**Fall Protection Program**

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| Office of Administrative Responsibility | Agri-Food Discovery Place |
| Approver | Executive Director  |
| Scope | Compliance with this procedure extends to all employees, faculty, students, researchers, clients, contractors, sub-contractors, visitors and suppliers at Agri-Food Discovery Place  |

**Overview**

Health and Safety is an integral part of all our business and research activities at Agri-Food Discovery Place, and we are continually working towards making measureable improvements in the health and safety aspects of our workplace on an ongoing basis.

**Purpose**

Fall Protection (FP) is an integral part of our commitment to a safe work environment. Any time a worker is exposed to a fall hazard, this procedure must be followed to reduce and/or eliminate the hazard of working at height.

Fall protection must be used if a worker is within 2 meter of an edge from which they may fall

1. A vertical distance of 3 meters or more
2. A vertical distance of less than 3 meter where there is an unusual possibility of injury. An unusual possibility of injury refers to the potential for a worker to sustain injuries more serious than those likely to result from landing on a solid, flat surface. Example including work performed above moving water, operating machinery, open vessels containing harmful substances, etc.

A worker at a permanent work area must be protected from falling by a guardrail if the worker may fall a vertical distance of more than 1.2 meters but less than 3 meters.

**Fall protection and Working Alone**AFDP requires workers who will be using Fall Protection to review the hazard assessment to determine if a minimum of 2 people needs to be present and the rescue procedure is in place.

**Responsibilities**

 **Executive Director**

* Approve the program content and provide the necessary resources to achieve a safe working environment

**Health and Safety Coordinator/Worksite Health and Safety Committee (WHSC)**

* Review the program at least annually, and upon changes to the Alberta Occupational Health and Safety Code
* Obtain proof of training certificate from workers involved in the task
* Review Fall Protection Plan submitted by contractors and/or clients before work start

**Supervisors and Project Lead**

* Be familiar with the contents of this program
* Ensure employees/contractors under their supervision are trained and competent to complete the task in accordance with this program
* Monitor employee compliance with this program
* Ensure all workers have proof of valid Fall Protection Training

**Employees**

* Competent, trained and able to provide proof of training
* Comply with the requirements of this Program
* All work at height is performed in accordance with this Fall Protection Plan
* Provide proof of training on demand

**Contractors/Clients**

* Provide a copy of their Fall Protection Plan along with proof of training for review by AFDP Health and Safety Coordinator
* Where the AFDP Fall Protection Program requirements exceed those of the Contractors/ Clients, AFDP requirements shall take precedence
* All contractors/clients who do not have a Fall Protection Plan, must follow AFDP’s Fall Protection Program for all work at height
* Where AFDP’s Fall Protection Plan requirements exceed those of the contractor/client, AFDP’s requirements will take precedence

**Training Requirement**

* All personnel required to use fall protection equipment must be trained in its use by a competent person. The training referred to must include, at a minimum, the following elements as part of the theory component of the training:
1. A review of current Alberta legislation pertaining to fall protection
2. An understanding of what a fall protection plan is
3. fall protection methods a worker is required to use at a work site
4. identification of fall hazards
5. assessment and selection of specific anchors that the worker may use
6. instructions for the correct use of connecting hardware
7. information about the effect of a fall on the human body, including
8. maximum arresting force
	1. the purpose of shock and energy absorbers,
	2. swing fall,
	3. free fall;
9. pre‐use inspection;
10. emergency response procedures to be used at the work site, if necessary; and
11. practice in
	1. inspecting, fitting, adjusting and connecting fall protection systems and components, and
	2. Emergency response procedures.

In addition to the training described a worker must be made aware of the fall hazards particular to that work site and the step being taken to eliminate or controls those hazards. Before a project or a task can be carried out at AFDP, the supervisor needs to submit the hazard assessment and the rescue plan to AFDP’s H&S Coordinator for review.

Personnel expected to conduct a site rescue will be trained in the procedure and techniques to conduct such a rescue.

**Hazard Identification and Assessment**

A hazard assessment and control process must precede any work where workers may encounter a fall from height hazard.

* It is the responsibility of the supervisor or Project Lead to ensure the Hazard Assessment for the project or tasks are submitted and reviewed by AFDP’s H&S Coordinator.
* A fall hazard exists when:
1. Worker will be within 2 meters of an unprotected edge and
2. May fall 3 meters or more, or
3. There is an unusual possibility of injury if a worker falls less than 3 meter
* Once a fall hazard is identified a work procedure shall be developed to ensure that the risk of working at height is minimized, or if at all possible, eliminated.

