UNIVERSITY OF ROCHESTER
ENVIRONMENTAL HEALTH & SAFETY

Policy No.: OS025	**Approved by: Ken Jackson**
Title: Ladder Safety	**Date: 7.1.2024**
Revision No.: New	**Page 1 of 11**
Prepared by: Mike Terzo	

I. PURPOSE

The purpose of this policy is to define practices and procedures to be implemented to use ladders safely. The Ladder Safety Policy educates personnel to recognize and avoid hazards related to the use of fixed and portable ladders. This policy does not cover scaffolds or elevated work platforms which are covered under separate policies.

II. PERSONNEL AFFECTED

This policy applies to all UR personnel using ladders on University of Rochester properties/facilities/rented/leased spaces.

III. DEFINITIONS

Articulated Ladder / Combination Ladder (dual purpose ladder): a portable ladder with one or more pairs of locking articulated joints which allow the ladder to be set up in several configurations such as a single or extension ladder, a stepladder, a trestle ladder, scaffold or work table. Its components may be used as Single Ladders.

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.

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

Ladder Safety System: An assembly of components whose function is to arrest the fall of a user, including the carrier and its associate attachment elements (brackets, fasteners, etc.), safety sleeve, body support and connectors, wherein the carrier is permanently attached to the climbing face of the ladder or immediately adjacent to the structure.

Mobile Ladder Stand: a movable, fixed height, self-supporting ladder consisting of wide flat treads in the form of steps which give access to a top step.

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

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

Step Stool: A self-supporting, foldable, portable ladder, non-adjustable in length, 32-inches or less in overall size, with flat steps and without a pail shelf, designed to be

climbed on the ladder top cap so that the ladder top cap as well as all steps can be climbed. The side rails may continue above the top cap.

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.

IV. RESPONSIBILITIES

Managers/Supervisors:

- Shall be responsible for the ownership, rollout, compliance and implementation of the ladder safety policy within their departments.
- Ensure employees comply with all provisions of this policy.
- Maintain documentation of records required within this policy for their department.
- Provide resources and personnel to assure all of their employees have received necessary training and instruction regarding their assigned roles and responsibilities to comply with this policy.
- Ensure employees are provided with personal protective equipment (PPE).
- Take prompt action when unsafe conditions or acts are observed/reported.
- Investigate ladder usage injuries and damage.
- Conduct a thorough ladder inspection when the ladder is originally purchased, received, and put into service
- Ensure ladders are replaced as identified failing inspection or damaged.
- Shall function as the host employer in relationship with contractors and shall:
  - Inform contractors of known hazards covered by this standard.
  - Provide adequate information about the facility so the contractor can make informed safety assessments.
  - Provide the contractors with a copy of this policy if needed.
  - Report observed contract-employer-related violations of this standard to their manager and/or director.

Employees:

- Complies with this policy
- Completes required training
    - Initial training prior to using ladders.
    - Refresher training in relevant topics will be provided to an employee when any of the following occur:
        - The operator has been observed to be using the ladder in an unsafe manner.
        - The operator has been involved in an accident or a near-miss incident.
- Selects the appropriate ladder for the task, inspecting the ladder prior to the task, and using the safe work practices defined in this policy.
- Notifies the supervisor/manager of concerns or problems with department ladders.
- Only uses UR purchased ladders (not contractors).

Environmental Health and Safety:

- Develop a regulatory compliant ladder safety policy.
- Investigate ladder usage injuries.
- Periodically review and audit this policy.
    - Evaluate the usage of ladders.
    - Evaluate department training records.
    - Evaluate pre-use and worksite ladder inspection.
    - Evaluate maintenance records.

Contractors:

- Contractors are required to follow all applicable OSHA ladder regulations, this policy and manufacturer's instructions.
- Contractors are responsible for providing their own ladders and are not permitted to use U of R owned ladders, with the exception of fixed ladders (i.e. a ladder permanently attached to a structure or equipment).

V. PROCEDURES

General Requirements:

- Ladders must be used in accordance with manufacturer's instructions.
- Portable ladders shall display the appropriate legible ANSI standard compliance marking including duty rating and other ladder safety markings. Labels/markings must be replaced when they are no longer legible.

