1.0 PURPOSE

The purpose of this procedure is to detail procedures for working at heights and to ensure that personnel working at heights are able to identify situations where fall protection is necessary, are aware of the associated hazards, and know how to use and inspect personal protective equipment.

2.0 SCOPE

This procedure applies to all employees, students and contractors who are required to perform work with a potential to fall:

- 3 metres (10 feet) or more above the nearest surface
- more than 1.2 metres (3.9 feet) if the work area is used as a path for a wheelbarrow or similar equipment;
- into operating machinery;
- into water or another liquid;
- into a hazardous substance or object; or
- through an opening in a work surface.

3.0 DEFINITIONS

Anchor Point: a secure point of attachment for lifelines, lanyards, or deceleration devices

Authorized Personnel: Individuals who have been trained and certified as being competent to work safely on a specific task at heights and/or involving the use of elevated work platforms or scaffolds.

Competent Person: means a person who
- is qualified because of knowledge, training and experience to organize the work and its performance;
- is familiar with the OHSA and the regulations that apply to the work; and
- has knowledge of any potential or actual danger to health or safety in the workplace.

Fall Arrest System: an assembly of components joined together so that when the assembly is connected to a fixed support, it is capable of arresting a worker’s fall: consists of a full body harness with back mounted “D” ring, a shock absorber lanyard, a lifeline, connecting hardware and anchorage point(s).

Fall Protection System: specialized personal protective equipment designed to prevent falls from heights or to bring an individual to a safe and controlled stop after falling.

Fall Restricting System: a type of fall arrest system that has been designed to limit a worker’s fall to a specific distance (2 feet).

Guardrail System: an assembly of components joined together to provide a barrier to prevent a person from falling from the edge of a surface.

Travel Restraint System: an assembly of components that work together to prevent a worker’s centre of gravity from reaching a location where a fall hazard exists.

Worker: Workers as defined under the Occupational Health and Safety Act, including faculty, staff, and student workers.
4.0 RESPONSIBILITIES

Department Managers/Supervisors shall:

- Provide the direction necessary to support and maintain an effective Working at Heights Program;
- Whenever feasible, eliminate the need for work at elevations that present fall hazards by utilizing engineering solutions in the design and retrofit of new and existing facilities;
- Be trained and authorized to recognize and supervise work that involved the use of fall protection equipment;
- Identify areas where fall protection systems are required;
- Ensure all employees in their department who work at heights are trained in this procedure and deemed to be competent in the safe use, care and maintenance of the equipment;
- Ensure that the components of fall arrest and travel restraint systems are inspected by a competent person before and after each use as well as once annually, and that defective components are taken out of service immediately; and
- Provide a Safe Operating Procedure (SOP), which includes a Rescue Plan, whenever a Fall Arrest system is used.

Authorized Workers shall:

- Use personal protective equipment as required;
- Participate in training and be competent in the safe use, care and maintenance of the equipment;
- Follow safety procedures and observe regulatory requirements;
- Inspect all of the components of fall arrest and travel restraint equipment before and after each use and report defective components to their immediate supervisor; and
- Report all incidents involving personal injury or property damage to their immediate supervisor.

Health and Safety shall:

- Coordinate Working at Heights training for applicable employees; and
- Maintain training records for employees.

5.0 REFERENCE DOCUMENTS

Ontario Occupational Health and Safety Act:
O. Reg. 851, Industrial Establishments S.56-60, 79, 85
O. Reg. 213/91, Construction Projects S.21, 26 and 143-149 (Elevating Work Platforms)
Safe Operating Procedures and Guideline - Use of Ladders, Use of Scaffolds, Use of Aerial Work Platforms
OHS-4.6.3 Personal Protective Equipment procedure
University of Windsor Ladder Safety Guidelines
University of Windsor Inspection Checklists for Ladders, Elevated Work Platforms, and Safety Harness
6.0 PROCEDURE

A. Risk Assessment: Working at Heights
B. Guardrails
C. Working on the Roof or Elevated Places
D. Use of Aerial / Elevating Work Platforms, Ladders or Scaffolding
E. Use of Fall Protection Systems
F. Emergency Procedures
G. Training

A. RISK ASSESSMENT: WORKING AT HEIGHTS

Prior to assigning work at heights, the Supervisor and/or competent person shall assess the risks associated with the job task and identify, control or eliminate any fall hazards where possible. The Supervisor and/or competent person shall identify any other hazards that may be present as part of the risk assessment.

Fall protection measures (i.e. enclosures, barriers, guardrail systems, protective coverings, and fall protection systems) shall be approved by the responsible supervisor.

If the fall hazard cannot be eliminated, the hazard shall be controlled by using a fall protection system that meets the requirements of the Occupational Health and Safety Act (OHSA). A fall protection system shall be used whenever a fall-from-height risk cannot be eliminated (reference Section E. Fall Protection Systems).

B. GUARDRAILS

The best option for eliminating a fall hazard is a guardrail system. A guardrail system must be used if a worker has access to the unprotected edge of any of the following work surfaces and is exposed to a fall of 7.9 feet (2.4 metres) or more:

- A floor, including the floor of a mezzanine or balcony
- The surface of a bridge
- A roof while formwork is in place
- A scaffold platform or other work platform, runway, or ramp.

