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SCOPe
This document applies to all University of Ottawa employees, professors, students, volunteers, and visitors who regularly or occasionally work at heights and are exposed to a hazard of falling. Everyone who carries out work at a height or who is exposed to the risk of falling from a height of more than 3 meters must receive specialized training. Working at heights includes work on sloped or flat roofs in circumstances when adequate railings are not provided and may also include working on ladders or other elevated surfaces.

INTENT
This document serves to provide an overview of applicable legislation and prevention strategies to eliminate accidents and reduce the number (and severity) of fall-related accidents.

LEGISLATION AND REQUIREMENTS
Ontario Regulation 851 (Industrial Establishments) section 85, under the Occupational Health and Safety Act specifies that a worker who is exposed to a risk of falling from a height of more than 3 meters must wear full body harness and lifeline adequately secured to a fixed support so that the worker cannot fall freely for a vertical distance of more than 1.5 meters (the type of system and fall protection must be adequate and CSA recognized).

As an example, a worker who is working on a ladder or a step-ladder and who is situated at a height of more than 3 meters from the ground must use adequate fall protection measures; such as a full-body harness and lifeline secured to a fixed support.

In addition, section 207, Construction Regulation (Ontario regulation 213/91) indicates that when a built-up roof is being constructed, repaired or resurfaced, a barrier shall be placed in the immediate work area at least two meters from the perimeter of the roof.

In accordance with the Ontario Regulations 213/91 and 851, the University of Ottawa requires that persons working at height must receive fall prevention training and implement proper fall prevention methods if they are exposed to:

- a potential free-fall greater than 3 meters/10 feet, or
- a fall more than 1.2 meters/4 feet if the work area is used as a path for a wheelbarrow or similar equipment, or
- if work at a height includes the work on roofs at an angle, or

if work at a height occurs on a flat roof in circumstances where adequate railings are not provided.

Persons should never be required nor allowed to perform any duties which require the person to get closer than 2 meters to an unprotected edge, platform or walkway of any building, nor to utilize elevated equipment unless the employee is properly trained and secured from falling. Special
considerations must be implemented if employees are exposed to falling through any openings in a surface or into operating machinery, water or another liquid.

**Note:** Everyone, even those who don’t usually work at heights, must have fall prevention training and wear protective equipment if they are to perform activities described previously.

For detailed information consult the [Industrial Establishments](#) and the [Construction Projects](#) Regulations under the [Ontario Occupational Health and Safety Act](#).

In circumstances when a worker cannot be secured to a fixed support, another work method must be used, for example, use a lifting device (“off-slab powered platforms”). As a reminder, the use of a lifting device also requires mandatory, specialized training.

**RESPONSABILITIES**

In accordance with the Ontario Occupational Health and Safety Act and its regulations, as well as [Policy 77 of the University of Ottawa](#)

**Supervisors**

1. Select the most appropriate method of fall prevention and fall protection to protect the employee;
2. Acquire the necessary equipment;
3. Train the employee in proper equipment use and keep records of training;
4. Develop a rescue plan; and
5. Ensure that the program is followed and employees accept their obligation to follow the rules to protect themselves.

**Workers**

1. Follow the rules to protect themselves;
2. Use proper equipment and personal protective equipment, as required; and
3. Take all training provided and implement it.

**Facilities**

Ensure the proper and regular certification of all anchor points located on the University of Ottawa premises. Facilities must also provide Protection Services with an updated version of the binders entitled “Roof Anchor Point Location by Building”.

