

## Occupational Health and Safety Programs



**FALL PROTECTION**

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### **1.0 PURPOSE**

The purpose of the Fall Protection Program is to provide direction to implement adequate fall protection requirements, and to provide a baseline to measure the performance of St. Francis Xavier (StFX) University directed contractors who work at heights on university property.

### **2.0 SCOPE**

This program applies to all StFX work sites, including contractor operations. All legislative jurisdictional, StFX and contractor requirements will be reviewed, and the more stringent requirements will be applied.

### **3.0 RESPONSIBILITY**

#### **3.1 Managers**

- a) Verify implementation and enforcement of this program;
- b) Verify that the fall protection equipment specified in this program is available and utilized;  
and
- c) Verify all required fall protection plans and procedures are developed and implemented.

#### **3.2 Supervisors**

- a) Monitor the implementation of fall protection requirements;
- b) Assist project management and staff as needed;
- c) Provide training on this program to workers;
- d) Provide technical support;
- e) Assist during the program preplanning and implementation; and development of fall protection plans and safe work procedures;
- f) Monitor the program for compliance and report to the Manager of the status of the program;
- g) Review the Fall Protection Plan with workers and ensure it is signed off before beginning;  
and
- h) Prior to beginning work, verify that all appropriate safeguards are in place and formally advise StFX Manager and OH&S that working at heights is going to occur.

#### **3.3 Workers**

- a) Be familiar with the fall protection program and strictly adhere to all procedures to provide for workers' safety.
- b) Participate in all training and emergency preparation required for working at heights.
- c) Follow the direction provided by the fall protection competent person identified in this program.
- d) Provide all known information regarding hazards identified during the development of Fall Protection Plans and safe work procedures.
- e) Apply Out-of-Service tag to deficient equipment.

### **3.4 Fall Protection Competent Person**

- a) Monitor compliance with the Fall Protection Plan, and take action as needed to correct deficiencies while keeping the Supervisor advised of the status of the fall protection program; and
- b) Assist in the completion of all Fall Protection Plans and safe work procedures.

## **4.0 DEFINITIONS**

### **4.1 Anchorage**

"Anchorage" or "anchor point" means a secure connecting point capable of safely withstanding the prescribed impact forces applied by a fall-protection system.

### **4.2 Full Body Harness**

Means a body-holding device designed to transfer to a person's torso and upper legs the forces experienced during and after the arrest of a fall.

### **4.3 Competent Person**

Means a person who is qualified because of that person's knowledge, training and experience to do the assigned work in a manner that will ensure the health and safety of every person in the workplace and is knowledgeable about the provisions of the Act and regulations that apply to the assigned work, and about potential or actual danger to health or safety associated with the assigned work.

### **4.4 Body Belt**

Means a body support device that encircles the body at or about the waist.

### **4.5 Energy Absorber**

Means a component of a fall-protection system consisting of a device that dissipates kinetic energy and does not return it to the fall-arrest system or into a person's body.

### **4.6 Fall Arrest System**

Means a fall protection system consisting of an assembly of components that arrests a person's fall when properly assembled, used together and connected to a suitable anchorage.

### **4.7 Fall Restraint/Travel Restraint**

Means a fall protection system that will prevent a person from reaching an unprotected edge or opening.

### **4.8 Fall Protection System**

Means any secondary system that is intended to prevent a person from falling or arrests a fall that occurs, and includes guardrails, temporary flooring, travel-restraint systems, personnel safety nets and fall-arrest systems.

#### **4.9 Guardrail**

Means a fall protection system consisting of vertical and horizontal members that are capable of withstanding concentrated forces, as prescribed in the NS Workplace Health & Safety Regulations (WHSR) and CSA Z797, warn of a fall hazard, and reduce the risk of a fall.

#### **4.10 Horizontal Lifeline**

Means a flexible line made from wire, fiber rope, wire rope, or rod, with end terminations at both ends, that extends horizontally from one end anchorage to another.

#### **4.11 Lanyard**

Means a flexible line or strap used to secure a full-body harness to an energy absorber, fall-arrester, lifeline or anchorage.

#### **4.12 Personnel Safety Net**

Means a fall protection system that uses at least 1 net to stop a person who is falling before the person makes contact with a lower level or obstruction.

#### **4.13 Lifeline**

Means a component of a fall protection system consisting of a vertical lifeline or a horizontal lifeline;

#### **4.14 Mobile Elevating Work Platform (MEWP)**

An MEWP is a machine/device intended for moving persons, tools and material to working positions, consisting of at least a work platform with controls, an extending structure and a chassis. Some examples are scissor lifts, zoom booms and one-man lifts.

#### **4.15 Vertical Lifeline**

Means a flexible lifeline with an end termination on the top end that is connected to an anchorage or anchorage connector and hangs vertically from where it is connected.

