

# **Fall Protection**

## **Safety Training Standard**

### **FP2003-01-R01**



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## **1.0 PURPOSE**

The purpose of this Standard is to clearly establish the minimum acceptable content requirements for end-user (workers required to use) Fall Protection training programs, provided by Training Providers who have received Accreditation status with the Oil Sands Safety Association (OSSA).

For definitions referencing this Standard, see Appendix I.

**Exceptions to this Standard must be endorsed by the Board of Directors of the OSSA.**

### **1.1 Disclaimer**

The information in this publication is solely for general illustration and instructional purposes and does not, in any way, create a business or professional services relationship. The Standards set out herein will not apply to every circumstance. The Standards are not a definitive guide to the Alberta OH&S Act or the accompanying Regulation and Codes and regardless of the Standards set out herein; each reader and user is solely responsible for their own compliance with all applicable Legislation, including the Alberta OH&S Act. The OSSA assumes no obligation to update the Standards set out herein or advice on further developments concerning the topics mentioned herein.

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### **1.2 Introduction**

This Fall Protection program training Standard has been established to guide the Training Provider with direction on minimum content requirements to meet the needs of the OSSA Member companies. A training program meeting this Standard would typically require between 4 – 8 hours to complete depending on class size, number of instructors and harnesses used for practical demonstration and testing.

It should be noted that the training required to meet this Standard focuses on the needs of the “end-user”. Additional training may be required for supervisors and engineers to reflect their responsibilities for this critical safety work.

This is the minimum Standard that must be met in order to receive Accreditation as a Fall Protection Training Provider, from the OSSA.

**The employer must maintain training records for all participants attending a Fall Protection training program.**

### 1.3 Scope

End-users (workers) required to utilize Fall Protection equipment must be trained and competent in its proper use, care and maintenance. The purpose of the OSSA Fall Protection Standard is to ensure that those workers demonstrate basic proficiency in Fall Protection equipment use and theory. At a minimum, all relevant provisions of the Alberta OH&S Act Regulation and Codes must be complied with.

Subject to the previous sentences, all programs submitted for Accreditation must at a minimum meet the requirements specified in each section of this Standard.

### 1.4 Training Material Requirements

The program content for accredited safety training programs for Fall Protection must ensure that all references to weight and measures are expressed in both imperial and metric units. The training programs are also expected to have available the material listed below for the use of the participants:

- 1) Participant’s user guides and/or workbooks to be kept by the user upon successful completion of the program.
- 2) Access to applicable sections of the Alberta OH&S Codes regarding Fall Protection.
- 3) Have at a minimum CSA approved Group **A** harnesses and Lanyards for use by participants in proficiency testing.
- 4) Group **D**, **E**, **L** and **P** rated/ harness (es) must be made available for demonstration purposes.
- 5) CSA, or CE approved connecting components meeting CSA Standards including (but not limited to) double locking snap hooks, ladder hooks, carabiners, slings, cable wraps, rope grabs, vertical lifeline and retractable lifelines must be made available for demonstration purposes.

*Note: Additional training aids as determined by the provider (e.g. videos)*

## 2.0 FALL PROTECTION BASICS

### 2.1 Legislation and Standards

- 1) Overview of the Fall Protection requirements outlined in the Alberta Occupational Health & Safety Codes.
- 2) Development of training materials or instruction must use, at a minimum, but not be limited to, the following as references:
  - a. CAN/CSA-Z259.1-95 (R1999)                      Safety Belts and Lanyards

- |                                |   |
|--------------------------------|---|
| b. CAN/CSA-Z259.11-M92 (R2003) | Shock Absorbers for Personal Fall-Arrest Systems                                |
| c. CAN/CSA-Z259.12-01          | Connecting Components for Personal Fall-Arrest Systems (PFAS)                   |
| d. CAN/CSA-Z259.10-M90 (R2003) | Full Body Harness   |
| e. CAN/CSA-Z259.2.1-98         | Fall Arresters, Vertical Lifelines, and Rails                                   |
| f. CAN/CSA-Z259.2.2-98         | Self-Retracting Devices for Personal Fall-Arrest Systems                        |
| g. CAN/CSA-Z259.2.3-99         | Descent Control Devices   |
| h. Z259.3-M1978 (R2003)        | Lineman's, Body Belt, and Lineman's Safety Strap.                               |
| i. CAN/CSA-Z259.14-01          | Fall Restrict Equipment for Wood Pole Climbing                                  |
| j. PLUS 1156                   | Fall-Arrest Systems – Practical Essentials                                      |
| k. ANSI Z359.1                 | Safety requirements for Personal Fall-Arrest Systems, subsystems and components |

