



Complete Program Title: Working at Heights Protection Program	Risk Management Manual (RMM) Number: 314
Approved by:  _____ Vice-President, Administration  _____ President and Vice-Chancellor	Date of Most Recent Approval: September 2015
Date of Original Approval: September 2007	Supersedes/Amends Program dated: January 2010
Responsible Executive: Vice-President, Administration	Enquiries: Environmental and Occupational Health Support Services (EOHSS) eooss@mcmaster.ca
DISCLAIMER: <i>If there is a discrepancy between this electronic program and the written copy held by the program owner, the written copy prevails.</i>	

1 PURPOSE

- 1.1 To define the requirements for the prevention of injury to persons working at and from heights.

2 To ensure compliance with the Occupational Health and Safety Act SCOPE

- 2.1 All individuals (faculty, staff, students and contractors) who are required to work at and from heights as defined in this program.

3 Related Documents

- 3.1 Occupational Health and Safety Act, R.S.O. 1990 and O. Reg. 851. R.R.O. 1990, Industrial Establishments, Section 85 and O. Reg. 213/ 91 Construction Projects, Section 26 and Section 207 (See Appendix A);
- 3.2 O. Reg. 297/13 Occupational Health & Safety Awareness & Training
- 3.3 Canadian Standards Association, Z259.16-04, Design of Active Fall Protection Systems;
- 3.4 Canadian Standards Association, Z1156, Fall Arrest Systems Practical Essentials;
- 3.5 Canadian Standards Association, Z259. 10-06: Full Body Harnesses;

-
- 3.6 Canadian Standards Association, Z259. 11-05: Energy Absorbers and Lanyards:
 - 3.7 Canadian Standards Association, Z259. 2.1-98: Fall Arresters, Vertical Lifelines and Rails;
 - 3.8 Canadian Standards Association, Z259.2.2-98: Self Retracting Devices for Personal Fall Arrest Systems:
 - 3.9 Canadian Standards Association, Z259. 1-05: Body Belts and Saddles for Work Positioning and Travel Restraint:
 - 3.10 Canadian Standards Association, Z25.9.12-01: Connecting Components for Personal Fall Arrest System (PFAS):
 - 3.11 Canadian Standards Association, Z259.17: Guide to Selection of Fall Protection Components:
 - 3.12 Canadian Standards Association, Z259. 2.3-99: Descent Control Devices.
 - 3.13 RMM#100 McMaster University Workplace and Environmental Health and Safety Policy.
 - 3.14 RMM#307 Scaffolds / Suspended Scaffolds and Powered Elevated Platforms Program.
 - 3.15 RMM#300 Health and Safety Training Program.
 - 3.16 RMM#301 Standard Operating Procedures (SOPs) Program.
 - 3.17 RMM#313 Head Protection Program.
 - 3.18 RMM#312 Foot Protection Program.
 - 3.19 RMM#304 Working Alone Program.
 - 3.20 RMM#111 Contracting Work Safety /Due Diligence Program.

4 DEFINITIONS

- 4.1 **Anchorage Point** – a secure point of attachment for lifelines, lanyards, or deceleration devices that is independent of all means of supporting or suspending the worker.
- 4.2 **Buddy System** – a system of organizing individuals into work groups so that each individual within the group is designated to be observed, by at least one other person in the work group.
- 4.3 **Authorized Workers** – Individuals who have been trained and certified as being competent to work safely on a specific task involving the use of scaffolds, suspended scaffolds or powered elevated platforms.
- 4.4 **Competent Person (OHSA)** – means a person who.
 - (a) is qualified because of knowledge, training and experience to organize the work and its performance,