#### **4.16 Work Positioning System**

Means an assembly of components that, when properly assembled and used together, supports a person in a position or location so that the person's hands are free in the work position, but does not include a boatswain's chair, ladder, rope access or scaffold.

#### **4.17 Self-Retracting Device**

Means a device that arrests a person's fall by performing a tethering function while allowing vertical movement below the device to the maximum working length of the device;

#### **4.18 Safe Surface**

Means an area that is large enough and strong enough to adequately support a person who falls, and it is level enough to prevent a further fall by a person who has fallen.

#### **4.19 Temporary Flooring**

Means a fall protection system consisting of a horizontal working surface that is designed, constructed and installed with a safety factor of 4-1, in order to provide access to areas that do not have permanent flooring by protecting a person from falling through an unprotected opening.

#### **4.20 Work Platform**

Means a raised temporary horizontal working surface that provides access and support to a person at a workplace.

### **5.0 PROCEDURE**

#### **5.1 General Requirements**

- a) A written hazard assessment and Fall Protection Plan will be developed for all work when working at heights above three metres.
- b) When feasible, components such as steel platforms, roof trusses, stairs, and beam sections shall be pre-assembled on the ground to minimize exposure to fall hazards.
- c) When a mobile elevating work platform such as a zoom boom or scissor lift is used, a written Fall Protection Plan is required.
- d) Contractor Fall Protection Plans shall be reviewed and approved by the StFX Supervisor before the contractor begins any work at heights above three metres.
- e) Supervisors will plan and implement the use of primary fall protection systems such as guardrails and handrails, scaffolds, MEWPs and approved personnel hoists whenever possible. These systems will have complete guardrail systems free from floor openings/holes and safe access will be provided.
- f) Workers will use an approved safety harness with a shock absorbing lanyard to facilitate 100% fall protection whenever primary fall protection systems are inadequate and a fall exposure exists, or the use is required in combination with the primary fall protection system such as in an MEWP. In some applications a twin-legged lanyard may be required to verify 100% fall protection while working at heights; and
- g) Workers traveling or working at heights three metres or more above ground level, platform, or adjacent area where a primary fall protection system is not in place, and a fall exposure exists, will have a lanyard attached and secured at all times to an anchorage, structure, or lifeline capable of supporting 5000 lbs. or two times the maximum arresting force per worker attached for engineered anchorages.

## 5.2 Fall Protection Plan

The Fall Protection Plan will be based on a hazard assessment and must specify as a minimum:

- a) The fall hazards at the work site;
- b) The nature, duration and description of the work;
- c) Reference to applicable health and safety legislation and regulations;
- d) The primary tools and equipment in use;
- e) The name of the Designated Competent Supervisor
- f) The training and qualifications of personnel who will perform the work;
- g) The fall protection system to be used at the work site;
- h) The anchors to be used during the work;
- i) That clearances below the work area, if applicable, have been confirmed as sufficient to prevent a worker from striking the ground or an object or level below the work area when using a fall arrest system;
- j) The swing drop distance anticipated, if applicable, when using a fall arrest system;
- k) The procedures used to assemble, maintain, inspect, use and disassemble the fall protection system, where applicable; and
- l) The rescue procedures to be used if a worker falls and is suspended by a personal fall arrest system or safety net and needs to be rescued.

The Fall Protection Plan must be available at the work site, reviewed and signed by all workers before work commences. The Fall Protection Plan must be complied with and updated when conditions affecting fall protection change.

## 5.3 Inspections

A designated competent person, other than the user, will inspect all fall protection equipment at least annually and that requirement will be written in the Fall Protection Plan. These inspections must be documented and communicated to PPE users.

Additionally, the user before each use will visually inspect all personal fall protection equipment. These pre-use inspections do not require documentation.

In all cases inspectors performing either daily or annual inspections shall utilize the manufacturer's inspection criteria when conducting their inspections.

Any equipment not meeting the manufacturer's inspection requirements will be tagged out or otherwise identified and removed from service immediately. If the equipment is not to be re-certified it must be destroyed.

## 5.4 Fall Protection Categories and Hierarchy

### 5.4.1 Primary Fall Protection

Primary fall protection systems such as standard guardrails, solid floor with complete standard guardrails and handrails, MEWPs (i.e. scissor lift, zoom boom), approved personnel hoist, etc.,



will be considered first when addressing fall protection requirements. These systems will be complete walking/working systems with all required guardrails in place, free of floor holes, and have a safe means of access/egress.

#### **5.4.2 Travel Restraint System**

Ensure that a personal travel restraint system that is used as a means of fall protection to restrict movement meets the requirements of the latest version of CSA Standard Z259.16, “Design of Active Fall-Protection Systems”.

#### **5.4.3 Personal Fall Arrest System**

Ensure that a fall arrest system that is used as a means of fall protection is erected, installed, assembled, used, handled, stored, adjusted, maintained, repaired, inspected, serviced, tested, cleaned and dismantled in accordance with the manufacturer’s specifications and designed in accordance with the requirements of the latest version of CSA Standard Z259.16, “Design of Active Fall-Protection Systems”.

