UNIVERSITY of GUELPH

HUMAN RESOURCES

ENVIRONMENTAL HEALTH AND SAFETY

WORKING AT HEIGHTS GUIDELINES

IMPROVE LIFE.

Revision History

Revision Number	Document Section	Details of Amendments	Date
0		New Guideline	February 2019
1	All	AODA Compliance	June 2020

Table of Contents

1. INTRODUCTION

Working at heights can present a significant risk for those performing such work when appropriate precautions are not taken. To protect those performing work while at height, safe work procedures which incorporate the appropriate precautions to prevent falls from height are required to be developed and followed.

This document outlines the appropriate precautions to be considered when developing safe work procedures concerning the use of:

- ladders
- scaffolds
- powered elevating work platforms
- protective covers
- warning barriers (bump lines)
- guard rails, and
- fall protection equipment.

For assistance in the use of these guidelines or the interpretation of the regulations cited, please contact the Facilities Safety Specialist in Environmental Health and Safety.

2. ROLES AND RESPONSIBILITIES

2.1 Manager/Supervisor

- Completes hazard assessments to identify the workplace hazards and necessary controls to complete a task safely
- Documents safe work procedures including any personal protective equipment required and communicates these requirements to workers
- Develops written procedures for rescuing a worker prior to use of a fall arrest system or a safety net
- Ensures workers are appropriately trained and maintains records of training
- Ensures that appropriate fall protection personal protective equipment (PPE) is used when and where necessary
- Ensures all equipment that is used in the performance of the work is maintained in an acceptable condition

2.2 Worker

- Completes tasks as outlined in safe work procedures
- Participates in training as appropriate
- Uses required fall protection PPE when and where necessary
- Inspects equipment required for completion of tasks prior to each use
- Removes from service and tags any equipment found to be in an unacceptable condition, and reports to supervisor
- Cares for, and maintains equipment in an acceptable condition

2.3 Environmental Health & Safety Unit (EHS)

- Facilitate consultation on working at heights safely
- Assists in development and review of safe work procedures as required or requested
- Assists in hazard assessments as required or requested
- Performs an annual inspection of all university owned personal fall protection equipment used at the main campus
- Monitors changes in regulatory requirements pertaining to working at height and updates guidance accordingly

3. HAZARD ASSESSMENT AND CONTROLS

A hazard assessment is the first step in the development of safe work procedures. For new tasks or changes to existing tasks, a hazard assessment should be conducted or reviewed as the case may be by the supervisor or manager. Controls are documented in the safe work procedures for those hazards identified in the assessment. While conducting the hazard assessment the supervisor or manager shall also consider the hazards which the work may create for those not directly involved in completing the task, such as public way protection.

Controls for working at heights follow a regulated hierarchy beginning with the use of guardrail systems where practicable followed by the use of a travel restraint system, a fall restricting system, a fall arrest system, or a safety net in that order. Requirements for guardrails are outlined in Section 8 and the remaining systems are outlined in Section 11 of this document.

Further information on hazard assessment and controls can be found in Section 3 and Appendix A “Hazard Assessment Form” of the University of Guelph Personal Protective Equipment Guidelines.

4. TRAINING

The University requires that all workers who in the course of their activities may use any of the following methods of fall protection will have successfully completed a working at heights training program that meets the requirements outlined in O. Reg. 297/13 Occupational Health and Safety Awareness and Training:

- A travel restraint system
- A fall restricting system
- A fall arrest system
- A safety net
- A work belt
- A safety belt

Equipment specific training is also required for those workers that use any of the following devices to access work at heights:

- Suspended Work Platforms - O.Reg. 213/91 Construction Projects, Section 138
- Multi-Point Suspended Work Platforms - O.Reg. 213/91 Construction Projects, Section 142.5 (2) and (3)
- Elevated Work Platforms - O.Reg. 213/91 Construction Projects, Section 147

- Scaffolding – In accordance with the manufacturer's instructions

For those workers who only work at heights of less than 3 metres and access the work through the use of a ladder, training in the safe use of ladders is required. Ladder Safety training should include the following:

- Description of the various types of ladders available
- Choosing the right ladder for the job
- Assessing the suitability of the floor or ground to support the ladder to be used
- Methods for leveling the ladder
- Inspecting for defects
- Using ladders safely
- Dangers of overreaching
- Awareness of unsafe practices
- Safe storage

5. LADDERS

Ladders are used for short duration light duty tasks (e.g., access, inspections), and where 3-point contact can be maintained at all times. Ladders may be fixed or portable of which there are several different types.

5.1 Fixed Ladders

The requirements for fixed access ladders are outlined in:

- O.Reg. 213/91 Construction Projects, Section 84
- O.Reg. 851 Industrial Establishments, Sections 18 and 19
- Ministry of Labour Data Engineering Sheet 2-024, Fixed Access Ladders

5.2 Portable Ladders

The requirements for portable ladders which include minimum grade, marking, condition, and setup are outlined in:

- O.Reg. 213/91 Construction Projects, Sections 78 thru 83
- O.Reg. 851 Industrial Establishments, Section 73

Use portable ladders in accordance with the manufacturer's instructions.