Guardrails must be installed no farther than 300 mm from an edge (1 foot max). All purchased guardrail systems shall meet regulatory requirements, and shall be installed according to the manufacturer’s instructions.

All openings in floors, roofs, and work surfaces must be protected by guardrails or protective covers of sufficient strength. Covers must:

- Completely cover opening
- Be secured in place
- Be clearly identified as a cover to avoid removal
- Be constructed to adequately support all expected loads (50 lbs/square foot)

If it is not possible to install guardrails, or if a guardrail must be temporarily removed, a worker must be adequately protected by at least one method of fall protection (Reference Section E - Fall Protection Systems for more information).
C. WORK PROCEDURES FOR WORKING ON ROOF OR AT ELEVATED PLACES

Roof access is restricted to Authorized Workers.

Workers that are performing work on roof areas need the appropriate knowledge, skills and experience to work in a safe manner. Workers need training to recognize the risks, understand the appropriate systems of work and be competent in the skills to carry them out, such as accessing the roof, performing work safely on the roof, and wearing proper fall protection equipment.

If any work is to be done within 2 metres (6.6 feet) from an open, unguarded edge that presents a fall hazard, a travel-restraint system shall be worn.

Prior to every job being performed on a roof, a Competent Person shall:

- develop a work plan to identify hazards for the specific type of work to be performed on the specific building roof. The work plan shall incorporate safe zones in the work area.
- ensure that adequate fall protection (either fall prevention or fall arrest) is in place and used by all workers.

All workers shall use all equipment and protective devices required to safely perform work at heights, in addition to following all University safe work policies and procedures. This includes the inspection of all personal fall protection equipment prior to each use.

D. USE OF AERIAL/ELEVATING WORK PLATFORMS, LADDERS, OR SCAFFOLDING

Supervisors shall provide safety training and education to workers working at heights, using fixed access structures, or using elevated equipment to ensure they are trained in safe work practices and the proper use of the equipment.

Employees shall evaluate their requirements for safe access to work assignments and shall consult supervisory personnel as necessary. Prior to using elevated work platforms or ladders, the equipment must be inspected by the worker. The inspection must be recorded on the University’s Inspection Checklist for Ladders / Elevated Work Platforms, or similar document. Safe Operating Procedures for the use of the equipment must be followed.

Prior to beginning work, the worker must survey the work area for potential hazards:

Ground conditions: No holes, drop-offs, uneven surfaces, slopes, unstable or slippery surfaces

Housekeeping: No debris, floor obstructions, cords, construction materials, supplies etc. No risk of collisions or unauthorized personnel in the work area (use barricades to rope area off).

Overhead hazards: Beams, pipes, obstructions, tight spaces, risk of falling material

Environmental hazards: Good wind conditions, good weather conditions, no hazards present

Energy hazards: Electrical cables, panels, equipment, chemical/gas/drain lines, utilities

E. USE OF FALL PROTECTION SYSTEMS

A fall protection system shall be used whenever a fall-from-height risk cannot be eliminated. Regulations require any worker exposed to falling more than 3 m (10 feet) shall wear a fall arrest system.
Supervisors are responsible for ensuring that workers are using the appropriate fall protection system and that they are trained in the safe use and proper maintenance of the fall protection system. Supervisors will ensure fall protection equipment is inspected annually by a competent person other than the worker.

Workers are responsible to inspect all fall protection systems prior to each use. Workers shall record their inspection using the University’s Inspection Checklist for Fall Protection Equipment, or similar document.

Fall protection systems shall meet the following requirements:

- A full body harness must be worn when using a fall protection system.
- All fall protection system components and travel restraint system components shall be CSA-approved.
- Fall arrest system components and travel restraint system components shall be inspected by a competent worker before and after each use for damage, wear, and obvious defects. Defective components shall be tagged and taken out of service immediately. An annual inspection of fall protection equipment must be performed annually by a competent person other than the worker.
- A Safe Operating Procedure (SOP) must be put in place for all work involving the use of fall arrest equipment, including emergency procedures.

**Fall Protection Systems**

Personal fall protection systems include:

- Travel restraint system
- Fall restricting system
- Fall arrest system

**Travel Restraint System**

If any work is to be done within 2 metres (6.6 feet) from an open, unprotected edge that presents a fall hazard, a travel-restraint system shall be worn. A travel-restraint system lets a worker travel just far enough to reach the edge but not far enough to fall over. A travel restraint system includes the following components:

- Anchor point / approved support structure
- CSA-approved full body harness with D-ring
- CSA-approved, positioning lanyard

The travel restraint system must be adjusted so that the connection between the worker and the anchor, when fully extended, prevents the worker from reaching any point where the worker may fall. The system must also be securely anchored (See Anchor Points below).