#### **5.4.4 Procedures for Care and Use**

Softeners will be used wherever lanyards or lifelines could contact sharp edges. Harnesses and lanyards will not be dragged over concrete or rough surfaces. Harnesses, lanyards, and lifelines will not be stored in gang boxes, on the ground, or on concrete floors, but rather hung on pegs or hooks on dry walls.

To maintain the existing strength of a body harness, lanyard, or lifeline, it will be stored in a location that is away from harmful fumes, heat, chemicals, moisture, sunlight, rodents, and biological agents. This equipment will be stored in a dry place where air circulates freely about them.

All fall protection related PPE will be used and cared for as per CSA Standards and the manufacturer’s instructions.

#### **5.4.5 Vertical Lifelines**

Ensure that a vertical lifeline used as a component of a fall protection system is designed and installed in compliance with the latest version of CSA Standard Z259.16, “Design of Active Fall-Protection Systems”.

#### **5.4.6 Horizontal Lifelines**

Ensure that a horizontal lifeline used as a component of a fall protection system is designed and installed in compliance with the latest version of CSA Standard Z259.16, “Design of Active Fall-Protection Systems”.

#### 5.4.7 Self Retracting Lifelines

Ensure a self-retracting device used as a component of a fall protection system is anchored above the user's head unless the manufacturer's specifications allow using a different anchorage location; and used in a manner that minimizes the hazards of swinging, and if the user falls, limits the distance they drop during the swing to 1.2 m.

#### 5.4.8 Personnel Safety Nets

Personnel safety nets must be erected and installed according to ANSI A10.11, while under the supervision of a competent person and must be positioned as close as reasonably practicable, but no more than 5 m below the work area and extend at least 2.4 m on all sides beyond the work area it must be positioned and maintained so that when arresting the fall of a person, the maximum deflection of the personnel safety net does not permit any portion of the person to contact another surface, it must be free of debris, obstructions or intervening objects that may be struck by a person who falls from a workplace into the net.

#### 5.4.9 Temporary Flooring

Temporary flooring for holes in floors, roofs, and other working surfaces must meet the following requirements:

- a) Be able to support without failure, four times the weight of the worker, equipment, and the material that may be imposed.
- b) Be secured to prevent displacement, and they must extend adequately beyond the edges of the hole.
- c) Be identified with a sign reading "**Temporary Flooring**".

#### 5.4.10 Work on Flat Roofs

Fall protection is required for ALL work that presents a fall hazard over three metres, or less when there is something hazardous below (e.g. impalement hazard) that could cause injury if the worker fell. The same legislation applies to all roofs, regardless of the pitch of the roof. The rules are the same on flat roofs as they are on roofs with a 14/14 pitch. In addition to falling off the edge, workers can fall through other openings on a flat roof, including the roof hatch, sky lights, etc. Nova Scotia legislation does not allow controls zones nor bump lines.

The only exception may be when one or two maintenance workers are walking directly to a mechanical unit for a few minutes, then returning the same path, which must be several feet from the edge. Once workers are doing more than that, it becomes a 'project' and fall protection must be put in place.

#### 5.4.11 Training Requirements

Training on fall protection must include all of the following, as applicable to the nature of the work:

- a) A review of all applicable Nova Scotia-specific health and safety legislation, regulations and standards.

- b) Identification of fall hazards.
- c) Review of the hierarchy of controls that may be used to eliminate or minimize risk of injury from a fall.
- d) The different methods of fall protection and the most suitable application of the methods.
- e) Fall protection and safe work procedures.
- f) Instruction on assessing and selecting specific anchors that may be used for various applications.
- g) Instruction on selecting and correctly using fall protection components, including connecting hardware.
- h) Information about the effect of a fall on the human body, including free fall, swing fall, maximum arresting force, and the purpose of energy absorbers.
- i) Pre-use inspections of equipment and systems.
- j) Emergency response procedures to be used if a fall occurs.
- k) Practice in inspecting, fitting, adjusting and connecting fall protection systems and components and the emergency response procedures required by using a fall arrest system.

#### 5.4.12 Training Documentation

The record of training must include:

- a) The name of the participant.
- b) The date or dates of training.
- c) The name of the instructor.
- d) The name of the employer.
- e) The name of the training organization, if not conducted by the employer.
- f) A description of the training.
- g) The expiry date not exceeding three years before which training must be renewed.

## 6.0 SUPPLEMENTARY DOCUMENTS

Fall Protection Plan

REVISION SUMMARY		
DATE	REVISION	SUMMARY
21 Nov 17	0	New program
15 Apr 19	1	Added Purpose, MEWP definition, formatting changes (on file)
2 Mar 20	2	Added 7 <sup>th</sup> point under supervisor's responsibilities, changed StFX logo.
12 Oct 22	3	New OHS Programs format