## 2.2 Why Fall Protection

The training program must personalize the program by providing an overview and introduction to Fall Protection and its Legislation that clearly reinforces the need to correctly utilize the Fall Protection equipment in the field. The content must include at least the following:

- 1) Fall hazards should be eliminated when ever possible and practical to do so. The use of personal protective equipment such as Fall Protection Systems should be used as a “last line of defense”.
- 2) Overview of the types of falls and the effects on the individual (e.g. same level, lower level, ladders, stairs, etc.)
- 3) Overview of the legislative requirements covered in the Alberta OH&S Act, Regulation and Codes including the responsibilities of the worker.
- 4) Recent statistical information on fall injuries/fatalities from Alberta Workplace Health and Safety or other applicable sources.

## 2.3 Fall Protection Planning

- 1) Training program must include methods of analyzing, eliminating, preventing, and controlling fall hazards with opportunities for all participants to participate in actual examples for practice. This should include but not be limited to such things as engineering and/or administrative controls; rescue and escape planning, workplace hazards identification and controls (eg field level risk assessments),
- 2) Participants must understand the need for rescue and escape plans which will include such things as identifying an emergency contact and methods of communication of various fall scenarios (e.g. worker who has fallen and/or is suspended).
- 3) Discuss the importance of pre-use, visual inspection and reporting of deficiencies.

## 2.4 Impact Forces

In order to increase hazard and injury awareness all participants must understand what happens to a body when it falls and comes to an arrest in a control manner (physics of falling). The training programs must include as a minimum the following:

- a. Maximum Arrest Forces (MAF) with and without Shock Absorbers
  - i. Impact due to Lanyard selection
- b. Fall arrest forces explanation

## 2.5 Fall Clearance

All participants must be able to perform basic calculations of the Total Fall Distance and understand the minimum fall clearance required when using Fall Protection equipment (must include Free Fall Distance, Swing Fall Hazards).

These simple calculations must be demonstrated in the theory test.

## 3.0 FALL PROTECTION SYSTEMS

- 1) The program must discuss the following Fall Protection Systems at a minimum:
  - a. Horizontal Lifelines
  - b. Vertical Lifelines
  - c. Control descent devices
  - d. Retractable Lifelines
  - e. Restraint systems
  - f. Fall Arrest Systems
  - g. Control Zones
  - h. Safety nets
- 2) The training for each of the above systems must contain content on the following topics at a minimum:
  - a. Overview including application, definitions and critical components of each system (for example, 100% tie off, transitional tie-offs, and so forth)
  - b. Design purposes of the system. This section must cover at a minimum the proper usage and limitations to each system.
  - c. Pre-use, visual inspection of the system. Typical hazards associated with any system must also be discussed and participants should be able to describe processes of identifying and controlling those hazards.
  - d. There must be actual systems for participants to see, touch and discuss in order to understand how to use and inspect Fall Arrest Systems. The participant must be able to apply their Fall Protection knowledge for equipment choice in regards to the system(s) provided in the field.

**Upon completion of the instruction, participants must be able to pass a theory and/or practical test for successful proof of proficiency as appropriate on each of the subsections under “3.0.1”.**

## 4.0 FALL PROTECTION SYSTEM'S COMPONENTS

- 1) The training program must discuss in detail the following system components at a minimum:
  - a. Anchors
  - b. Connecting components
  - c. Body holding devices
- 2) Each system component must be taught in detail and the content must cover the following topics at a minimum:
  - a. Overview
  - b. Definitions appropriate to specific components
  - c. Design purposes of the component. This section must cover but not be limited to:
    - i. Limitations – Ultimate load/breaking strength vs. working load
    - ii. Uses
    - iii. Types
    - iv. Fit as appropriate
  - d. Pre-use, visual inspection, care, maintenance and storage of components. Examples of actual components must be available and participants must be able to identify the difference between usable and defective components.
  - e. All hazards associated with any component must also be discussed and participants should be able to describe processes of identifying and controlling those hazards. (i.e. chemical environments)

**Upon completion of the instruction, participants must be able to pass a theory and/or practical test for successful proof of proficiency as appropriate on each of the subsections under “4.0.2” for each component listed under “4.0.1”.**

## 5.0 PROFICIENCY TESTING

Although described under each of the previous sections of the Standard, it is important that the following practical and knowledge evaluation/test topics are covered to ensure participants are proficient in the Standard upon completion of the Fall Protection training program.