**Hierarchy of Controls**

The following hierarchy, or preferred order of control, shall be used to choose methods to eliminate or control fall hazards.

The fall protection hierarchy shall be considered when designing fall protection solutions for both existing and new facilities.

The fall protection hierarchy is:

* Elimination of substitution – removing the hazard or hazardous work practices
* Guardrails – permanent or portable guardrails do not require a fall protection plan.
* Fall restraint – securing the authorized person to an anchorage using a tether short enough to prevent the person’s centre of gravity from reaching the fall hazard.
* Fall arrest – a system designed to stop an authorized person after a fall has begun.
* Administrative controls – work practices or procedures that reduce the risk of a person falling.
	+ A procedure based system may only be used if:
1. It is not reasonably practicable to use one of the fall protection systems described in Alberta’s OHS Code Part 9, and
2. Use of procedures in place of fall protection equipment is restricted to the following situations:
	* + 1. The installation of removal of fall protection equipment
			2. Roof inspections
			3. Emergency repairs
			4. At-height transfers between equipment and structures if allowed by the manufacturer’s specifications; and
			5. Situations in which a worker must work on top of a vehicle or load and the requirements of this Procedure have been met.

A supervisor using procedures in place of fall protection equipment must ensure that:

* A hazard assessment in accordance with the requirements of the Alberta OHS Code Part 2 is completed before work at height begins
* The procedures to be followed while performing the work must be in writing and available to workers before the work begins
* The work carried out in such a way that minimizes the number of workers exposed to a fall hazard while work is being performed
* The work is limited to light duty tasks of limited duration
* The worker performing the work is competent to do it
* When used for inspections, investigation or assessment activities, these activities take place prior to the actual start of work of after work has been completed; and
* The procedures do not expose a worker to additional hazards.

**Fall Protection Plan**

1. Where a fall hazard exists, a Fall Protection Plan must be used to control the fall hazard in compliance with the OH&S Code.
2. A Fall Protection Plan must specify:
3. The fall hazards at the work site
4. The fall protection system to be used at the work site,
5. The anchors to be used during the work ( The anchor point needs to be certified by a professional engineer to the requirement of the CSA Standard Z259.16.04, *Design of active fall- protection system must be used* )
6. That clearance distance 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
7. The procedure used to assemble, maintain, inspect, use and disassemble the fall protection system, where applicable
8. The rescue procedure to be used if a worker falls and is suspended by a personal fall arrest system or safety net and needs to be rescued

A fall protection plan is required if a travel restraint system is being used. Rescue procedures are not necessary in this case since a worker will not fall and be left suspended in the air.

A unique fall protection plan need not be created for each work site. If workers face the same fall hazards at multiple work sites, and the fall protection equipment and rescue procedures are identical at each work site, then a single plan applicable to all the work sites is acceptable.

The fall protection plan must be available at the work site and reviewed with workers before work with a risk of falling begins. (See Appendix A for Fall Protection Plan Template)

**Fixed Ladders and Climbable Structures**

* This section applies to fixed ladders and climbable structures constructed and installed after July 1, 2009.
* A ladder cage is a permanent structure attached to a ladder to provide a barrier between the worker and the surrounding space. It serves to support a worker if the worker needs to rest against a barrier. **A ladder cage is not a means of fall protection**
* If a worker is working from or on a fixed ladder or climbable structure at a height of 3 meters or more and is not protected by a guardrail, continuous protection from falling is provided by:

a) Integral fall protection system, or
1. An alternate fall protection system meeting the requirement of Alberta’s OH&S Code, Part 9

**Portable Ladders**

* A worker may work from a portable ladder without using a personal fall arrest system in circumstances where it is not reasonably practicable to do so.
* In the case where no fall arrest system is used while working on a portable ladder,
1. The work must be a light duty task
2. While doing the task, the worker must keep his or her centre of gravity
( indicated by the belly button) between the side rails of the ladder
3. The worker must maintain three points of contact whenever the worker extends an arm beyond a side rail
4. While working on a portable ladder, the ladder needs to be tied off. If it is not practical to do so, another worker needs to be available to hold the ladder.

