Feet* – The component of ladder support that is in contact with the lower supporting surface

- h. *Fixed Ladder* – A ladder that is permanently attached to a structure, building, or equipment
- i. *Grab Bars* – Individual handholds placed adjacent to or as an extension of fixed ladders for the purpose of providing safe handholds above the **top** of the ladder
- j. *Individual-Rung Ladder* – A fixed ladder with each rung individually attached to a structure, building, or equipment
- k. *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.
- l. *Multi-Position Ladder* – Another name for an articulating ladder
- m. *Rungs* – Ladder crosspieces upon which a person may step while ascending or descending. Rungs are usually round in cross-section, while cleats are rectangular in cross-section.
- n. *Sectional Ladder* – Another name for an articulating ladder
- o. *Sections* – as related to a sectional ladder
 - (1) *Bottom or Base Section* – The lowest section of a non-self-supporting portable ladder
 - (2) *Top or Fly Section* – The uppermost section of a non-self-supporting portable ladder
 - (3) *Middle or Intermediate Section* – The section between the top and the bottom sections of a non-self-supporting portable ladder
- p. *Single Ladder* – A non-self-supporting portable ladder, non-adjustable in length and consisting of one section
- q. *Side Rails* – The side members joined at intervals by rungs, steps, cleats, or rear braces
- r. *Step Stool (ladder type)* – A self-supporting, foldable, portable ladder, nonadjustable 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 the steps can be climbed on. The side rails may continue above the top cap.
- s. *Stepladder* – A self-supporting portable ladder, non-adjustable in length, with flat steps and hinged base (also known as an A-frame ladder)
- t. *Top Cap* – The uppermost horizontal member of a portable stepladder or step stool

4. Selection of Ladders

Ladders are designed and constructed to hold a specific amount of weight safely. Ladders come in five different duty ratings identified by their type. The duty rating is defined as the maximum safe load capacity of the ladder. A person's fully clothed weight plus the weight of any tools and materials that are carried onto the ladder must be less than the duty rating. At a minimum, the strength of a Type II ladder is required for any work activities when ladders are used for elevated work projects and 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. Departments that have maintenance/trades activities are required to purchase and use Type I, Type IA, or Type IAA ladders based upon the required strength for safe work by their workforce. Research and other academic departments not doing these types of activities may use Type I or Type II ladders. Purchase and use of Type III ladders should be avoided because their duty rating is too light and they are likely to fail before their useful life expectancy, causing potentially injurious results for the ladder user.

5. Duty Ratings

Duty ratings are described in terms of pounds, such as a 300 lb. Duty-Rated Type IA ladder, which is designed for extra heavy duty professional use where the total weight on the ladder does not exceed 300 pounds.

Ladders are also built to handle the demands of various applications. For example, a ladder used frequently on a construction site by larger/heavier workers typically should be stronger and have a corresponding higher duty rating than a ladder used by a lighter-weight person for infrequent light overhead work. The duty rating system is summarized below:

Ladder Duty Rating or "Type"	Capable of Supporting	Rated Use
TYPE IAA	375 POUNDS	SPECIAL DUTY
TYPE IA	300 POUNDS	EXTRA HEAVY DUTY INDUSTRIAL
TYPE I	250 POUNDS	HEAVY DUTY INDUSTRIAL
TYPE II	225 POUNDS	MEDIUM DUTY COMMERCIAL
TYPE III	200 POUNDS	LIGHT DUTY HOUSEHOLD

6. Department Requirements

Departments owning ladders designate a person(s) responsible for the following actions:

- a. Assuring that ladders purchased/used in the department are code-compliant and appropriate for the needed safe work tasks;
- b. Consulting with EHS, as needed, to assess proper ladder use and procurement specifications;
- c. Coordinating with EHS to provide ladder safety training or providing ladder training themselves to all department personnel who use ladders. In either case, training must detail the contents of this OP, including the ladder user's safe work rules, inspections, etc.;
- d. Periodically auditing departmental compliance with this OP;
- e. Conducting ladder inspections as part of an annual shop safety inspection process;
- f. Implementing the following ladder inspection/tracking requirements:
 - (1) Developing a ladder identification system and uniquely numbering each ladder owned by the department for inventory/tracking purposes;
 - (2) Inspecting ladders for damage and documenting inspections per inspection form/criteria in the program;
 - (3) Locking or tagging damaged ladders to ensure they will not be used until repaired;
 - (4) Rendering unusable damaged ladders that cannot be repaired by cutting them into pieces or other destructive means, and then assuring proper disposal of them;
 - (5) Ensuring that any wooden ladders in use are not painted with any color other than clear wood sealer to allow detailed inspection of wood grain and quality. Wooden ladders that are painted or not clear-finished with the wood grain visible for inspection must be destroyed.
 - (6) If not already done so by the manufacturer, marking portable metal ladders with the words: **CAUTION: DO NOT USE AROUND ELECTRICAL EQUIPMENT**