If workers cannot be protected from falls by guardrails or travel restraint, they must be protected by at least one of the following fall-protection methods:

- Fall-arrest system
- Fall-restricting system
- Safety net

These systems prevent the worker from hitting the ground, the next level, or any objects below. Each of these systems has specific legislative requirements which must be followed for design, installation, inspection, and use.
Fall Restricting System
A fall restricting system is designed to hold a worker securely in place at elevated heights, allowing them to work hands-free. The equipment is arranged to limit free fall distance to 0.6 m (2 ft.). These systems should be used only when the worker’s footing can be regained (i.e., fixed ladder, roof, bridge, scaffold, tree).

No rescue plan is required for fall restricting systems.

Fall Arrest System
A fall arrest system is designed to keep a falling worker from hitting the ground, level, water, or any object or person below the work. The system must:

- Limit the fall distance
- Limit the impact of arresting forces on the fallen worker
- Must be inspected to ensure it meets manufacturer’s specifications, standards, and is not damaged (reference the Inspection and Maintenance section below).
- Must be worn correctly with only suitable and compatible, CSA-approved components.

When using a fall arrest system, workers shall attach their lifeline to an anchor point.

A fall arrest system includes the following components:

- Anchor point / approved support structure
- CSA-approved full body harness with back mounted D-ring
- Energy absorbing or self-retracting lanyard, lifeline and fall arrester (rope grab)

Anchor Points
An anchor point is a secure point of attachment for lifelines and lanyards. There are 3 types of anchor systems:

- Permanent designed fixed support
- Temporary fixed support
- Existing structural features or equipment

Permanent anchors can be used to anchor a fall arrest system, fall-restricting system, or travel restraint system if the support has been installed according to Building Code, is safe and practical to use, and is certified by a professional engineer. Permanent anchors shall be conspicuously labeled for the intended purpose and with load capacity information.

Temporary anchors are manufactured for one-time use only. The label on the anchor must be read carefully before installation and use. These points shall be selected with input from a professional engineer.

Existing structural features or equipment not intended as anchor points but verified by a professional engineer as having adequate capacity to serve as anchor points can also be used (i.e., rooftop mechanical rooms, structural steel, or reinforced concrete columns).

Never anchor to:

- Roof vents, hatches, or pipes
- Small pipes and ducts
- Metal chimneys
- Antennas
Stair or balcony railings

Permanent and temporary anchor points must be inspected at least annually, or as recommended by the manufacturer. Workers shall verify the inspection of the anchor point before use, inspections are coordinated through Facility Services.

Inspection & Maintenance for Fall Protection Systems

Fall protection equipment must be inspected by workers prior to each use. Workers shall record their inspection using the University’s Inspection Checklist for Fall Protection Equipment, or similar document.

Supervisors must maintain an inspection and maintenance program for all fall protection equipment and equipment used to work at heights. An annual inspection of fall protection equipment must be conducted by a competent person, other than the worker.

Any equipment found to be defective or unsafe must be tagged and removed from service, and destroyed if repairs cannot be made. Any equipment that has been subject to fall arrest forces must be removed from service for third party inspection.

It is recommended that all fall protection components are replaced every five years from the manufacturer’s date on the equipment.

Fall protection equipment can be cleaned and maintained per the manufacturer’s instructions for proper care. Any equipment that is missing CSA labels or is written on with marker is deemed to be invalid and defective.

Supervisors are responsible to ensure that inspections are completed as required and departmental inspection records are retained for at least three years.

F. Emergency Procedures

A written rescue plan for fallen workers shall be provided by the workplace supervisor in advance of all work performed that requires a fall arrest system. This plan shall be available to workers at the time that the work is performed.

A buddy system protocol shall be documented and implemented whenever fall arrest systems are deemed to be necessary for the protection of the worker. This shall include co-workers trained as spotters to watch the individuals required to use fall arrest equipment, and to activate the emergency plan in the event of a fall.

A rescue plan should include:

- The designated trained person(s) in charge of rescue
- Qualified on-site first aid personnel and equipment
- Emergency contact numbers
- Emergency access routes to the worksite
- Communication system(s) to be used
- Rescue or emergency control procedures for any mechanical/elevating devices being used.
- Lock out procedures and procedures to secure unsafe work areas
G. Training

Any users of fall protection equipment at the University shall be trained and authorized as being competent in the use and care of equipment. Training shall include but not be limited to the following:

- Regulatory requirements and University requirements
- Training in fall protection systems or Working at Heights (e.g. PSHSA Working at Heights – Fundamentals of Fall Protection)
- Department-specific Safe Operating Procedures (SOPs) for assigned equipment, work areas, and job duties
- Machine-specific fall arrest training (e.g. Aerial Work Platform)
- Emergency Procedures as applicable

Refresher training for Working at Heights certification and equipment certification will be scheduled by Health & Safety every 3 years.

Training Records

Health and Safety maintains training attendance records to record the training provider, type of training, workers names, and the date(s) on which training was given to University employees. For any worker who participates in training provided externally, a copy of the worker’s certificate must be forwarded to Health and Safety for their records.

Equipment inspection and safety training records for work involving the use of fall arrest and travel restraint systems shall be maintained by the operating department and kept for a period of three years after the use of such equipment.