

CARLETON UNIVERSITY

Ladder Safety Program

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1.0 Introduction

At the University, portable ladders are used in a wide variety of settings by a number of workers. These situations may include, but are not limited to: changing of light bulbs, ceiling work, or accessing items on a shelving unit. Unsafe use of ladders can result in serious injuries from falling or if a metal ladder is used, electrical shock. The majority of ladder accidents are a result of improper use of the ladder or its equipment. With the potential for severe injuries it is important to ensure the correct ladder is used at all times and safe usage practices are followed to minimize 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*.

2.0 Objective

To protect workers and students from the hazards associated with the use, handling, and storing of ladders in the workplace.

3.0 Legislative Overview

With respect to the employer, under the *Occupational Health and Safety Act (OHSA) of Ontario* there is a general duty clause which states that it is the duty of the employer to "take every precaution reasonable in the circumstances for the protection of a worker" (*R.S.O. 1990, c. O.1., s. 25(2)*). Furthermore, it is the responsibility of the supervisor to "advise a worker of the existence of any potential or actual danger to the health or safety of the worker" (*R.S.O. 1990, c. O.1., s. 27 (2)*) and to "provide information, instruction and supervision to a worker to protect the health or safety of the worker" (*R.S.O. 1990, c. O.1., s. 25 (2)*). Also, sections 17, 18, 73 and 85 (when applicable) in the *Industrial Establishments regulation (RRO 1990, Reg. 851)* outline the requirements of the use of a ladder in the workplace. Refer to Appendix 9.1 for the details.

It is the responsibility of all workers to work in compliance with the *Occupational Health and Safety Act* and the regulations which includes, but is not limited to, working and using equipment and protective devices in the manner in which they were intended, as well as, reporting any defect to equipment or protective devices to his or her supervisor (*R.S.O. 1990, c. O.1., s. 28 (1)*).

In addition to the legislative requirements, all ladders must be built to either CSA or ANSI standards. See Appendix 9.2 for a breakdown of the various Portable Ladder Categories.

The University's *Health and Safety Policy* states in part to ... "ensure the health and safety of all students, staff, faculty and visitors - in all University facilities, at all University functions and in all University sponsored programs".

4.0 Application

Carleton's Ladder Safety Program applies to all workers and supervisors, who in the course of their work may use ladders. This program also applies to departments who have students who, while at Carleton University, use ladders.

5.0 Requirement

All employees who use ladder(s) should be familiar with Carleton's Ladder Safety Program. Ladder users must be able to perform the following functions:

- identify ladder hazards
- choose the correct ladder for the job
- Perform safe working practices
 - inspections
 - maintenance
 - setting up
 - handling
 - storing
 - working

6.0 Roles and Responsibilities

Supervisors

It is the responsibility of all supervisors to ensure that any worker under his/her area(s) of responsibility who uses a ladder is familiar with this program and receives appropriate training. Supervisors and department managers should:

1. Identify the workers who need training
2. Provide/arrange for training
3. Ensure the worker uses safe working practices at all times
4. Forwards record of training to the EHSC department
5. Inventory ladders used in the area
6. Provide appropriate ladders for the completion of work tasks
7. Ensure ladders are maintained in good working condition and keep records of regular ladder inspections (see Appendix 9.3 for a suggested inspection checklist)

Workers

It is the responsibility of the worker to:

1. Attend training
2. Identify situations where a ladder is needed
3. Determine what type of ladder is required
4. Follow safe work practices outlined in the training and in compliance with legislation
5. Inspect ladders before use (see Appendix 9.3) and report any defects or apparent hazards to their supervisor immediately
6. Maintain ladders in good working condition and store appropriately
7. If no appropriate ladder is available for the task, inform supervisor of your finding.

Environmental, Health and Safety Department

It is the responsibility of the Environmental Health and Safety department to:

1. Provide advice and safety information regarding ladders usage
2. Provide training to workers/supervisors
3. Maintain central record of training

7.0 Training

7.1 Method of Training

Workers will attend a ladder safety Training course held and facilitated by the supervisor or health and safety officer. Instructors should cover the topics in a manner that is appropriate for the workers. The training package for the instructors (including PowerPoint, information handouts, Leaders guide, and quiz) can be obtained from the EHS department.

The training will include the following topics:

- Introduction to the basics of ladders
- Hazards associated with ladders
- Inspection and maintenance procedures for ladders
- How to choose the correct ladder for the task
- General information on step ladders
- How to use a step ladder
- General information on extension ladders
- How to use an extension ladder

Note: Carleton's Ladder Safety course is currently available in PowerPoint format.

7.2 Record of Training

All training must be documented and records maintained by the supervisor. In addition, a copy of the sign in sheet and completed quiz must be forwarded to the Environmental Health and Safety Department.

7.3 Frequency of Training

The Environmental Health and Safety Department recommend that training should take place every 2 years, as a minimum, or more if necessary.

