 <b>COASTAL RESEARCH AND EDUCATION CENTER</b> <small>College of Agriculture, Forestry and Life Sciences</small>		<i>Document Title</i> <b>Fall Protection Procedure</b>	
<i>Current Revision Date</i> <b>26 JAN 2024</b>	<i>Origin Date</i> <b>26 JAN 2024</b>	<i>Document Number</i> <b>SOP-002-CREC</b>	<i>Rev Level</i> <b>A</b>

## 1. PURPOSE


The Fall Protection Standard Operating Procedure is to help employees identify, evaluate, control, and reduce exposures to fall hazards. Fall Protection is the process of protecting employees when working in elevated situations. Whenever possible the best fall protection is to engineer out the fall hazard.

## 2. SCOPE

Within the facilities, several work activities expose employees to potential fall hazards. These include maintenance, cleaning equipment, disassembly & assembly operations, material delivery from mezzanine floors and warehousing. Fall protection includes all measures taken to prevent falls. These include railings, fixed ladders and scaffolds with attached guards and personal fall arrest equipment and travel restraint equipment.

### 2.1. Reference Standard

Occupational Safety and Health Administration: 29 CFR 1910.28, 29, 30, 140

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### 3. DEFINITIONS

**Anchor** is a secure point of attachment for lifelines, lanyards, or deceleration devices.

**Body Harness** is a piece of fall protection equipment which straps are secured about the employee in a manner that will distribute fall forces over the thighs, pelvis, waist, chest and shoulders with means for attaching other components of a personal fall arrest system.

**Competent Person** means one who is trained and capable of identifying existing and predictable hazards, and who has authorization to take prompt corrective measure to eliminate them.

**Fall Arrest** is a system consisting of an anchor, lanyard with shock absorber or retractable lanyard and a harness to arrest a fall in progress.

**Fall Prevention** is elimination of the hazard by engineering controls.

**Fall Protection** the practice of using fall arrest or fall restraint systems.

**Travel Restraint** is an anchor, connecting device and body harness used to limit travel to prevent an employee from reaching a fall hazard.

**Free Fall** is the act of falling before the shock absorber starts to take effect.

**Guardrail System** is a barrier erected to prevent employees from falling to lower levels. It is comprised of a top rail, mid rail, and in most cases, a toe board.

**Lanyard** is a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting a body harness to a shock absorber, lifeline, or anchor.


**Retractable Lanyard** is a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement. After onset of a fall, the retractable lanyard automatically locks the drum and arrests the fall.

**Shock Absorber** is a piece of fall protection equipment (such as rip-stitch lanyard, tearing or deforming lanyard, and retractable lanyard) which dissipates and limits the energy imposed on an employee during a fall arrest.

**Working Surface** is any surface on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, machinery, form work and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

### 4. RESPONSIBILITIES

Safety Department is responsible for the initial design of the fall protection program, interpretation of program requirements, and to serve as a continuing knowledge resource for the site.

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Manager/Supervisor is responsible for the implementation of the fall prevention and protection program and identifying employee training requirements.

Must utilize the hierarchy of hazard controls to eliminate the hazard or implement effective measures to prevent or protect employees from falls.

- 1) Ensure the site fall prevention and protection program guidelines are followed by all employees.
- 2) Ensure all employees exposed to fall hazards have been trained in fall prevention and protection.
- 3) Maintain effective fall prevention or protection equipment for employee use.
- 4) Must also implement effective measures to provide for rescue if necessary.
- 5) Review and update the site fall prevention and protection program
- 6) Ensure employees are trained and adhering to all elements of the program.

Employees are responsible for the safe use of fall prevention and protection equipment.

- 1) Inspect fall protection equipment before use and document the inspection on the harness tab. If an inspection was performed prior for the month, then documentation does not need to be duplicated. (However, make sure the condition of the harness is still acceptable for use.)
- 2) Use fall prevention and fall protection correctly when working at > 4' height.
- 3) Report all damaged fall protection equipment immediately to the supervisor.
- 4) Before using personal fall arrest system, understand how to notify someone / (or your supervisor) if rescue is needed – even if self-rescue is the rescue technique.

## 5. PROCEDURE


### 5.1. Fall Hazard Assessment

A fall hazard assessment is required to:

- 1) Identify all fall hazards at heights of 4' and above
- 2) Address any work to be performed within 6 feet of the roof's edge
- 3) Implement the best means for fall prevention, communication and rescue.
- 4) Address means to eliminate hazards

A Safety Task Analysis is not required to document the fall hazard assessment for any of the following routine tasks:

- Usage of an aerial or scissor lift when tied off to the lift and working inside the basket
- Working near openings on the mezzanines when tied off

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## 5.2. Working Surface Requirements


- 1) Unprotected Sides & Edges: Employees working or walking where there is an unprotected ledge, including hoist areas, holes, ramps and walkways with a fall exposure of four feet or more, roofs with unprotected sides and a height of four feet or more to a lower level must be protected from falls by installation of a guardrail system, travel restraint or a personal fall protection system. Low sloped roofs can also be protected by a combination of a guardrail system and a warning line system.
- 2) Wall Openings: Any employee that is required to work near openings that have a fall exposure of four feet or more to a lower level and the edge of the opening is less than 42 inches from the working surface, the opening must be guarded by a guardrail or a personal fall protection system.
- 3) Working Surface Openings: Employees must be protected near openings with the appropriate protection system and with 3 1/2" toe boards when work is being performed around opening or skylight.
- 4) Excavations: Employees must be protected from falling six feet or more into an open excavation by a guardrail system, fence or barricades.
- 5) Dangerous Equipment: Any employee working six feet or more above dangerous equipment must be protected from falling on the equipment by machine guards, a guardrail system, or a personal fall arrest system.
- 6) Roof Work Areas: Before any Coastal REC employee or contractor accesses a roof, a roof access permit must be completed and signed by the manager. The roof access permit is valid for one shift and must be maintained by the manager. Terminated roof access permits must be maintained annually.

