

WORKING AT HEIGHTS PROGRAM

CONTENTS

1.0 Purpose	2
2.0 Scope	2
3.0 Definitions	2
4.0 Roles and Responsibilities	3
4.1 Safety Office	3
4.2 Supervisor/Manager.....	3
4.3 Workers.....	3
4.4 Supervisors of Contractors and Sub-Contractors	4
5.0 Procedures.....	4
5.1 Footwear.....	4
5.2 Portable Ladders (General)	4
5.3 Straight Ladders	5
5.4 Step Ladders	5
5.5 Fixed Ladders.....	5
5.6 Scaffolds.....	6
5.7 Flat Rooftops.....	6
5.8 Sloped Rooftops.....	6
5.9 Elevated Work Platforms.....	6
6.0 Rescue plan	7
6.1 High elevation rescue.....	7
7.0 Training	7
8.0 Appendix A.....	8
9.0 Appendix B.....	11
10.0 Record of Revisions.....	12

1.0 PURPOSE

Working at heights presents an increased risk of high severity injuries and death. This program aims to:

- Reduce the number of falls from heights and corresponding injuries/fatalities.
- Provide workers who use personal fall protection with sufficient knowledge about its purpose and use.
- Provide workers who may be exposed to the hazard of falling with adequate knowledge about fall hazards and general safety practices to work safely at heights.

2.0 SCOPE

This program applies to all University of Waterloo personnel (students & workers) and contractors (including sub-contractors) hired by the University to carry out work at heights. Working at heights includes:

- Working from portable ladders (does not include step stools)
- Working from scaffolds (rolling or fixed)
- Working within 2 meters of an unprotected edge that is 3 meters or higher
- Work on a ladder or platform near a guardrail when the platform or ladder raises you above the guardrail
- Working from elevated or aerial work platforms, including mobile or stationary platforms and powered or non-powered platforms
- Working from heights is considered higher risk work and when using a fall arrest system as primary protection working alone at heights is prohibited.

3.0 DEFINITIONS

Adequate When used in relation to a procedure, plan, material, device, object, or thing, it means that it is sufficient for both its intended and its actual use and sufficiently protects a worker from occupational illness or injury.

Competent

Means a person who,

- a) Is qualified because of knowledge, training, and experience to perform the work,
- b) Is familiar with the Act and regulations that apply to the work, and
- c) Has knowledge of any potential or actual danger to health and safety in the workplace.

Fall Protection

Any system that serves to protect a worker from falling or minimizes the travel distance in the event of a fall. This includes guardrails, coverings, travel restraint and fall arresting systems.

Guardrail

An assembly that provides a barrier to prevent a worker from falling from an edge of a surface.

Roof

This is the exterior surface on the top of a building.

Unprotected edge

Any side or edge (except at entrances to points of access) of a walking or working surface (e.g., floor, ramp, or runway) where there is no wall or guardrail system.

4.0 ROLES AND RESPONSIBILITIES

4.1 SAFETY OFFICE

- Provide training on the use of portable ladders and fall arrest.
- Maintain records of training.
- Periodically review the Working at Heights Program.

4.2 SUPERVISOR/MANAGER

- Ensure personnel receive appropriate working at heights training.
- Ensure personnel are using and wearing personal protective equipment.
- Only permit competent workers to erect scaffolding.
- Identify situations where a fall hazard exists and perform a risk analysis of the work to be performed. See Appendix A for a sample “Fall Protection Work Plan.”
- Put in place rescue plans appropriate for the work being performed before workers use fall arrest harnesses (see section 6).

4.3 WORKERS

- Wear and use all required personal protective equipment.
- Inspect portable ladders prior to use.
- Inspect all life safety equipment prior to use.
- Inspect work area for hazards.
- Establish a safety zone below the worksite to ensure no people are at risk of falling objects.
- Ensure temporary anchors are adequate.
- Review inspection logs of permanent anchors prior to use.
- Report to their supervisor if any equipment fails inspection.