**HAZARD CONTROL**

There are two ways to ensure the safety of the worker who may be exposed to the hazard of falling, namely:

- Fall prevention
- Fall protection

Fall preventative measures shall always be the primary consideration. In either case, a worker shall be adequately trained.
Fall Prevention
The best protection is to prevent falls from happening. Fall prevention uses physical means to keep workers away from situations where they might fall. Fall prevention includes:

1. Proper use of worksite access such as ladders and scaffolds. Please refer to Appendix 1 “Safety Sheet #2 – Ladders and Stepladders”
2. Protective covers over floor and roof openings. Protective covers must be:
   a. Secured in place, and
   b. Constructed to meet the structural requirements for loads due to the use of floors and roofs as set out in the Building Code
3. Visual Warnings – signs or tape, cones or boulders, paint or chalk
4. Physical Barriers – warning barriers and bump lines, handrails, fencing, guardrail systems*, travel restraints
5. Pre-assembly on the ground

Guardrails must be installed in the following areas:
   i. Around the perimeter of an uncovered opening in a floor, roof or other surface to which a worker has access;
   ii. At an open side of,
      a. A raised floor, mezzanines, balcony, gallery, landing, platform, walkway, stile, ramp or other surface, or
      b. A vat, bin or tank, the top of which is less than 107 centimeters above the surrounding floor, ground, platform or other surface; and
   iii. Around a machine, electrical installation, place or thing that is likely to endanger the safety of any worker.

A guardrail shall:
   a. Have a top rail located not less than 91 and not more than 107 centimeters above the surface to be guarded;
   b. Have a mid-rail;
   c. If tools or other objects may fall on a worker, have a toe board that extends from the surface to be guarded to a height of at least 125 millimeters, and
   d. Be free of splinters and protruding nails.
   e. A guardrail shall be constructed to meet the structural requirements for guards as set out in the Building Code.

Note: When preventative measures are not feasible, such as when work places are a rooftop or mobile scaffold, adequate fall protection must be provided for each exposed worker.

Fall Protection
1. Fall restriction. A fall-restricting system is designed to limit a worker’s free fall distance to 0.6 meters (2 feet). One type uses a harness that attaches to a safety rail on a fixed ladder.
2. **Travel-restraint systems.** Where work must be done within 2 meters (6 feet) of an open, unprotected edge that presents a fall hazard, travel-restraint systems do not permit a worker to approach the hazard zone.
   - A travel restraint system shall consist of a full body harness with adequate attachment points.
   - The full body harness shall be attached by lanyard to a fixed support that meets the requirements of the Building Code.
   - The travel restraint system shall be inspected by a competent worker before each use.
   - If a component of the travel restraint system is found to be defective on inspection, the defective component shall immediately be taken out of service.

3. **Fall arrest system** prevents a falling worker from hitting the ground or any object or level below the work. Please refer to Appendix 2 “Safety Sheet #5 – Fall Arrest Equipment” and to the Personal Protective Equipment Guideline.

4. **Anchor points.** The location of fixed anchor points generally can be found on the building plan located in the mechanical room at the entrance to the roof. If the plan is not present, please contact Facilities Service.

5. **Safety nets.** A safety net system must be designed by a professional engineer. The system is installed below a work surface to protect any location where a fall hazard exists. This system is rarely used in the Ontario construction industry.

**Note:** As part of a fall arrest system, the University of Ottawa required the use of body harness systems rather than body belts.

**Inspection**

All components of a fall protection system must be regularly inspected by the user, prior to use. An inspection serves to identify potential deficiencies, damages or defects in the equipment. An inspection must include:

**Full-Body Harness**
- Stitching
- Buckles
- Webbing
- Dorsal “D” ring
- Crossover plate

**Lanyard**
- Fraying, kinking, loose / broken stitching
- Check hardware for damage, rust, cracks, torn stitching, fall indicators, etc.

**Lifeline**
- Inspect fibre rope for fraying, burns, kinking, cuts, tears, etc.
- Check retractable lifelines for smooth operation and functionality.
EDUCATION AND TRAINING
A training program for must be established for every employee exposed to fall hazards, even for rare or occasional situations.

As of April 1, 2015, employers must ensure that certain workers complete a working at heights training program that has been approved by the Chief Prevention Officer and delivered by an approved training provider before they can work at heights.

The training requirement is for workers on construction projects who use any of the following methods of fall protection:
- travel restraint systems
- fall restricting systems
- fall arrest systems
- safety nets
- work belts or safety belts

There is a two-year transition period for workers who, prior to April 1, 2015, met the fall protection training requirements set out in subsection 26.2(1) of the Construction Projects Regulation. These workers will have until April 1, 2017 to complete an approved working at heights training program.