### 5.1 Knowledge Evaluation

The participant must demonstrate knowledge and proficiency by individually answering questions on the following topics:

- 1) A legislative requirement as it applies to establishing, maintaining and using a Fall Protection System.
- 2) Fall hazard analyzes including the calculation of Total Fall Distance and rescue planning.
- 3) Components (Anchors, connecting components and body holding devices) their uses, limitations, and remove from use.
- 4) Fall Protection Systems (vertical, horizontal, controlled descent and retractable Lifelines, fall restraint and Fall Arrest Systems) their uses and limitations.

## 5.2 Practical Test

The participant at a minimum must successfully demonstrate the following:

- 1) Proper inspection of harness and connecting components
- 2) Proper donning and adjustment of the harness
- 3) \*Each participant is expected to perform a controlled weight transfer of their body weight to the harness by:
  - a. connecting to an approved Anchor point (e.g. tripod assembly)
  - b. lifting their feet from the floor.
  - c. all weight transferred to the harness
  - d. if at any time the participant feels uncomfortable, they are to put their feet back on the ground and stand.

\* Note: It is not recommended that an individual be lifted and freely suspended by mechanical means while in the harness nor, should any individual be dropped.

## 6.0 RE-CERTIFICATION PROCESS

### 6.1 Proficiency Timeline

Certification for Fall Protection training is valid for a period of not longer than three (3) years from the initial certification date.

### 6.2 Re-certification Process

The re-certification process (1 - 2 hours) must include the following:

- a. A review of any major changes to the following: critical topics of Fall Protection including but not limited to
  - changes to Fall Protection theory
  - changes to practices
  - changes to Legislation or standards
  - changes to components
  - Maximum arrest force
  - Total Fall Distance calculations
  - Changes to harnesses
- b. Proficiency testing as per section 5.1 and 5.2 on the previous page.

**Should a participant not successfully pass the re-certification proficiency tests (both theory & practical), they will be required to take the entire course.**

## APPENDIX I - DEFINITIONS

- 1) **“Anchor Point or Anchor Plate”** means a point or plate to which equipment may be securely attached.
- 2) **“Accreditation” or “Accredited”** means authorization, in writing, from the OSSA that a Training Provider’s Program meets the minimum requirements of a particular Safety Training Standard. Accreditation may be withdrawn by the OSSA any time. In order to be a Safety Training Provider of a Standard, an Organization’s Accreditation status must be current.
- 3) **“Board of Directors”** means the Owners of the OSSA that provide, in writing, endorsement status and approval for any revisions or exceptions to a Safety Training Standard and/or a Regional Code of Practice.
- 4) **“Carabineer(s)”** means a connecting component that:
  - a. generally consists of a trapezoidal or oval body having a self-locking gate that requires at least two (2) consecutive, deliberate actions to open to permit the body to receive an object and that, when released, automatically closes and locks to prevent inadvertent opening; and
  - b. has an ultimate tensile strength of at least 22.2 kN;
- 4) **“Control Zone”** means the area two (2) meters of an unguarded edge of a level elevated work surface;
- 5) **“Fall Arresting Device(s)”** means a part of a worker’s personal protective equipment that stops the worker’s fall and does not allow the worker to fall farther;
- 6) **“Fall Arrest System(s)”** means a system that will stop a worker’s fall before the worker hits the surface below;
- 7) **“Free Fall Distance”** means the vertical distance from the point where a worker falls to the point where the Fall Arrest System begin to cause deceleration of the fall;
- 8) **“Fall Protection”** means becoming knowledgeable and proficient in the subject areas set out in section 5.0 of this Standard;
- 9) **“Fall Protection Standard” or “Standard(s)”** means the minimum training standards set out in OSSA document FP2003-01, as amended by the OSSA from time to time;
- 10) **“Fall Protection System(s)”** means
  - a. a Personal Fall Arrest System,
  - b. a Travel Restraint System,
  - c. a Safety Net,
  - d. a Control Zone, or
  - e. another systems approved by the Director of Inspection;