4.4 SUPERVISORS OF CONTRACTORS AND SUB-CONTRACTORS

- Do not let contractors and sub-contractors work at heights without evidence of working at heights training.
- Confirm that contractors and sub-contractors are complying with applicable legislation.

5.0 PROCEDURES

5.1 FOOTWEAR

5.1.1 ACCEPTABLE FOOTWEAR

- Any person working at heights, on ladders, platforms, scaffolding or step stools must use footwear that:
 - Covers the entire foot, including toes and heel.
 - Is tight fitting and will not slip on or off easily.
 - Has non-slip soles with adequate tread.
 - Is clean and free of mud/dirt/oil/grease and other debris.

5.1.2 PROHIBITED FOOTWEAR

- The following types of footwear are prohibited when working at heights, on ladders, platforms, scaffolding or step stools:
 - Sandals
 - High heels

5.2 PORTABLE LADDERS (GENERAL)

- Portable ladders must be inspected prior to use.
- Choose a portable ladder of the correct height.
- Do not use boxes, blocks, tables or any other thing to gain greater height.
- Erect barriers and signage around the work area as directed by supervisor.
- If the work to be performed is in an area where visibility is an issue (in stairwells, near corners, behind doors, etc), use barriers and/or signs to warn pedestrian traffic of work zones (additional personnel may be required).
- When working from a ladder in a traffic area where effective barriers cannot be used ensure additional personnel are present to brace the ladder and act as a safety spotter.
- Use fall protections when working from ladders above 3 meters.
- Always keep shoulders between vertical rails of the ladder – do not reach.
- Only reposition the ladder from the ground.
- Maintain three-point contact when climbing the ladder.

- Use extra care when working from a ladder on a mezzanine or balcony.
 - Ladders nullify the protection of guardrails since the ladder puts the worker above the guardrail. To compensate for this, take the length of the ladder and add 6' to it. So, if using a 6' step ladder, $6'+6'=12'$. If you are using this ladder within 12 of a guardrail fall arrest will be required.
- Ladders must have labeling indicating the maximum working load.

5.3 STRAIGHT LADDERS

- Rails must extend 1 meter beyond the contact point.
- Maintain safe working angle of 1 meter out for every 4 meters of height.
- Extension ladders must have at least a 3-rung overlap.
- The user's hands must be empty.
- Ladders over 6 meters in length must be tied off at point of contact or braced by a helper at bottom of ladder.
- Erect ladders on a firm, level surface.

5.4 STEP LADDERS

- A worker's knees should not be above the top step of the ladder.
- The ladder should be fully extended and locked in place.
- The ladder should be set up to face the work whenever possible.

5.5 FIXED LADDERS

- Fixed ladders must be constructed to applicable Ontario Building Code requirements.
- Fixed ladders shall:
 - Be vertical.
 - Have rest platforms at not more than 9 metre intervals.
 - Be offset at each rest platform.
 - Where the ladder extends over 5 metres above grade, floor or landing, have a safety cage commencing not more than 2.2 metres above grade and continuing at least 90 centimetres above the top landing with openings to permit access by a worker to rest platforms or the top landing.
 - Have side rails that extend 90 centimetres above the landing.
 - Have rungs which are at least 15 centimetres from the wall and spaced at regular intervals.

- The above requirements do not apply to a fixed ladder on a tower, tank chimney or similar structure which has a safety device which will provide protection should a worker using the ladder fall.
- Fixed ladders are to be inspected by a competent person at least yearly. Records of the inspection are to be kept for two years after the most recent inspection.

5.6 SCAFFOLDS

- Only erect scaffolds on firm and level surfaces.
- Before using rolling scaffolds, ensure the brakes are tested and that they function correctly.
- To increase platform height, outriggers approved by the scaffold manufacturer may be used.
- Do not exceed the rated working load for the scaffold.

5.7 FLAT ROOFTOPS

When no guardrails or walls less than 1.2 meters are present:

- Do not approach within 2 meters of the roof edge without wearing appropriate fall arrest or installing adequate temporary guardrails.
- Erect stanchions 2 meters from the edge and place “caution” tape or other highly visible rope/line/tape between stanchions as a visible reminder to stay clear of the edge.
- When working on a rooftop that is composed of loose stone, gravel or other material that may shift, appropriate materials must be used (18”x18” or larger patio stones, 1/2” or thicker laminated plywood, etc) to provide a stable, flat and level surface for portable ladders or scaffolding.