- Ladders must not be loaded beyond their maximum intended load as found on the label.
  - Maximum intended load is the weight of the employee, tools, equipment and materials that are carried.
  - When using a wooden ladder attention should be paid to the weight limit (typically have lower weight limits).
- Ladders are not to be moved, shifted, or extended during use.
- Ladders placed in locations such as passageways, doorways, or driveways, where they could be displaced by other activities or traffic must be;
  - Secured to prevent accidental displacement, or
  - Guarded by a temporary barricade, such as a row of traffic cones or caution tape, to keep the activities or traffic away from the ladder.
- The top of a non-self-supporting ladder must be placed so that both side rails are supported, unless the ladder is equipped with a single support attachment.
- Ladders and ladder sections must not be tied or fastened together to provide added length unless they are specifically designed by the manufacturer for such use.
- Ladders must not be accessed from the side unless the ladder is secured from accidental displacement.
- Prior to raising or climbing, users should look overhead for possible obstructions.

Ladder Construction Requirements:

- Fixed and portable ladders and step stools shall at minimum meet the appropriate/current Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) A14.1 materials and construction specification.
- Newly installed fixed ladders that are 24-feet or longer (or a potential fall greater than 24 feet) shall be outfitted with a personal fall arrest ladder safety system. Existing fixed ladders that are 24-feet or longer must be retrofit with a personal fall arrest ladder safety system prior to year 2036.

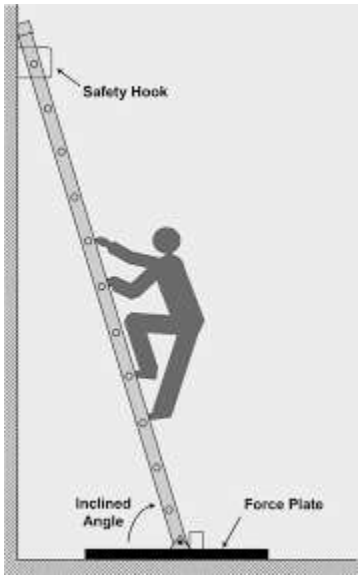
Intended Use:

- Ladder use shall be restricted to the purpose for which the ladder was designed.
- Ladders shall not be climbed by more than one person at a time unless designed to support more than one person.
- Ladders must be faced when ascending and descending.
- 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.
- Devices such as shoes, spurs, spikes, combinations thereof, or similar device of substantial design should be installed where required for slip resistance and bearing areas.

- Where ladders with no safety shoes, spurs, spikes, or similar devices are used, a foot ladder board or similar device may be employed.
- Ladders shall not be used on ice, snow, or slippery surfaces unless suitable means to prevent slipping are employed.
- Ladders shall not be placed on boxes, barrels, scaffolds, aerial/scissors lifts or other unstable bases 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 an 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.
- When ascending, descending or working from a ladder the body must be near the middle of the rungs to prevent accidental displacement.
- Users shall not carry items that could cause a loss of balance while ascending and descending.
    - A tool belt, back pack, etc., shall be used to carry tools, equipment and materials when necessary.

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.
- It is imperative to also take precautions to avoid contact with electrical circuits with tools that are in use while on the ladder.

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 or descending from the roof/platform to the ladder to avoid tipping the ladder over sideways or causing the ladder base to slide.

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.
  - Adjustment of extension ladders from the top of the ladder (of any level over the locking devices) is a dangerous practice and shall not be attempted.
  - Adjustments shall not be made while anyone is standing on the ladder.
  - The user shall ensure that both upper and lower ladder support points are contacting firm support surfaces.
- Combination ladders used in a non-self-supporting configuration require that the same procedures be observed.
- 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.

Wood Ladder Use Restriction:

- Current wood ladders can be used until damaged, or fails inspection.
- If structural damaged, other hazardous defects are found, or if the ladder is painted, the wood ladder shall be taken out of service and discarded.
- It must be replaced with either a fiberglass or aluminum ladder (depending on the application).

Inspection:

- A thorough ladder inspection shall be made by supervisors 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.
  - A portable and fixed ladder inspection checklist is attached to this policy as reference to assist with the inspection criteria.
- Where structural damage or other hazardous defect is found, the ladder shall be taken out of service and discarded.

Damaged Ladders:

- Broken or bent ladders shall be marked and taken out of service and destroyed in such a manner as to render them useless.
- The user shall not attempt to repair a defective ladder.

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 & Training:

- Employees must be trained on ladders initially via MyPath.
- Training must include:
  - Ladder selection
  - Ladder set-up, adjustment, and use
  - Ladder safety systems.
  - How to properly inspect a ladder
- Refresher training in relevant topics will be provided to an employee when any of the following occur:
  - The operator has been observed to be using the ladder in an unsafe manner.
  - The operator has been involved in an accident or a near-miss incident.

VI. REFERENCES

OSHA Ladders:
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.23

VII. APPENDICES/FORMS

Initial and daily reference inspection checklist for portable and fixed ladders.

