| Standard Operating Procedure | | |
|---|---|---|
| *SOP Title:* | ***Fall Protection Procedure*** | ***REV. 1*** |
| *Approved by:* | *Effective Date:* | *February 23, 2009* |
| | *Revised Date:* | *December 14 2011* |
| *Office Manager/HSM* | *Section:* | *5.9* |

# 5.9 FALL PROTECTION PROCEDURE

## 5.9.1 Scope and Application

These procedures will establish the guidelines for fall protection requirements for all employees when working or traveling at elevations of 6 feet or greater.

## 5.9.2 References

OSHA 29 CFR 1926.502
WAC 296-155-716
29 CFR 1926 Subpart M (Fall Protection Training)

## 5.9.3 Responsibility

The Site Safety Coordinator (SSC) and/or Project Manager (PM) will be responsible for ensuring implementation and enforcement of this procedure.

The SSC or PM will assess all work activities for fall exposures and shall preplan and install fall protection systems. Where feasible, fall protection systems will be in place before assignment of work.

## 5.9.4 Pre-Job Task Instruction

A pre-job task instruction will be given to each employee who is assigned to work in elevated areas. This instruction will cover the specifics of the fall protection to be used.

## 5.9.5 Definitions

- **Anchorage** - A secure point of attachment for lifelines, lanyards, or deceleration devices.
- **Body Harness** - Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.
- **Deceleration Device** - Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.
- **Lanyard** - A flexible line of rope, wire rope, or strap that has a connector at each end for connecting the body harness to a de-acceleration device, lifeline, or anchorage.
- **Lifeline** - A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch

horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

- **Opening** - A gap or void 30 inches or more high and 18 inches or more wide, in a wall or partition, through which employees can fall to a lower level.
- **Personal Fall Arrest System** - A system used to arrest an employee in a fall from a working level. Consists of an anchorage, connectors, and body harness, and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.
- **Positioning Device System** - A body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.
- **Self-retracting Lifeline/Lanyard** - 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, and which, after onset of a fall, automatically locks the drum and arrests the fall.
- **Snap hook** - A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snap hooks will be the locking type with a self-closing, self-locking keeper which remains closed and locked until it is unlocked and pressed open for connection or disconnection.

### 5.9.6 General Procedures

The SSC or PM will plan and implement the use of primary fall protection systems such as aerial lifts, and approved personnel hoists whenever possible. These systems will have complete guardrail systems free from floor holes and safe access will be provided.

Employees will use approved safety harnesses with two shock absorbing lanyards 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.

Employees traveling or working in elevated areas 6 feet or more above ground level, platform, or adjacent area will have one of the lanyards attached and secured at all times to an anchorage, structure, lifeline, or approved fall arrest system capable of supporting 5,000 pounds per person or designed and installed as a complete fall arrest system with a safety factor of 2 for the anticipated shock load.

The user before each use will visually inspect body harnesses and lanyards. A designated competent person will visually inspect body harnesses and lanyards quarterly. Any defective equipment will be removed from service immediately. Fall protection devices will not be used for any purpose other than fall protection.

### 5.9.7 Fall Protection System Requirements

#### 5.9.7.1 Guardrail Systems

- Top rail must be 42 inches high plus or minus 3 inches.
- Mid-rail will be installed halfway between top edge of guardrail and toe-board of working surface. When used, screens and mesh will extend from the top rail to the walking/working level along the entire opening between the top rail supports.

Intermediate vertical members, when used between posts, will not be more than 19 inches apart.
- Guardrail systems will be capable of withstanding, without failure, a force of 200 pounds downward or outward and not deflect to a height of less than 39 inches above working surface when applied downward.
- Mid-rails, screens, and intermediate vertical members will be capable of withstanding 150 pounds in any downward or outward force.
- Guardrail systems will be smooth to prevent any snagging of clothes and punctures or lacerations of employees.
- Wire rope, 1/2 inch minimum, may be used as a top rail and mid-rail. All wire rope used as guardrail must be flagged every 6 feet with high visibility tape or flagging.
- Steel banding and plastic banding or common rebar will NOT be used as top rails or mid-rails.

#### 5.9.7.2 Using Fall Arrest Systems Safely

Ensure that personal fall arrest systems will, when stopping a fall:
- Limit maximum arresting force to 1,800 pounds.
- Be rigged such that an employee can neither free fall more than 6 feet nor contact any lower level.
- Bring an employee to a complete stop and limit maximum deceleration distance to 3½ feet.

Other safety points:

- Employees will only use harnesses and lanyards that are approved ANSI Z359.
- Remove systems and components from service immediately if they have been subjected to fall impact, until inspected by a competent person and deemed undamaged and suitable for use.
- Inspect systems before each use for wear, damage, and other deterioration, and remove defective components from service.
- Do not attach fall arrest systems to guardrail systems or hoists.
- Rig fall arrest systems to allow movement of the worker only as far as the edge of the walking/working surface, when used at hoist areas.

#### 5.9.7.3 Using the Body Harness and Where Required

Employees will wear body harnesses while performing work at other than ground or solid floor elevations and when other safeguards, such as standard guardrails, nets, planking, or scaffolding cannot be used to protect employees from a fall distance of 6 feet or more.