- (b) is familiar with this Act and the regulations that apply to the work, and
 - (c) has knowledge of any potential or actual danger to health or safety in the workplace.
- 4.5 **Constructor** – means a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself or by more than one employer.
- 4.6 **Employer**- A person who employs one or more workers or contracts for the services of one or more workers and includes a contractor or subcontractor who performs work or supplies services and a contractor or subcontractor who undertakes with the owner, constructor, contractor or subcontractor, to perform work or supply services.
- 4.7 **Ensure** – take every reasonable precaution to achieve the stated objective.
- 4.8 **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 workers fall; consists of a full body harness with back mounted “D” ring, a shock absorber lanyard, a lifeline, connecting hardware and anchorage point(s).
- 4.9 **Fall Protection** – specialized personal protective equipment designed to prevent falls from height or to bring an individual to a safe and controlled stop after falling.
- 4.10 **Fall Restricting System** – a type of fall arrest system that has been designed to limit a worker’s fall to a specific distance.
- 4.11 **Guardrail System**- an assembly of components joined together to provide a barrier to prevent a person from falling from the edge of a surface.
- 4.12 **Safety Net**: a safety net that complies with O. Reg. 213/91, section 26.8, and is located and supported in such a way that it arrests the fall of a worker who may fall into it without endangering the worker.
- 4.13 **Swing-fall** – the hazard of swinging into an obstruction after falling.
- 4.14 **Supervisor** – Person who has charge of a workplace or authority over a worker.
- 4.15 **Travel Restraint System** – an assembly of components capable of restricting a person’s movements on a work surface and preventing the person from reaching a location from which he or she could fall that includes; equipment designed to keep a person away from the location of the fall hazard; a mechanism which restricts the movement of a person on a work surface; consists of a full-body harness, a lifeline or retractable lanyard, and an anchorage point also referred to as a fall restraint.
- 4.16 **Worker** – “worker” means any of the following, but does not include an inmate of a correctional institution or like institution or facility who participates inside the institution or facility in a work project or rehabilitation program:
1. A person who performs work or supplies services for monetary compensation.
 2. A secondary school student who performs work or supplies services for no monetary compensation under a work experience program authorized by the school board that operates the school in which the student is enrolled.

3. A person who performs work or supplies services for no monetary compensation under a program approved by a college of applied arts and technology, university or other post-secondary institution.
4. A person who receives training from an employer, but who, under the *Employment Standard Act, 2000*, is not an employee for the purposes of that Act because the conditions set out in subsection 1(2) of that Act have been met.
5. Such other persons as may be prescribed who perform work or supply services to an employer for no monetary compensation ("travailleur").

4.17 **Worker Safety Representative** – Worker member of a JHSC or a Health and Safety representative as defined in the OHS Act.

4.18 **Acronyms:**

CJHSC – Central Joint Health and Safety Committee

EOHSS – Environmental and Occupational Health Support Services

FAS- Fall Arrest System

FHS Safety Office- Faculty of Health Science Safety Office

JHSC – Joint Health and Safety Committee

MOL – Ministry of Labour

OHS Act - Occupational Health and Safety Act

SOP – Standard Operating Procedure

RMM – Risk Management Manual

5 RESPONSIBILITIES

5.1 Role of Senior Management: (Directors/Deans/Chairs/Department Managers)

Senior Managers shall:

- provide the resources and direction necessary to support and maintain an effective Working at Heights Protection Program; and
- 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.

5.2 Facility Services Department/Other Departments Issuing Contracts for Construction Projects and/or Facilities and Equipment Repairs

- ensure that the requirements outlined in the McMaster University Working at Heights Protection Program and other relevant programs defined by McMaster University Risk Management Manual are complied with;
- ensure that contractors and subcontractors demonstrate by documentation their ability to manage projects in compliance with McMaster University Risk Management Programs and Policies and the OHSA and related regulations under O. Reg. 851 RRO. 1990, O. Reg. 213 / 91, and O. Reg. 297/13 prior to being awarded contracts for work on McMaster University property.

5.3 Contractors

Contractors and Sub-contractors shall:

- ensure that all of the conditions outlined in the McMaster University Working at Heights Protection Program and other relevant programs defined in the McMaster University Risk Management Manual are strictly enforced while working on McMaster University property;
- ensure that all related requirements under OHSA and O. Reg. 851 RRO. 1990 and O. Reg. 213 / 91 Construction Projects and O. Reg 297/13 Occupational Health and Safety Awareness and Training as noted in Appendix A are strictly enforced while working on McMaster University property;
- ensure that regular inspections and safety audits are conducted on all project sites; and
- ensure that only competent workers are assigned to the project.