This training requirement is in the Occupational Health and Safety Awareness and Training Regulation, and is in addition to training requirements under the Construction Regulation.

A list of qualified trainers is maintained by ORM and can be obtained upon request.

Additionally, the Office of Risk Management also offers training for work conducted from ladders and step stools at nominal heights (i.e. < 10 feet).

Training Records
Supervisors must ensure that:
- A worker who may use a fall protection system is adequately trained in its use and given adequate oral and written instructions by a competent person.
- The person who provides the training and instruction prepares a written training and instruction record for each worker and signs the record.
- The training and instruction record shall include the worker's name and the dates on which training and instruction took place.
- The employer shall make the training and instruction record for each worker available to an inspector on request.

If you have questions or concerns about whether you should complete Working at Heights or Basics of Ladder Safety training please contact the Office of Risk Management.
PROCEDURES FOR HIGH ELEVATION RESCUE
These procedures are meant to inform members of the University community of the proper action to take in situations involving high-elevation rescues on University premises. The Technical Rope Rescue Team (TRRT) of the Ottawa Fire Department is trained to carry out rescues. This team will assume command of the situation and direct the rescue. The type of response and rescue procedure will depend on the nature of the accident/incident.

Please note that the Technical Rope Rescue Team will take a minimum of 5-10 minutes to arrive on site. It is critical that the actions outlined be followed to ensure a safe rescue and prevent further injury or worsening of the situation.

Procedure
Prior to the initiation of work, a rescue plan must be developed for the unique location where the work occurs. A general plan is outlined below.

1. Call Protection Services immediately at extension 5411 or PRESS the emergency button on the telephone.
2. Provide as much information as possible about the situation. Here are examples of information that may be requested:
   - The nature of the emergency / incident / accident (high elevation rescue, building structure collapse, etc.);
   - What the person requiring rescue was doing or working on when the situation occurred;
   - Exact location of the person requiring rescue:
     - Name / location of the building;
     - Building address;
     - Is the person inside or outside the building or on the roof?
       - If the person is outside the building, on which side (use cardinal points) of the building and at what height?
   - The person’s condition: conscious or unconscious, visibly injured or not, position relative to the building (upside down, facing ground, etc.);
   - How long has this person been in the situation?
   - What kind of equipment is the person wearing (if any)?
3. If possible, describe the risks for the person requiring assistance and for the rescuer:
   - Approximate elevation (how many floors up)?
   - Could there be an atmospheric hazard (i.e. oxygen deficiency, ?
   - Other risks such as electrical, mechanical or thermal (hot/cold).
4. If possible, attempt to support the prone individual with the use of a ladder, elevating work platform, cherry picker, etc.

A rescue plan that is appropriate in one circumstance may not be suitable in another. Ensure that all unique hazards to the work and work environment have been considered.
LOCATION OF ROOF ANCHOR POINTS
Facilities Service maintains binders entitled “Roof Anchor Point Location”; these show the location of roof anchor points on each building. A copy of this binder is available in the Protection Services Communication Centre (141 Louis-Pasteur; Room 110) and in the office of the Health, Safety and Risk Manager at Facilities Service (141 Louis-Pasteur, Room 208).

In addition, a plan is posted showing the location of roof anchor points in mechanical rooms / penthouses located at the top of University buildings.
APPENDIX 1 – SAFETY SHEET 2 – LADDERS AND STEPLADDERS
LADDERS AND STEPLADDERS

Consult the Ontario Occupational Health and Safety Act and its regulations for detailed information.