- 11) “**Fall Restricting Equipment**” means a component of a Fall Restrict System that, when combined with other subcomponents and elements, allows the climber of a wood pole to remain at his or her work position with both hands free, and that performs a limited fall arrest function when the climber loses contact between his or her spurs and the pole;
- 12) “**Fall Restrict System**” means a combination of a Work Positioning System and Fall Restricting Equipment;
- 13) “**Full Body Harness**” means a body support consisting of connected straps designed to distribute force over at least the thighs, shoulders and pelvis to which a Lanyard or Lifeline or connecting components can be attached;
- 14) “**Horizontal Lifeline System**” means a system composed of a synthetic or wire rope, installed horizontally between two (2) or more anchor points, to which a worker attaches a personal Fall Arrest System or Travel Restraint System;
- 15) “**Lanyard(s)**” means a flexible line of webbing or synthetic or wire rope that is used to secure a Full Body Harness or Safety Belt to a lifeline or anchor point;
- 16) “**Legislation**” means all municipal and local laws, statutes, ordinances, by-laws and regulations, orders, directives and decisions rendered by any ministry, department or administrative or regulatory agency relating in any way to the health and safety of workers in the Province of Alberta;
- 17) “**Lifeline**” means a synthetic or wire rope, rigged from one or more anchor points, to which a worker’s Lanyard or other part of a personal Fall Arrest System is attached;
- 18) “**Members**” means the member or subscriber Organizations of the OSSA and includes their respective employees, officers, directors, shareholders, ownership groups and successors and assigns, including, without limitation, Syncrude Canada Ltd., Suncor Energy Inc. and Albion Sands Energy Inc.;
- 19) “**OH & S Act, Regulation and Code**” means the Occupational Health and Safety Act, Regulation and Code of the Province of Alberta (RSA 2000, Chap. 0-2, as amended) and includes all of the regulations passed under the Act from time to time.
- 20) “**Organization(s)**” means and includes any individual, corporation, partnership, firm joint venture, syndicate, association, government, governmental agency or board or commission or authority, and other forms of entity or organization;
- 21) “**Personal Fall Arrest System(s)**” means personal protective equipment that will stop a worker’s fall before the worker hits a surface below the worker;
- 22) “**Re-Certification**” means a process to verify that a worker continues to maintain the proficiency requirements as specified in the original accredited training program. This process will include re-testing of knowledge requirements and /or challenging a proficiency exam.
- 23) “**Regional Code of Practice (RCOP)**” means a Code of Practice, endorsed by the OSSA, governing the practices, procedures and safety training standards, to

be followed at each of the OSSA Owner respective sites. These codes can be amended by the OSSA from time to time.

Note: At any time should Legislation requirements change they shall take precedent over the Regional Code.

- 24) **“Safety Belt(s)”** means a body support consisting of a strap with a means for securing it about the waist and attaching it to other components;
- 25) **“Safety Strap”** means a pole strap or similar support strap used with a Work Positioning or Travel Restraint System for climbing trees or structures such as utility poles;
- 26) **“Shock Absorber(s)”** means a device intended to reduce the force on a worker when a personal fall arrest system is operating;
- 27) **“Safety Training Standard”** or **“Training Standard”** means the training standards approved, from time to time, by the Board of Directors of the OSSA and published as a training standard of the OSSA. Each training standard is subject to review and amendment by the OSSA from time to time;
- 28) **“Steering Committee”** means the committee appointed by the OSSA to provide, in writing, Accreditation status to an Organization.
- 29) **“Swing Fall Hazard(s)”** means the hazard to a worker of swinging and colliding with an obstruction following a fall when connected to a Lanyard or Lifeline that runs at an angle off vertical;
- 30) **“Total Fall Distance”** (of the workers dorsal D-ring) means the distance the harness D-ring has traveled from where the fall started to where the fall was arrested. This includes the deployment of the lanyard and stretch of the harness.
- 31) **“Training Provider(s)”** means those Organizations that have received Accreditation status, in writing, from the OSSA to provide a Safety Training Program;
- 32) **“Travel Restraint System”** means a personal Fall Protection System, guardrails or similar barrier, that prevent a worker from traveling to the edge of a structure or to a work position from which the worker could fall;
- 33) **“Unusual Risk of Injury”** means, with respect to the risk of injury from a fall, there is a risk of injury greater than the risk of injury from impact on a flat surface;
- 34) **“Work Positioning System”** means a system used to support a worker so that the worker’s hands are free when he or she reaches the work position.