5.4 Supervisors

Supervisors shall:

- be trained and authorized to recognize and supervise work that involves the use of fall protection equipment;
- ensure that all fall arrest system and travel restraint system components are CSA approved;
- ensure that all workers assigned to work that requires the use of fall protection equipment are trained 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 and that defective components are taken out of service immediately;
- a written record of such inspection and approval for continued use should be retained;

- implement a buddy system whenever fall arrest systems are required;
- provide an SOP for all work that involves the use of fall protection equipment; and
- provide a written rescue plan for fallen worker in advance of all work requiring the use of a fall arrest system or safety net.

5.5 Authorized Worker

Authorized Workers shall:

- have completed training and deemed to be competent in the safe use, care and maintenance of the equipment;
- ensure when performing work on a construction site as a Facility Services employee or a contractor that Working at Heights Training has been completed as per O. Reg. 297/13 and O. Reg 213/91;
- participate in the development of the SOP and rescue plan for all work involving the use of fall arrest equipment or safety nets;
- follow the safety procedures outlined in the SOP and observe the regulatory requirements noted in Appendix A;
- 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.

5.6 Role of Environmental and Occupational Health Support Services (EOHSS) and Faculty of Health Sciences Safety Office FHS):

The EOHSS and/or FHS Safety Office shall:

- when required provide advice regarding the development of SOP's for work involving the use of fall arrest equipment or safety nets; and
- conduct periodic audits of the effectiveness of the Working at Heights Protection Program and update the program as necessary.

5.7 Role of the Joint Health and Safety Committees

The JHSCs shall:

- review SOP's related to the Working at Heights Protection Program; and
- assess the effectiveness of the program as part of the safety inspection process.

5.8 **Role of the Central Joint Health and Safety Committee:**

The CJHSC shall:

- Review and make comment on the Working at Heights Protection Program..

6 **PROCEDURES**

6.1 **Approval of Work at Elevations that Present Fall Hazards**

- 6.1.1 Fall protection strategies (e.g. enclosures, barriers and guardrail systems, protective coverings, travel restraint systems or fall arrest system) shall be approved in writing by the responsible supervisor and/or contractor..

6.2 **Work Procedures**

- 6.2.1 The regulatory procedures for work involving the falling hazards as described in Appendix A shall be deemed to be minimum standards of protection for work at such heights. (A fall from-height risk can exist at heights exceeding 0.6 metres or 2 feet).
- 6.2.2 Fall arrest systems shall be used by University employees, students and contractors whenever a fall-from-height risk cannot be eliminated.
- 6.2.3 A full body harness must be used when using a fall arrest system.
- 6.2.4 All fall arrest system components, travel restraint components and system components shall be CSA-approved.
- 6.2.5 Fall arrest system components and travel restraint system components shall be inspected by a competent worker before and after each use. Defective components shall be taken out of service immediately. Temporary anchoring points for travel restraint and fall arrest systems shall be selected with input from a professional engineer. Permanent anchors shall be installed according to the Building Code and shall be conspicuously labeled for the intended purpose and with load capacity information.
- 6.2.6 Contractors shall provide written fall protection strategies to the University Project Manager or Coordinator whenever the work site involves fall-from-height hazards. (This documentation may be part of the contractor's Safety Management Plan).
- 6.2.7 An SOP must be put in place for all work involving the use of fall arrest equipment.

6.3 **Emergency Procedures**

- 6.3.1 A written rescue plan for fallen workers shall be provided by the workplace supervisor in advance of all work requiring a fall arrest system. (See Appendix C.).
- 6.3.2 A Buddy system 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.

6.4 **Training**

- 6.4.1 All supervisors and individual employees and students involved with work that requires the use fall protection equipment shall be trained and authorized as being competent in the use and care of such equipment. Such training shall include but not be limited to the following
- (i) the requirements of the McMaster University Fall Protection Program.
 - (ii) The regulatory requirements for work involving the use of fall arrest and travel restraint systems (See Appendix A.).
 - (iii) Ten Essential Principles for Users of Fall Arrest Systems (FAS) (See Appendix B).
 - (iv) Strategies to Eliminate the Risk of Falls From Heights (See Appendix B).
 - (v) Hands on training in the selection, use, care, inspection and proper storage of fall arrest and travel restraint systems.
 - (vi) Emergency procedure as indicated in Section 6.3.