**Scissor lifts and similar work platforms**

* Any worker on a scissor lift must use a full body harness and lanyard connected to an anchor point unless it is mentioned otherwise on the manufacturer’s specifications.
* Any worker who requires to transfer at-height between equipment and structure must follow “ Transfer at Height SOP”

**Fall Protection Equipment Specification** Fall Protection Equipment which consists of:

* Lanyards
* Shock Absorbers/energy absorbers
* Full body harness
* Body belt
* Connectors, carabiners, snap hooks
* Fall Arresters
* Self-retracting devices
* Descent control devices
* Life Safety Ropes

must meet the specifications of Part 9 of Alberta’s OHS Code.

**Anchors**

To be effective, personal fall arrest and travel restraint system must be safely secured to an anchor. Prior to clipping in, a worker is required to visually inspect the anchor he or she is planning to use to make sure that the anchor is in sound condition and free of damage.

If an anchor is damaged, the worker must not use it until the anchor is repaired, replaced or recertified by the manufacturer or a professional engineer.

**Equipment compatibility**

All components of a fall arrest system must be compatible with one another and the environment in which they are to be used.

**Inspection and Care of Fall Protection Equipment**

* Employees using the equipment **must** inspect their own equipment and anchorage point before use. See Appendix B for Fall-protection equipment Inspection Sheet
* Defective components must be tagged as unusable and removed from service. Notify your supervisor immediately to replace the damaged equipment.
* Store Fall-protection equipment at a place where the equipment will not be damaged

**Removal from service**

Equipment must be removed from service and either destroyed or returned to the manufacturer for inspection and recertification if:

1. It is defective
2. It has come into contact with excessive heat, a chemical, or any other substance that may corrode or otherwise damage the fall protection system
3. It has stopped a fall
4. Equipment removed from service is not returned to service unless a professional engineer or the manufacturer certifies it is safe to use.

**DEFINITIONS**

Any definitions listed in the following table apply to this document only with no implied or intended institution-wide use

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| Anchor Point | A secure point of attachment for lifelines, lanyards, or deceleration devices. Anchorages installed on or after july 1, 2009, to which personal fall arrest equipment is attached must be capable of supporting at least 3,500 pounds per employee attached, or must be designed, installed, and used as part of complete personal fall arrest system which maintain a safety factor of at least two, under the supervision of a qualified person. |
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| Buddy System | A system of organizing employees into work groups so that each employee of the work group is designated to be observed by at least one other employee in the work group |
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| Clearance Distance | The distance from a specified reference point, such as the working platform or anchorage of a fall-arrest system, to the highest obstruction that a worker might encounter during a fall |
| Competent Person | A person capable of identifying existing and predictable hazards in the surroundings of working conditions, which are hazardous or dangerous to employees. A person who has the authorization to take prompt corrective action to eliminate such hazards. |
| Connector | A device which is used to couple (connect) parts of the personal fall arrest system together. |
| D Ring | A connector used integrally in a harness as an attachment element or fall-arrest attachement and in lanyards, energy absorbers, lifelines and anchorage connectors as an integral connector. |
| Deceleration Device | Any mechanism, such as a rope grap, rip-stitch lanyard, a specially woven lanyard tearing or deforming lanyard, automatic self-retracting lifeline/lanyard, etc. which serves to dissipate a substantial amount of energy during a fall arrest. |
| 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, an energy absorbing lanyard, a lifeline. Connecting hardware and anchorage point(s). A potential for injury will exist if the worker falls. |
| Fall Protection | Specialized personal protective equipment designed to prevent falls from heights or to bring a worker to a safe and controlled stop after falling. |
| Fall Protection System | Any secondary system that prevents workers form falling or, if a fall occurs, arrests the fall. Examples include guardrail, travel restraint, safety net, and fall arrest systems. |
| Full Body Harness | WebbingéStraps which are secured about an employee`s body in a manner that will distribute the fall arrest force over the thighs, pelvis, waist, chest and shoulders. Having means for attaching it to other components of a personal fall arrest system, preferably at the shoulders andéor middle of the back |
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| Professional Engineer | A person who holds an engineering license or temporary engineering license in the province of Alberta  |
| Self-retracting lanyard | A connecting means that sutomatically adjusts its length under light tension as the worker moves toward or away from the anchorage. It stops a fall. |
| Total Fall distance | The maximum vertical change in distance from the bottom of an individual`s feet at the onset of a fall, to the position of the feet after the fall is arrested.  |
| Travel Restraint System | An assembly of components capable of restring a worker’s movements. |

**Appendix A**

**Fall Protection Plan**

The following Fall Protection Plan is to be utilized whenever a job Hazard Assessment Identifies works at height to be conducted on Agri-Food Discovery Place (AFDP). All safety precautions and legislated requirements must be met and adhered to while working at height at AFDP.