8.0 Resources

The following links provide additional information on ladder safety:

1. Canadian Centre for Occupational Health and Safety (CCOHS). Ladder Safety. Available at:
http://www.ccohs.ca/oshanswers/safety_haz/ladders/portable.html
2. U.S. Department of Labour: Occupational Safety and Health Administration (OSHA). Stairways and Ladders: A Guide to OSHA Rules. Available at:
<http://www.osha.gov/Publications/osha3124.pdf>
3. Industrial Accident Prevention Association (IAPA). Ladders. Available at:
<http://www.iapa.ca/pdf/FreeDownloads13-Ladders1.pdf>

9.0 Appendix

9.1 Ontario Regulations

Occupational Health and Safety Act (OHSA) of Ontario

Duties of Employers:

- 25.** (2) Without limiting the strict duty imposed by subsection (1), an employer shall,
- (a) provide information, instruction and supervision to a worker to protect the health or safety of the worker;
 - (h) take every precaution reasonable in the circumstances for the protection of a worker;
- 27.**(2) Without limiting the duty imposed by subsection (1), a supervisor shall,
- (a) advise a worker of the existence of any potential or actual danger to the health or safety of the worker of which the supervisor is aware;
 - (b) where so prescribed, provide a worker with written instructions as to the measures and procedures to be taken for protection of the worker; and
 - (c) take every precaution reasonable in the circumstances for the protection of a worker.

Duties of workers

- 28.** (1) A worker shall,
- (a) work in compliance with the provisions of this Act and the regulations;
 - (b) use or wear the equipment, protective devices or clothing that the worker's employer requires to be used or worn;
 - (c) report to his or her employer or supervisor the absence of or defect in any equipment or protective device of which the worker is aware and which may endanger himself, herself or another worker; and

Portable Ladders

73. A portable ladder shall,

- (a) be free from broken or loose members or other faults;
- (b) have non-slip feet;
- (c) be placed on a firm footing;
- (d) where it,
 - (i) exceeds six metres in length and is not securely fastened, or
 - (ii) is likely to be endangered by traffic,

be held in place by one or more workers while being used; and

- (e) when not securely fastened, be inclined so that the horizontal distance from the top support to the foot of the ladder is not less than 1/4 and not more than 1/3 of the length of the ladder.

2. Fixed Access Structures

17. A fixed walkway, service stair or stile shall be at least fifty-five centimetres in width.

18. (1) Subject to subsection (2), an access ladder fixed in position shall,

- (a) be vertical;
- (b) have rest platforms at not more than nine metre intervals;
- (c) be offset at each rest platform;
- (d) where the ladder extends over five metres, above grade, floor or landing, have a safety cage commencing not more than 2.2 metres above grade and continuing at least ninety centimetres above the top landing with openings to permit access by a worker to rest platforms or to the top landing;
- (e) have side rails that extend ninety centimetres above the landing; and
- (f) have rungs which are at least fifteen centimetres from the wall and spaced at regular intervals.

(2) Subsection (1) does not apply to an access ladder on a tower, water tank, chimney or similar structure which has a safety device which will provide protection should a worker using the ladder fall.

Risk of falling

85. Where a worker is exposed to the hazard of falling and the surface to which he or she might fall is more than three metres below the position where he or she is situated,

(a) the worker shall wear a serviceable safety belt or harness and lifeline adequately secured to a fixed support and so arranged that the worker cannot fall freely for a vertical distance of more than 1.5 metres; and

(b) the fall arresting system described in clause (a) shall,

(i) have sufficient capacity to absorb twice the energy and twice the load that under the circumstances of its use may be transmitted to it, and

(ii) be equipped with a shock absorber or other devices to limit the maximum arresting force to 8.0 kilonewtons to the wearer.

9.2 CSA and ANSI Classifications

Portable Ladder Categories

CSA or ANSI Standards - Portable Ladder Categories:				
Intended Use	Load Rating	Ladder Grade/Type	Weight Limit	Standards Agency
Construction, utilities, and industrial	Special Duty	Type 1AA	375 lb	ANSI
	Extra Heavy Duty	Type 1A	300 lb	ANSI
	Heavy duty	Grade 1	250 lb (112 Kg)	CSA
		Type 1	250 lb	ANSI
Light maintenance, office, and farm	Medium duty	Grade 2	225 lb (101 Kg)	CSA
		Type II	225 lb	ANSI
Household only	Light duty	Grade 3	200 lb (90 Kg)	CSA
		Type III	200 lb	ANSI

9.3 Ladder Inspection Checklist

Ladder Inspection Checklist

The following checklist covers many areas of potential problems. It may be used as a maintenance, department or pre-shift check

Ladder Type: _____

Department: _____

Location: _____

Material: Wood Metal Fibreglass

[V] Acceptable [X] Unacceptable

	DATE OF INSPECTION											
Loose steps or rungs (movable by hand)?												
Loose/missing nails, screws, bolts, or other metal parts?												
Cracked, split, rusted or broken uprights, braces or rungs?												
Wooden parts (smooth, not splinters)												
Damaged or worn non-slip bases?												
Ladder stable?												
All moving parts moving freely (lubricated as per manufacturer)?												
Wobbly (from side strain)?												
Loose or bent hinge spreaders?												
Stop on hinge spreader broken?												
Broken, split, or worn steps?												
Loose, broken or missing extension blocks?												
Defective locks that do not seat properly while extended?												
Worn or rotten rope?												
Identification marks (legible)?												
Ladder (stored properly when not in use)?												
Certification:												
Initials of person making inspection:												
Notes:												