5.8 SLOPED ROOFTOPS

- Install adequate, temporary guardrails or wear appropriate fall arrest.

5.9 ELEVATED WORK PLATFORMS

- Only trained and competent individuals may operate an elevated work platform.
- Do not exceed rated working load of platform.
- Operate platform according to manufacturer’s instructions.
- Competent operators may take a passenger for photographic and inspection purposes only after the passenger has received training in the use of fall arrest harnesses.

6.0 RESCUE PLAN

Rescue plans are not required when guardrails or travel restraints are being used as the primary source of fall protection. Rescue plans are required when using fall arrest as the primary source of fall protection.

A rescue plan should include:

- The designated person(s) in charge of rescue, ideally this would include a qualified first aider.
- When to call 911 if needed.
 - How emergency responders will access the worksite if called.
- Who should be notified if a rescue is initiated (supervisor, stand-by rescue personnel, etc.). Note that any stand-by rescue personnel must be able to be on scene and wearing any equipment necessary for the rescue within five minutes.
- All rescue or control procedures for any mechanical hoisting systems or elevating devices being used. Care must be taken to ensure mechanical hoisting systems do not cause injury or any further injury.

An example of a fall rescue procedure can be found in Appendix B.

6.1 HIGH ELEVATION RESCUE

The University of Waterloo nor Waterloo Fire Rescue has a technical rope rescue team so when working at heights some rescue plans may need to require the services of specialized high and or technical rope rescue specialists. We cannot rely on calling 911 to provide rescue in these situations.

7.0 TRAINING

- All personnel using portable ladders on campus must attend a ladder safety training session.
- All personnel using fall arrest or travel restraint systems must be trained in the proper use and inspection of the equipment.
- All personnel that supervise the erection, alteration or dismantling of a scaffold must be trained on these tasks.
- All personnel operating an elevated work platform must be trained.
- University personnel conducting work at heights that fall under O. Reg. 213/91 Construction Projects must complete a Working at Heights training program by a Ministry of Labour approved training provider.

8.0 APPENDIX A

FALL PROTECTION WORK PLAN

**NOTE this form is available as a downloadable document on the Working at Heights webpage.*

Supervisor: _____ Work location: _____

Estimated start date and duration: _____

Description of work: _____

Fall protection equipment: _____

Identify the hazard.

What is the fall hazard? _____

Try to eliminate the fall hazard.

Can the work be relocated to a place where a fall hazard does not exist?	Y/N
Can the work be delayed until permanent safety features are installed?	Y/N
Can a guardrail system be used?	Y/N
Can floor or roof openings be covered?	Y/N
Can an elevated work platform (EWP) be used?	Y/N
Can a travel restraint system be used? Consider the following: <ul style="list-style-type: none"> ○ Does the travel restraint system need to be shortened or lengthened during use? Does lengthening the lanyards to access certain areas put the worker at risk of a fall? 	Y/N
Can scaffolding be used?	Y/N

Take steps to control the fall hazard.

Can a fall arrest system be used? If yes, consider the following:

Is a fall rescue plan in place to rescue a suspended worker?	Y/N
Has the worker been trained in fall protection to the specific fall arrest system in use?	Y/N
Is the system set up to prevent the worker from hitting an object below? Have other fall hazards in the workplace been considered?	Y/N
Does the fall arrest system components meet the CSA requirements mandated by regulation?	Y/N
Is the anchor point located so that the lifeline is at a 90° angle from the edge? If not and the worker fell they could swing and hit a wall or column of the lifeline could break as it slid across the edge.	Y/N
Has the equipment or system been inspected before use as per manufacturer's instructions?	Y/N

Make a diagram of the location of the fall hazard and include any relevant details.