* Work at height is not allowed to commence until the pre-task instruction has been completed. Pre-task instruction includes informing workers on the hazards involved in the task and the rescue procedure
* AFDP Health and Safety Coordinator may inspect any work area and has the authority to stop any unsafe work and will not permit work to begin or continue unless the Fall Protection Plan requirements are followed

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| **IN THE EVENT OF AN EMERGENCY CONTACT 911**  |
| **Effective Date/Time: End Date/Time:**  |
| **Work Site, Building &/or Location:**  |
| **1. WORK DESCRIPTION:**  |
| **2. IDENTIFY THE POTENTIAL FALL HAZARDS:** |
| **3. IDENTIFY FALL PROTECTION EQUIPMENT TO BE USED** **4. ANCHORS TO BE USED**  |
| **5. Clearance Distance (if using a Personal Fall Arrest System)** **The available clearance between the work platform and next lower level is: \_\_\_\_\_\_m or \_\_\_\_\_feet** **Show calculations:** **Anchrg Cnnctr + Lanyard + Deceleration Distance + D-ring slide + Original D-ring Height + 1m Safety =** **\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_ + \_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_ + 1 metre (3’)= \_\_\_** **Clearance Distance \_\_\_\_ - Total Fall Distance \_\_\_\_ = \_\_\_\_\_\_ (must be a + number!)**  |
| 6**. PROCEDURES**Identify detailed procedures to assemble, inspect, use, maintain & dismantle the fall protection system |
| 7**. RESCUE PLAN**Describe the procedures that will be followed if a worker falls and needs to be rescued |

Appendix B

Fall Protection Equipment Inspection Sheet

Effective accident prevention depends on inspection. Fall protection equipment must be inspected before each use.

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| FALL PROTECTION INSPECTION CHECKLIST (Record activities in Log Book) |
| **Harness Inspection**Start at the top of the harness and work towards the bottom. Damaged and questionable webbing should be removed from service immediately and replaced. | **Lanyard Inspection**Start at one end and work to the opposite end.Damaged and questionable webbing should be removed from service immediately and replaced. |
| **Belts / Webbing**□ grasp belt 6-8 inches apart and bend belt in an inverted “U” □ look for frayed edges□ broken fibers□ pulled stitches□ cuts□ burns□ chemical damage□ discoloration (UV damage) to webbing□ heavily soiled webbing□ brittle webbing□ labels attached and legible**D rings / Buckles**□ unusual wear□ metal distortion□ cracks□ breaks□ rough or sharp edges□ should pivot freely□ electrical contact, arching □ pay close attention to attachment of buckles □ cut fibers□ tight rivets and un removable with fingers□ base of rivets tight against the webbing□ no bent rivets□ metal buckle parts undistorted | **Hardware** □ hook and eye distortions□ cracks□ corrosion □ pitted Surfaces□ undistorted gate latch, seated into the nose without binding□ spring load enough to firmly close the gate□ gate locks prevent gate from opening when gate closes □ look for frayed edges□ broken fibers□ pulled stitches□ cuts□ burns□ chemical damage□ heat damage□ discoloration (UV damage) to webbing or rope□ heavily soiled webbing□ brittle webbing□ free of knots□ rust staining □ thimbles are distortion free and held by splice (rope)□ thimbles are distortion free and held by ferrules (wire)□ bird cage (wire rope)□ labels or metals tags attached and legible |
| **Maintenance**□ clean with mild water and mild detergent solution□ hang to air dry□ do not use forced dry heat□ store in a cool, dry clean environment out of direct sunlight□ avoid areas where chemical vapours may exist□ all other maintenance and service must be conducted by and authorized service center |
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**Reference:**

University of Alberta Facilities and Operation Fall Protection Plan

Alberta Occupational Health and Safety Code Part 9 Fall Protection

REVISION HISTORY

| **Version**  | **Effective Date** | **Summary of Change** |
| --- | --- | --- |
| 01 | August 27, 2012 | New document |
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**Approval:**

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Executive Director Date

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Chair WHSC Date