7. Ladder User's Safe Work Practices

- a. Select a ladder that is the proper length and duty rating for the intended work.
(Note: a leaning-ladder must extend at least 36 inches above the edge of a roof/mezzanine when properly installed. A stepladder must be tall enough so that the climber does not have to stand on the top or the top two rungs of the ladder to access his/her work.)
- b. Do not use electrically conductive (e.g., aluminum) ladders for electrical work or near live electrical parts.
- c. Inspect the ladder for broken or defective parts prior to each use.
- d. Remove damaged or defective ladders from use and notify department management about the problem ladder.
- e. Do not place ladders in a location where they can be accidentally struck or displaced.

- f. If the ladder is used in an area where anyone can walk under it, the area must be cordoned off with a visual barrier such as yellow caution tape to alert pedestrians of the possible hazard of something falling from the ladder.
- g. Ladders must not be placed in passageways, doorways, driveways, or any location where they may be displaced by activities being conducted on any other work, unless they are protected by barricades or guards.
- h. For leaning or extension ladders, tie, block, or otherwise secure them while in use.
- i. Do not splice ladders together.
- j. Always face the ladder while ascending and descending.
- k. Do not stand on the top two rungs of a single ladder or an extension ladder.
- l. Do not stand on the top cap or the top two steps of a stepladder.
- m. Do not stand on the top three rungs of a ladder unless there are members of an adjacent structure that provide a firm handhold, or the ladder user is protected by a personal fall protection system (e.g., positioning device or fall restraint system) tied off to a fall protection anchor.
- n. If working outside of the ladder's footprint, or when standing on the uppermost parts of the ladder as noted above, use an appropriate fall protection system.
- o. Do not place planks on the top cap or any other part of a ladder.
- p. Do not use the x-bracing or other structures on the rear section of a stepladder for climbing unless the ladder is designed to be climbed from both sides.
- q. Make sure that a stepladder is properly set up and that the spreader is locked in place before use.
- r. Do not use the stepladder as a lean-to ladder.
- s. Always use a tool belt and other hands-free carrying devices when ascending and descending a ladder.
- t. When working aloft, secure tools and supplies so they cannot fall from the ladder.

8. Fall Protection

Ladders may be used **without** the user wearing a personal harness tied off to a fall protection anchor when a leaning or extension ladder can be tied off and stabilized to a permanent structure or a stepladder is used on a level firm surface and then the work is done when

- a. Using the ladder to gain access from one level to another without the climber carrying anything in his/her hands;

- b. Using a ladder for access to a work area where work is conducted while standing on the ladder, provided the user can ascend and descend using both hands during the entire up/down movement on the ladder;
- c. Working aloft on the ladder, provided both of the user's feet are stationary on one rung and the work area requiring two-handed work is within the ladder's footprint (i.e., no reaching beyond the base legs of the ladder with both hands);
- d. The user can use three-point contact (both feet plus one hand) for stability when reaching and working outside the ladder's footprint using only one free hand;
- e. The ladder user's feet are below the top two rungs of a leaning single/extension ladder or are below the top two steps and top cap of a stepladder;
- f. Doing elevated fine, two-handed work within the footprint of the ladder where the user is using both hands to conduct lightweight work without the use of power tools (e.g., twisting a wire nut on two to three 12-gage or smaller wires, hammering a nail into wood, or unscrewing a light bulb and installing a replacement light bulb);
- g. Using a small cordless power tool such as a ¼ " bit (or smaller) hand drill that is not likely to cause imbalance should the power tool bind during use; and
- h. Using a corded power tool within the footprint of the ladder using only one hand to control the tool and otherwise having 3-point contact on the ladder.

Fall protection must be used in all other ladder use situations unless the department can demonstrate that the planned work activities are equivalently safe to the above noted requirements. Alternatives to using fall protection include temporary scaffolding with appropriate railings, the use of a Lift Pod, the use of Genie lifts, bucket trucks, etc., and should be considered before using ladders in such situations.