## 5.3. Fall Arrest Requirements

### 5.3.1. A Full Body Harness

A full body harness must be used in fall arrest situations. Areas of the campus are the:

- 1) Roofs of all buildings where railings are not present
- 2) Test benches where work requires leaving aerial lift
- 3) Mezzanines when railing are removed
- 4) When operating aerial lifts

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### 5.3.2. Anchors

Anchors may be temporary or permanent. Permanent and temporary anchors must be designed to support 5000 lbs. per employee or at minimum twice the maximum force needed to arrest a fall. A guardrail is NOT to be used for a fall arrest system anchor.

- 1) Employees should always remain connected to an anchor (e/x. Double-legged lanyard)
- 2) Anchors must be connected as directly overhead as possible, especially when using retractable lanyard in order to avoid a swing fall injury.
- 3) Pipes and conduit are not capable of supporting 5000 lbs. of force.

### 5.3.3. Lanyards

Lanyards must be inspected before use and used as they were designed.

- 1) The lanyard must be connected ONLY to the D-ring on the back of the harness between the shoulder blades in fall arrest situations.
- 2) Shock absorbers are required in ALL fall arrest situations. It may be installed permanently in a retractable and a fixed length lanyard, or as a separate system component.
- 3) Retractable lanyards are preferred in most fall arrest situations, because the overall stopping distance is shorter than fixed length lanyards. Retractable lanyards reduce free fall distance when connected directly overhead.
- 4) The anchor should be at or higher than the D-ring on the body harness in order to limit freefall distance to six (6) Feet or less.


When a lanyard is selected, a fall clearance calculation must indicate adequate clearance from the anchor to keep the employee from contacting the ground or next lower level. The equipment label should always be referred to for specific shock absorber extension length or maximum arresting distance. See Attachment 5 for examples of fall clearance calculations to indicate the anchor height needed to prevent employee from contacting the ground or next lower level.

### 5.3.4. Travel Restraint –

The travel restraint system is used to prevent an employee from reaching a fall hazard. The travel restraint system SHALL NOT BE USED for fall arrest protection. The components of the travel restraint include the anchor device, rope and grab mechanism, lanyard and the full body harness.

The travel restraint should be used in situations where rescue is difficult, fall protection is not appropriate. The travel restraint system anchor should be a 5000 lb. anchorage point.

When using the travel restraint, the equipment must be adjusted to the proper length so not to allow the person to reach the fall exposure. The COASTAL REC has selected a mechanical metal

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device that locks on the rope and requires hand compression in order to move the device about the rope.

#### 5.3.5. Additional Requirements

- 1) You must always use appropriate fall protection when operating telescoping and articulating personnel lifts.

### 5.4. **Fall Incident Reporting**

If there is any incident involving fall arrest equipment, a near miss incident report shall be completed and serial numbers of all equipment must be identified within the report.

### 5.5. **Storage, Inspection and Maintenance Requirements**


- Stored in a clean, cool and dry environment outside of direct sunlight.
- All fall protection equipment must be returned to the proper storage area after each use
- Employees must complete a proper inspection prior to each use
- If equipment is questionable or does not pass inspection it must be removed from service
- Damaged equipment must be destroyed or re-certified per manufacturer instructions
- A competent person must document an inspection of all fall protection equipment annually.

### 5.6. **Fall Protection Training**

Fall protection training requires supervisors and employees involved with or performing work at heights 4 feet or greater to be trained prior to use of fall prevention and/or protection. Employees must also be trained on the specific hazards of the area. For employees that use fall protection, information related to rescue must be included in the training.

#### 5.6.1. Training Requirements:

An employee will be deemed competent in Fall Protection when the training is completed. Training describing the purpose and importance of fall prevention and/or fall protection, site procedure/policy and specific fall hazards at the site is required. Employees must be trained on

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Fall Prevention and Fall Protection equipment, Personal Protective Equipment inspection and use. Fall Protection training must include fall arrest clearance calculation and fall rescue procedures.

- 1) Verification that employees understood classroom training through use of a quiz or other means. (Questions answered at end of training)
- 2) Employees must display competence by demonstrating their ability to physically don and use the PPE and equipment.
- 3) Refresher training must be completed annually and must include areas of emphasis related to Fall Arrest Clearance, PPE and equipment inspection.
- 4) Retraining shall be provided as need if deficiencies are found in procedures or employee performance. Modifications or changes are made to fall hazards or fall hazard control equipment. If additional training or retraining is requested by employees

#### 5.6.2. Retraining Requirements

- 1) When determined by supervision due to deficiencies or employee actions
- 2) When training becomes obsolete due to workplace changes
- 3) When the fall protection system changes
- 4) When employee(s) request additional training or retraining for any reason

## 6. REVISION HISTORY

Revision	Date	Summary of change	Author	Approver
A	01/26/2024	Initial Issue	T. McLaughlin	<i>Patrick Wechter</i> 02.05.2024