VIII. REVISION HISTORY

Date	Revision No.	Description
7.1.2024	New	Initial Issue

Portable Ladder Inspection Checklist

Department					Location of ladder:					
Inspection conducted by (Competent Person):					Date Click to enter date					
Ladder identification:					Ladder length (ft.):					
Ladder type:	Step ☐	Straight ☐	Extension ☐	Specialty ☐	Specialty type:	Ladder material:	Fiberglass ☐	Metal ☐	Wood ☐	

	General for all	Yes	No
1	Are the joints between the steps/rungs and side rails tight?	☐	☐
2	Are all hardware and fittings secure (nails, screws, bolts, rivets, hinges, etc.)?	☐	☐
3	Are there any loose, cracked, split, dented, rusted, corroded, broken or missing rails, steps or rungs?	☐	☐
4	Are there any sharp surfaces or burrs on rails, steps, rungs or spreaders?	☐	☐
5	Are any steps, rungs, endcaps or shoes damaged or missing?	☐	☐
6	Are the slip-resistant ladder surfaces (rails, steps and rungs) clean and free of dirt, oil and grease?	☐	☐
7	Do all movable parts operate freely without binding or undue play?	☐	☐
8	Is the instructions/warning label missing or not readable, any part of the ladder painted?	☐	☐
9	Is the ladder completely stable (no wobbling, resting on an even dry surface)?	☐	☐
10	Other:	☐	☐
Step Ladder		**Yes**	**No**
11	Does step ladder have functional slip resistant shoes, front and rear side rails, steps, top cap?	☐	☐
12	Is the spreader/locking hinges loose, bent or broken?	☐	☐
13	Is the spreader or locking device fully functional?	☐	☐
Extension/Straight Ladder		**Yes**	**No**
14	Does ladder have slip resistant shoes, side rails, rungs, endcaps and instruction/warning label?	☐	☐
15	Are there any loose, broken, missing or defective (don't seat properly) extension locks, guides or brackets?	☐	☐
16	Is the rope for the pulley system frayed or worn?	☐	☐
Specialty Ladder		**Yes**	**No**
17	Are any parts of platform or guard rails missing, loose, bent or broken?	☐	☐
18	Are any casters loose, have rust or corrosion?	☐	☐
19	Are any fasteners, locks or hinges loose, bent, broken or missing?	☐	☐

Item #	Comments/Action Items (tagged out as damaged and removed from use)
☐	**Ladder is in good condition**

Fixed Ladder Inspection Checklist

Department:	Building:
Location of ladder:	
Inspection conducted by (Competent Person):	Date: Click to enter date
Ladder description/identification:	Ladder length (ft.):

General		**Yes**	**No**
1	Is the ladder in good working condition (no defects such as loose rungs or steps or side rails, cracks, corrosion, or other deterioration that may impact safety)?	☐	☐
2	Are rungs free of excess dirt, grease, oil or slippery material?	☐	☐
3	Do side rails that might be used as a climbing aid provide adequate gripping surface without sharp edges?	☐	☐
4	Do the side rails and grab bars extend 42” above the top access level or landing platform?	☐	☐
5	Is the connections of the ladder to the building weakened or damaged?	☐	☐
6	Is the base of the ladder obstructed?	☐	☐
7	Is the first rung of the ladder within 14” of the ground?	☐	☐
8	Is the top rung of the ladder level with the top of access/egress level or landing platform?	☐	☐
9	When ladder terminates at a hatch does the cover open with sufficient clearance to provide easy access to or from the ladder?	☐	☐
10	Other:	☐	☐
Existing fixed ladders with cages		**Yes**	**No**
11	Does the bottom of the ladder cage start 7 to 8 ft. above the base of the ladder?	☐	☐
12	Is the cage free of obstructions or debris?	☐	☐
13	Is the cage free of excess dirt, grease, oil or slippery material?	☐	☐
14	Is the cage weakened or damaged?	☐	☐
Landing platforms		**Yes**	**No**
15	Is the landing platform at least 24 by 30 inches?	☐	☐
16	Is the landing platform railings and toe boards functional, clear of debris, and secured?	☐	☐
17	Is one rung of a ladder section located at the level of the landing laterally served by the ladder?	☐	☐
Ladder safety system		**Yes**	**No**
18	Is a properly designed ladder fall arrest safety system installed on ladders greater than 24 ft. in length where no cage is provided?	☐	☐

Item #	**Comments/Action Items (tagged out as damaged or prohibited from use)**

☐	**Ladder is in good condition**