1. All ladders must be properly suited for the task.
2. All ladders must be in good working condition. Check all parts before each use.
3. All ladders must be CSA (or equivalent) approved, especially for construction purposes.
4. It is recommended to use a heavy duty or grade 1 ladder.
5. Ensure to verify the rating load and respect limitations.
6. All ladders must have non-slip feet.
7. All ladders must be on a firm footing and secure against slipping.
8. Avoid twisting or turning.
9. Do not stand on the top two rungs.
10. Face the ladder, use both hands to climb up or down, and maintain three-point contact at all times. To keep your hand free, use a tool belt, or hoist tools and materials up after you reach the top.
11. Do not overreach; keep your centre of gravity between the side rails. A general rule is that if your buckle is in line with the uprights you are leaning too far.
12. Never paint or coat a wooden ladder with an opaque material.
13. Never use aluminium ladders, or conductive materials, where electrical contact is possible.
14. Ensure areas surrounding the base and top of the ladder are clear of obstructions.
15. Never use a ladder horizontally.
16. If work is conducted at more than 3 metres with a hazard of falling, workers must have proper training, wear a safety harness and tie the lanyard to the structure, or to a lifeline, before beginning work.
17. Ensure you are wearing slip-resistant footwear.

Additional requirements if using an extension ladder:

18. Follow the 4 to 1 rule. Ladders should be inclined so there is one rung length out from the wall for every four rungs height to the point the ladder touches the wall (not less than 1/4 and no greater than 1/3).

March 2008; Updated January 2011; August 2011; July 2014; January 2015
SAFETY SHEET #2  
Office of Risk Management

19. The top of the ladder should extend at least one metre above the edge of the working surface.

20. Have someone hold the bottom of a tall ladder until it can be tied off to a firm anchoring point.

21. Do not use in high winds.

22. An extension ladder which exceeds 6 metres in length must be held in place while in use by one or more workers if it is not securely fastened or is likely to be endangered by traffic.

23. Never erect ladders near power lines unless you are a competent electrician and follow restricted rules.

**Additional requirements if using a stepladder:**

24. Ensure to lock the stepladder in place by spreading the legs to their limit and locking the spreader.

25. Never stand on the top or use the pail shelf as a step.

26. Verify the age of the ladder (should be imprinted into the ladder) – how old is too old?

27. Maintain 3 points of contact with the ladder

More information: [Infrastructure Health and Safety Association](#)
APPENDIX 2 – SAFETY SHEET 5 – FALL ARREST EQUIPMENT
FALL ARREST EQUIPMENT

Consult the Ontario Occupational Health and Safety Act and its regulations for detailed information.

1. Any worker required to use fall protection must be trained in its safe use and proper maintenance. Refer to uOttawa Fall Protection Guidelines for further details.
2. Equipment must be properly suited for the task.
3. Equipment must be in good working condition. Inspect all parts of the equipment for damage, wear, and obvious defects before each use.
4. Replace defective equipment. If there is any doubt about the safety of the equipment, do not use it.
5. Replace any equipment, including ropes, involved in a fall. A trained inspector must confirm the equipment can be used safely if a potential defect is found.
6. Always refer to manufacturer’s instructions regarding the use and care of the equipment.
7. A trained inspector should examine equipment at least yearly.
8. Equipment must include a CSA-approved full body harness.
9. Equipment must include a lanyard equipped with a shock absorber unless the shock absorber could cause a falling worker to hit the ground or an object or level below the work.
10. Equipment must be attached to a CSA approved lifeline or by the lanyard to an adequate fixed support (fixed anchor).
11. Fall arrest equipment shall bear manufacturer identification marks.
12. Equipment must prevent a falling worker from hitting the ground or any object or next level below the work area.
13. Must not subject a falling worker to a peak fall-arrest force greater than 8 kilonewtons (1800 pounds).
14. The minimum strength of all components including lifeline and lifeline anchorage (in systems without shock absorber) must be able to support a static load of 8 kilonewtons (1800 pounds) without exceeding the allowable unit stress of the materials used for each component.
15. The minimum strength of all components including lifeline and lifeline anchorage (in systems with shock absorber), must be able to support a static load of 6 kilonewtons (1350 pounds) without exceeding the allowable unit stress of the materials used for each component.
16. Anchor points must be inspected yearly and must be identified with a seal of approval by a professional engineer.
17. The location of fixed anchor points generally can be found on the building plan located in the mechanical room at the top of the roof. If not please contact Facilities.

For additional information on personal protective equipment, please refer to the University of Ottawa Personal Protective Equipment Guidelines and the Fall Protection Guidelines.