



WORKING AT ELEVATED PLACES Portable Ladders Standard *Selection and Use*

University workers who require temporary access to elevated or lowered locations are faced with a potential risk of falling. Whenever practicable, this risk shall be reduced or eliminated through the use of permanent fixtures for ascent/descent. If this is not feasible, a suitable portable ladder in conjunction with safe usage practices can reduce this potential risk. This standard is based on the Canadian Standards Association (CSA) Standard CAN3-Z11-M81, "Portable Ladders" and the Regulation for Industrial Establishments (RRO 1990, Reg. 851) made under the Occupational Health and Safety Act of Ontario.

APPLICATION:

This standard applies to any Department/Faculty at the University of Toronto where a portable ladder is used by a worker.

This standard does not apply to activities governed by the Construction Projects Regulation made under the Occupational Health and Safety Act of Ontario.

Note: In this standard, "worker" includes faculty, staff, students, and visitors.

RESPONSIBILITIES:

Principal investigators/supervisors and all others in authority shall:

- Identify situations where the use of portable ladders is required;
- Determine (using this standard or in conjunction with the Office of Environmental Health and Safety) the type of portable ladder required for the task;
- Provide employees with the appropriate portable ladder;
- Ensure that workers are informed of the proper use, care and maintenance of portable ladders; and
- Ensure that workers use the appropriate portable ladder.

Workers shall:

- Use portable ladders in a manner consistent with their training at all times;
- Maintain portable ladders in good condition;
- Inspect ladders upon receipt and before each use; and
- Ensure ladders are stored safely after each use.

Note: Persons who tire easily, are subject to fainting spells, are taking medication or have a physical disability which would prevent them from using a ladder in a safe manner should not use ladders.

PORTABLE LADDERS:

Ladders are not general work platforms. They should be limited to situations where the work is of short duration and where there is no other means to access the work area. In such situations, an appropriate portable ladder must be used. An appropriate portable ladder must be of a type suitable for the intended use, and comply with CSA Standard CAN3-Z11-M81, "Portable Ladders," and the Regulation for Industrial Establishments (RRO 1990, Reg. 851) made under the Occupational Health and Safety Act.



Appendix A provides a guide for selecting the appropriate class/type of ladder.

General Requirements

Inspection

- Ladders shall be visually inspected before each use (see **Appendix B**), and if a problem is identified, the ladder should be tagged-out of service until repaired or scrapped.

Set-Up

- Ladders shall be placed on a firm and stable surface, with all supports (non-skid “feet”) contacting the footing
- Ladders should not be placed against flexible or movable surfaces
- Areas surrounding the base and the top of the ladder should be free of obstructions
- The base of the ladder should be secured against accidental movement (e.g. non-slip feet, nailing a cleat to the floor, stabilizers)
- The top of the ladder should be tied off or otherwise secured to prevent any movement
- A portable ladder shall be held by another employee when,
 - (1) the ladder is not securely fastened and exceeds 6 meters (20 feet) in length,
 - (2) if slipping is likely, and/or
 - (3) the ladder may be endangered by traffic;
- A portable ladder shall be barricaded, guarded or supervised in such a manner that contact with any moving object (e.g. door) is prevented, and traffic will not pass underneath
- A portable ladder shall not be lengthened by temporarily attaching additional sections
- Non-conductive ladders must be used in situations where there is a risk of electrical shock
- The ladder must not make contact with electrical wiring or devices;
- Any load applied to a portable ladder shall not exceed 75% of its load rating
- Ladders shall not be used in high winds
- When erecting a long, awkward or heavy ladder, two or more persons should be involved

Usage

- Maintain a 3-point contact when climbing up or down a ladder. This means one hand and two feet, or one foot and two hands have to be on the ladder at all times.
- While climbing and using the ladder a person must maintain a firm grip.
- Both hands must be kept free of materials when climbing or descending
- Work materials should never be carried by hand while ascending or descending a portable ladder; the exception to this is a rolling ladder equipped with guardrails
- Use a shoulder bag, belt holster or belt hooks to carry materials or raise and lower the materials by rope
- Always face the ladder when climbing up or down and when working from it
- When conducting work on a portable ladder, the worker’s body shall remain centered between the side rails
- No person should overreach; instead the worker should descend the ladder and move it to its new location. When standing on the ladder, avoid reaching forwards, backwards, or to either side.
- No person shall “walk” or “shift” the ladder when standing on it
- Only one worker should be on the ladder at any one time
- No material shall be stored on the ladder