See "Appendix A" for a ladder inspection checklist which should be posted where ladders are stored as a reminder for users the items to inspect prior to the use of the equipment.

6. SCAFFOLDS AND WORK PLATFORMS

Scaffolds are temporary structures which provide access to work at height and are erected when work cannot be performed on the ground, from a permanent structure, or practically with the use of a powered elevated work platform. The requirements for the design and construction of scaffolds are outlined in:

- O.Reg. 213/91 Construction Projects, Sections 126 thru 136.

Where proprietary scaffold systems which meet the design requirements are used, the manufactures instructions for their erection shall be followed.

Where suspended work platforms or boatswain chairs are used by a worker to perform work, the requirements for the design, testing, maintenance, record keeping and use for such devices are outlined in:

- O.Reg. 213/91 Construction Projects, Sections 136.1 thru 142.06.

Where a multi-point suspended work platform is used by a worker to perform work, the requirements for the design, testing, maintenance, record keeping and use for such devices are outlined in:

- O.Reg. 213/91 Construction Projects, Sections 142.1 thru 142.8

7. POWERED ELEVATING WORK PLATFORMS

There are several different types of powered elevating work platforms such as elevating rolling work platforms, self-propelled elevating work platforms, boom-type elevating work platforms, and vehicle-mounted aerial devices. The requirements for the design, testing, maintenance, record keeping and use for such platforms are outlined in:

- O.Reg. 213/91 Construction Projects, Sections 143 thru 149

Where cranes or similar hoisting devices are used to support a platform, bucket, basket, load, hook, sling or similar device from which a worker is to perform work, the requirements for such use are outlined in:

- O.Reg. 213/91 Construction Projects, Sections 153 thru 156
- O.Reg. 851 Industrial Establishments, Sections 52 thru 60

8. GUARDRAILS

Guardrails are the most common and convenient method of providing fall protection, and are the required type of fall protection where they are practicable to install. The fall hazards which a worker shall be adequately protected by permanent or temporary guardrails are found in:

- O.Reg. 213/91 Construction Projects, Sections 26 and 26.3 (1)
- O.Reg. 851 Industrial Establishments, Section 13

The specifications for the design and construction of guardrail systems are outlined in:

- O.Reg. 213/91 Construction Projects, Sections 26.3 (4) thru 26.3 (8)
- O.Reg. 851 Industrial Establishments, Section 14

9. COVERS

Openings in floors, roofs, and other work surfaces must be protected by guardrails or covers if the openings pose a fall hazard. When covers are used for this purpose, they must be in accordance with the requirements of:

- O.Reg. 213/91 Construction Projects, Sections 26.3 (2) and (3)
- O.Reg. 851 Industrial Establishments, Section 15

10. BARRIERS

Where work is performed on a flat roof surface at least 2 metres from an unprotected edge, warning barriers and bump lines prevent falls by alerting workers to the fall hazard. When a work area is enclosed by properly installed and maintained warning barriers or bump lines, work inside the enclosed area can be done without additional fall protection measures. Warning barriers and bump lines must be in accordance with the requirements of:

- O.Reg. 213/91 Construction Projects, Section 207

11. FALL PROTECTION EQUIPMENT AND SYSTEMS

Fall protection equipment can be separated into three categories, namely Anchors, Body wear, and Connectors which form the ABC's of fall protection, and are the components of any fall protection system. These components are to be designed by a professional engineer in accordance with good engineering practice, and meet the requirements of the following National Standards of Canada standards as applicable:

- CAN/CSA-Z259.1-05 Body Belts and Saddles for Work Positioning and Travel Restraint
- CAN/CSA-Z259.2.5-12 Fall Arrestors and Vertical Lifelines.
- CAN/CSA-Z259.2.2-98 (R2004) Self-Retracting Devices for Personal Fall-Arrest Systems
- CAN/CSA-Z259.2.3-99 (R2004) Descent Control Devices
- CAN/CSA-Z259.10-06 Full Body Harnesses
- CAN/CSA-Z259.11-05 Energy Absorbers and Lanyards
- CAN/CSA-Z259.12-01 (R2006) Connecting Components for Personal Fall Arrest Systems (PFAS)
- CAN/CSA-Z259.14-01 (R2007) Fall Restricting Equipment for Wood Pole Climbing

See "Appendix B" for an Inspection of Personal Fall Protection Equipment check list, which should be posted where the equipment is stored as a reminder for users the items to inspect prior to the use of the equipment.