Describe the system setup or work procedures. _____

Determine fall clearance to ensure worker does not bottom out in a fall. _____

Create a fall rescue plan to rescue a suspended worker. (See sample rescue procedures in Appendix B)

List rescue equipment: _____

Worker sign-off on fall protection work plan:

Worker Name

Worker signature

Date

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

9.0 APPENDIX B

9.1 IF AN ELEVATING WORK PLATFORM (EWP) IS AVAILABLE:

NOTE: the EWP must be within 5 minutes travel time to the location of the suspended worker.

- 1) Take the EWP to the location of the suspended worker.
- 2) Position the EWP beneath the suspended worker and raise the platform until the suspended worker's feet are touching the deck of the EWP and there is slack in the suspended worker's lifeline.
- 3) Disconnect the suspended worker from the lifeline and connect it to the EWP's anchor point.
- 4) Lower the platform to the ground.
- 5) Provide first aid if the worker has suffered any injuries in the fall.
- 6) If suspension trauma is suspected call 911 and have the worker examined at the nearest hospital.

9.2 IF AN ELEVATING WORK PLATFORM IS NOT AVAILABLE:

- 1) Where possible, use a ladder (or ladders) to reach the suspended worker.
- 2) If the suspended worker is not in an area that rescuers can reach by ladders, move the worker by their lifeline to an area that can be safely reached by ladders (if possible).
- 3) Rig a separate lifeline for each rescuer to use while carrying out the rescue.
- 4) Position the ladder(s) so that the rescuers can get beneath the suspended worker.
- 5) Securely attach a separate lowering line to the suspended worker's harness
- 6) Rescuers on the ground will lower the worker while rescuers on the ladders will guide the suspended worker.
- 7) Provide first aid if the worker has suffered any injuries in the fall.
- 8) If suspension trauma is suspected call 911 and have the worker examined at the nearest hospital.

9.3 IF THE INJURED PERSON IS SUSPENDED NEAR THE WORK AREA AND CAN BE REACHED SAFELY FROM THE FLOOR BELOW OR FROM THE PLACE FROM WHICH THE WORKER FELL:

- 1) Ensure that all rescuers are protected against falling (such as by travel restraint or fall arrest).
- 2) If possible, attach a second lifeline securely to the suspended worker's harness to help pull them to a safe place. At least two strong workers will probably be needed to pull someone up.
- 3) Eliminate slack in the retrieving line to avoid slippage.

- 4) Provide first aid if the worker has suffered any injuries in the fall.
- 5) If suspension trauma is suspected call 911 and have the worker examined at the nearest hospital.

9.4 IF A PERSON HAS FALLEN AND IS SUSPENDED IN AN INACCESSIBLE PLACE (E.G. ON A TOWER, AGAINST A BUILDING, OR IN A STRUCTURE WITH NO OPENINGS):

- 1) You may need trained personnel and specialized rescue techniques to rescue the worker. For example, the rescuer may have to lower themselves down to the worker or use a lifeline to rescue them.
- 2) Due to the inherent risk in this type of rescue it should be performed by individuals with specialized training such as contractors specializing in these services.

10.0 RECORD OF REVISIONS

Date	Author/Editor	Change	Version
March 2024	Doug Dye	<ul style="list-style-type: none"> • Added prohibition on working alone at heights in Scope • Added new section on Rescue Planning • Added Fall Protection Work Plan to assist supervisors conducting risk assessments for working at heights. 	Working at Heights Program v.1.2
January 2022	Doug Dye	<ul style="list-style-type: none"> • No changes 	Working at Heights Program v.1.1 JAN2022
January 2021	Doug Dye	<ul style="list-style-type: none"> • No changes 	Working at Heights Program v.1.1 JAN2021
January 2020	Doug Dye	<ul style="list-style-type: none"> • Added requirements to section 5.5 Fixed Ladders • Added requirements to section 5.7 Flat Rooftops • Added section 7.0 Record of Revisions 	Working at Heights Program v.1.1 JAN2020
January 2019	Doug Dye	<ul style="list-style-type: none"> • No changes 	Working at Heights Program v.1.0 NOV2017