When working at heights on a Construction Project/Site the training program must meet the following criteria as per O.Reg. 297/13 and O.Reg. 213/91:

- a. Compliance with adult learning principles:
 - i. Ensuring learners know why they need to learn specific content, its relevance to them and their workplace
 - ii. Relating learning to training participants' own experience in situations that simulate actual application in the workplace
 - iii. Challenging training participants using a variety of activities that allow opportunity for participation, feedback and interaction
 - iv. Recognizing limits of attention span, and various ways that adults learn, and
 - v. Using realistic activities and tools to support transfer of learning to the workplace.
- b. Language and literacy level appropriate for the learners.
- c. Content accurate, current, and all legal and technical information is referenced and verified.

- d. Use of a variety of teaching aids such as audio-visuals, equipment, safety devices and measuring/monitoring equipment.
- e. Learner materials follow principles of instructional writing and good graphic design, and
- f. Compliance with the requirements of the [Occupational Health and Safety Act](#) and its regulations.
- g. Training is to be provided by a Working at Heights Training Provider approved by the Chief Prevention Officer from the Ministry of Labour.
- h. Training for new Facility Services employees working on a construction site and new employees of a contractor must complete this training effective April 1, 2015. Existing employees on construction sites who have previously had training must complete this new training by April 1, 2017

7 Records

- 7.1 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.

Appendix A

Occupational Health & Safety Awareness & Training:

<http://www.ontario.ca/laws/regulation/130297>

Requirements of O. Reg. 851 for Industrial Establishments Section 85:

<https://www.ontario.ca/laws/regulation/900851#BK14>

Requirements of O. Reg. 213/91 for Construction Projects, Section 26, Section 207:

<https://www.ontario.ca/laws/regulation/910213#BK9>

<https://www.ontario.ca/laws/regulation/910213#BK38>

Appendix B

Ten Essential Principles for Users of Fall Arrest Systems (FAS) (i)

1. Inspect your equipment before every use. The full harness should be inspected to determine such faults as cut or damaged webbing, bent rivets, worn or broken stitching, broken or improperly functioning hardware, and if necessary, repairs should be made or complete harness units should be replaced. Such repairs should be made by the manufacturer or her/his authorized agent.
2. Don and adjust your harness properly.
3. Use shock absorber or your shock absorbing lanyard whenever possible.
4. Connect all components of your FAS using only compatible connecting hardware.
5. Attach your FAS only to a suitable anchorage point.
6. Keep your fall distance to a minimum.
7. Consider the conditions of your workplace when choosing equipment.
8. Care for your equipment as you would care for yourself.
9. Know the rescue procedure and equipment in case you should fall.
10. Be properly trained to use fall protection equipment.

Strategies to Eliminate the Risk of Falls from Heights

- Remove the reason for work at heights;
- Move the task to floor or ground level;
- Ensure that the elevated workplace is capable of supporting your weight;
- Install permanent safe access to the elevated workplace;
- Build safe work platforms or use a cage or lift;
- Enclose the elevated workplace;
- Install permanent rigid covers over openings and/or erect barriers or guardrails;
- Select anchorage points carefully for fall restraint and fall arrest systems.

(i.) Sulowski, A. Fall Arrest Systems-Practical Essentials. CSA International Toronto, 2000

Appendix C

Sample EMERGENCY RESCUE PROCEDURE for Facility Services Workers Using Fall Arrest Systems

1. Workers to carry cellular phone/radio at all times when using fall arrest systems.
2. Spotter at ground level to carry cellular phone/radio at all times during hours of duty.
3. Workers using fall arrest systems and spotters are to liaison before start of work.
4. Daily, before work begins, complete a cellular/radio check with Security and give both call back numbers.
5. Before starting work assess what rescue equipment may be needed in case of emergency i.e. aerial ladder truck, scissor lift, etc.
6. Report state of injured/ill worker to supervisor
7. Contact numbers to call:
 - Facility Service Desk – Ext. 24740
 - Security (Non-Emergency) – Ext 24281
 - Security (Emergency)-88

This procedure must be placed in a conspicuous place at the work site and carried by both the worker(s) and spotter(s).