Fall protection systems follow a hierarchy of methods. As mentioned in Section 8, a guardrail system is the highest ranked fall protection system and is required where it is practicable to install. Where a guardrail system is not practicable, workers are to be protected by the highest ranked method that is practicable from the following list:

- A travel restraint system which meets the requirements of O. Reg. 213/91 Construction Projects, Section 26.4
- A fall restricting system which meets the requirements of O. Reg. 213/91 Construction Projects, Section 26.5
- A fall arrest system which meets the requirements of O. Reg. 213/91 Construction Projects, Section 26.6
- A safety net which meets the requirements of O. Reg. 213/91 Construction Projects, Section 26.8

A travel restraint system as its name implies is designed to restrain a worker from reaching any location from which they could fall. A fall restricting system is designed to limit a worker's free fall distance to 0.6 metres (2 feet). Fall arrest systems must be designed to limit the peak fall arrest force to which a worker is subjected to less than 8 kilonewtons.

12. CLIMBING EQUIPMENT FOR ARBORIST WORK

Arborists work at height at times may be performed using ladders or powered elevating work platforms. When these types of equipment are used to access the work at height, the arborists shall follow the guidance as listed above. Where it is impractical to access the work with these types of equipment and the arborists is required to climb the tree, they shall use the specialized equipment and techniques as outlined in:

- Arborist Safe Work Practices, Workplace Safety & Prevention Services
- ANSI – Z133-2017 Safety Requirements for Arboricultural Operations

APPENDICES

Appendix A: Ladder Inspection Checklist

If you have any doubt about the serviceability of any component of a ladder, remove it from service, tag it as “Out of Service”, and inform your supervisor for further inspection.

General

- ☐ Inspect before every use
- ☐ CSA grade and load rating verifiable (Grade 1, 1A, 1AA)
- ☐ Loose steps or rungs
- ☐ Loose nails, screws, bolts, or other metal parts
- ☐ Cracked, split, or broken uprights, braces, or rungs
- ☐ Slivers on uprights, rungs, or steps
- ☐ Damaged or worn non-slip bases

Step Ladders

- ☐ Wobbly (from side strain)
- ☐ Loose or bent hinge spreaders
- ☐ Stop on hinge spreaders broken
- ☐ Loose hinges
- ☐ Broken, split, or worn steps

Extension Ladders

- ☐ Loose, broken, or missing extension locks
- ☐ Defective locks that do not seat properly while extended
- ☐ Worn or rotten rope

Appendix B: Inspection of Personal Fall Protection Equipment Checklist

If you have any doubt about the serviceability of any component of a fall protection system, remove it from service, tag and forward to EHS for further inspection.

General

- ☐ Inspect before every use
- ☐ Check tags for date of last certified inspection

Harness

- ☐ No cuts, frayed edges, broken stitches or other damage
- ☐ No discolouration, melted fibres, brittleness due to heat or chemical damage
- ☐ No excessive oil or grease contamination
- ☐ Grommets are intact
- ☐ Plastic or metal keepers are sound
- ☐ No cracks, distortion, sharp or rough edges on buckles
- ☐ Buckle slides easily for adjustment

Lanyard

- ☐ No worn, broken or cut fibres
- ☐ No knots
- ☐ No evidence of stretching or loading
- ☐ No evidence of exposure to chemicals or heat
- ☐ No excessive oil or grease contamination
- ☐ No cracks, distortion, corrosion or signs of stress on the connecting hardware

Shock Absorber

- ☐ Shock absorber is intact and unused
- ☐ No cuts, tears, burns, chemical damage or stretching on outer jacket and loops
- ☐ Stitching is intact
- ☐ No excessive oil or grease contamination

D-Ring

- ☐ No distortion, cracks, sharp edges, chemical or heat damage

- ☐ No corrosion
- ☐ Adjustment plate – no cracks, heat damage or other defects
- ☐ Adjustment plate – keeps D-ring in position

Snap Hook

- ☐ Double-action hook only
- ☐ Gate strength is 3600 lbs (16 KN)
- ☐ No cracks, corrosion or pitted surfaces on hook
- ☐ Not bent
- ☐ No sharp edges
- ☐ Check for tension on spring to close keeper securely
- ☐ Lock doesn't allow keeper to open when engaged
- ☐ Keeper isn't binding or bent and has no excess lateral movement

Rope or Cable Grabs

- ☐ Matches vertical lifeline type and size
- ☐ Installed on lifeline in proper direction
- ☐ No corrosion, cracks, sharp edges or visible damage

Lifelines

- ☐ No damaged strands, cuts, abrasions, burns or foreign material lodged in the strands
- ☐ No discolouration from heat or chemical exposure
- ☐ No excessive oil or grease contamination
- ☐ No decrease in normal diameter usually caused by fall arrest or other weight
- ☐ Eyes are secure

Anchors

- ☐ Only one lanyard attached to each anchor unless engineered and certified for the purpose
- ☐ Only one end of each horizontal or vertical lifeline attached to each anchor
- ☐ Able to withstand the static force requirements of the fall protection system in use
- ☐ No corrosion
- ☐ No rough edges, nicks or burs