- Do not use ladder horizontally as substitutes for scaffold platforms, etc.
- Do not straddle the space between a ladder and another object
- Keep boots free of mud, snow, grease, or other slippery materials

Straight Ladders (Single and Extension)

- Whenever practicable, straight ladders should be tied off at both side rails, on the top end, and blocked at both feet on the bottom to prevent movement
- Straight ladders shall be inclined so that the horizontal distance between the top support point and ladder foot is no less than 1/4 and no more than 1/3 of the ladder's working length unless securely fastened at both top ends. If a ladder is set up too steep or too gradual an angle, it can be dangerous.
- No person shall stand on or above the 3rd rung from the top of the ladder or climb above the top support point
- Where a ladder is used for regular access to a work surface, it shall extend one meter (3 feet) above the upper level and be secured at the top and the bottom with both landings free of obstructions
- Extended ladder sections shall be secured by using the factory equipped locking device according to the manufacturer's directions
- Do not set up or take a ladder down when it is extended

Self-supporting Ladders (Step and Trestle)

- Ladders used as self-supporting units shall have the legs fully spread and locked open; step ladders shall never be used in the unfolded position
- No person shall sit or stand on the top two steps/rungs of the ladder
- Never stand on the top step or pail shelf
- The extension section of a trestle ladder shall be locked according to the manufacturer's directions

Storage

- Never rest a ladder on any of its rungs; ladders must rest on their side rails. When hanging a ladder on its side rails, place the racks at 2 m (6 ft) intervals for support
- If storing a ladder vertically, secure the ladder by using a chain or bungee cord to prevent it from falling
- During transport, do not pile other materials on top of the ladder. Ladders should be "top freight."
- Store ladders in a cool and dry area



**APPENDIX A
LADDER SELECTION**

- 1) Select ladder of proper length to reach working height.
- 2) Select ladder grade by projected use and load rating:

Grade	Projected Use	Load Rating
1	Construction and Industrial	Heavy
2	Tradesperson and Farm	Medium
3	Household	Light

CSA Standard CAN3-Z11-M81, "Portable Ladders,"

- 3) Select the material type:

Material type	Special Consideration
Wood	<ul style="list-style-type: none"> • Deteriorates more rapidly compared to other materials • Must not be painted because that hides signs of deterioration • Can be treated with clear non-toxic wood preserve or coated with a clear varnish
Aluminum	<ul style="list-style-type: none"> • Widely used in construction • Can be susceptible to damage by rough usage • Conducts electricity – do not use if electrical contact is possible
Fiberglass	<ul style="list-style-type: none"> • Most common type of ladders used: lightweight, does not conduct electricity well, resistant to corrosion • Costly • Heat sensitive (do not expose to >93.3°C)
Steel	<ul style="list-style-type: none"> • Heavy • Mainly used as fixed, permanent ladders, not as portable ladders



**APPENDIX B
LADDER INSPECTION**

- 1) Ensure that all rungs, side rails and non-skid feet are present and in good condition.
- 2) Ensure that all rivets, joints, nuts and bolts are tight; and feet, steps and rungs are secure.
- 3) Ensure that all movable parts operate freely without binding or excessive play.
- 4) Ensure that non-skid feet are checked for wear and free of imbedded materials. Swivel feet should display proper pivot action.
- 5) For extension ladders, ensure that the ladder extension locks and feet are functioning (if necessary lubricate); and that the rope is properly affixed and in good condition.
- 6) For step ladders, ensure that the spreader and pail shelf function properly.
- 7) Wooden ladders should never be painted because that hide signs of deterioration. They may have a clear non-toxic coating or clear varnish.
- 8) Ensure that ladders/rungs are clean and free of wet paint, mud, snow, grease, oil and other slippery materials.
- 9) Ensure that clean shoes with dry soles and good grip are used. Leather soles should not be used.
- 10) Ensure that temporary repairs of damaged or missing parts are never carried out and that ladders needing such repairs are not used.
- 11) Ensure replacement parts are made of appropriate/similar materials (i.e. inferior materials should not be used).
- 12) Ensure that all working parts are in good working order before the ladder is used.