Body harnesses must be used under the following conditions:

- When working or walking on elevations and on surfaces (platforms, open structures, etc.) where the possibility of a fall exists.
- When working or walking (horizontal and vertical surfaces) with an unprotected side or edge 6 feet or more above lower elevation and standard guardrails are not in place.

- When engaging in leading edge work 6 feet or more above lower levels and guardrails are not in place.
- When receiving material at a hoist area where the guardrails have been removed and the employee must lean through the access opening or out over the edge.
- When working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6 feet or more above the lower levels and the inside bottom edge of the wall opening is less than 39 inches.
- When working or walking on surfaces that have holes more than 6 feet above the lower level and are not protected by a hole cover or standard guardrails. (A hole cover or guardrail system will be the primary fall protection but may need to be removed because of construction/maintenance activities.)
- When working from an aerial lifts or approved personnel hoist.

#### 5.9.7.4 Care and Use of Harnesses and Lanyards

- Harnesses and lanyards will not be dragged over concrete or rough surfaces.
- Harnesses and lanyards must be thoroughly dried out after they become wet, otherwise, deterioration will be hastened regardless of the fiber.
- Harnesses and lanyards will not be stored on the ground or on concrete floors but rather placed in storage the locker.
- Body harnesses and lanyards will be stored in a dry place.
- To maintain the existing strength of a body harness or lanyard, it needs to be stored safe from harmful fumes, heat, chemicals, moisture, sunlight, rodents, and biological agents.
- Body harnesses and lanyards will not be stored unless they have been cleaned. They can be hung in loops over a bar or beam and then sprayed with water to remove dirt. After washing, the lanyard will be allowed to dry and then be shaken to remove the rest of the dirt.
- Lanyards must be attached to the lanyard clip on the harness when not in use. This will keep the lanyard from dangling and hanging loose.

### 5.9.8 Lifeline Systems

#### 5.9.8.1 Vertical Lifelines

- Vertical lifelines will be able to support, and be attached to, an anchorage point that is capable of supporting 5,000 pounds per person.
- Only one person will be attached to a vertical lifeline fall protection system.
- Vertical lifeline systems used for fall protection on suspended scaffolds will be secured to an anchorage point that is independent of the scaffold and support system.
- Vertical lifelines must be used with approved rope grabs for lanyard attachments.

#### 5.9.8.2 Retractable Reel Lifelines

- A self-retracting lifeline with a cable or tape attached to the "D" ring on the harness should be used each time a worker climbs or descends more than 15 feet from the lowest level. Rope-grab devices must not be used in lieu of self-retracting lifelines.

- Retractable lifelines when used will be installed by competent persons and according to manufacturer's recommendations.
- Retractable lifelines will be attached to an anchorage capable of supporting 5,000 pounds.
- Retractable lifelines will be equipped with a rope tagline for extending the device to elevations below the point of attachment.
- Only one person may be attached to a retractable lifeline.

### 5.9.9 Covers

Covers for holes in floors, roofs, and other working surfaces will meet the following requirements:

- Covers in roadways will be capable of supporting twice the maximum axle load of the largest vehicle expected to cross over the cover.
- All other covers will be able to support without failure, twice the weight of the employee, equipment, and material that may be imposed.
- All covers will be secured to prevent displacement, and they must extend adequately beyond the edges of the hole.
- All floor hole covers 12 inches in length and 9 inches in width or less will be marked with Hole or Cover.
- All floor hole covers greater than 12 inches in length and 9 inches in width or diameter must be identified with a sign reading “HOLE COVER - DO NOT REMOVE”.

### 5.9.10 Inspection Procedures

#### 5.9.10.1 General Requirements

New body harnesses, lanyards, and lifelines will be inspected thoroughly by a designated competent person to determine that no parts are damaged or defective before being put into service.

Before using a body harness or lanyard, and before installing a lifeline, the employee will visually inspect the harness, lanyard, or lifeline for any defects.

-Under no circumstance is a body harness, lanyard, or lifeline with a known defect or expired inspection date to be used.

An inspection of ALL body harnesses, lanyards and lifeline systems must be completed before initial use on any project. This inspection is to be performed by a designated competent person that is aware of the manufacturers' recommended inspection procedure.

#### 5.9.10.2 Body Harnesses

Inspection of body harnesses will pay close attention to the following items:

- Brads, buckles and D-rings.

- Webbing (must be free of frayed, cut, or broken fibers—check for tears, abrasion, mold, burns, discoloration, etc.).
- Stitching (pulled or cut—broken stitching may indicate impact loading).
- Broken strands.
- Condition of grommets and buckle (make sure buckles work freely).
- Presence of manufacturer's date, tag, and serial number.
- Harnesses and lanyards continually exposed to chemical atmospheres for over one week will be closely examined.
- Items of harness hardware must not be damaged, distorted, broken, or have corrosion, worn parts, burrs, or cracks.

#### 5.9.10.3 Lanyards

Inspection of lanyards will be done in the most thorough manner. Look at every inch of the lanyard. Rotate the lanyard so that the entire circumference is checked. Spliced ends are to be checked very closely.

#### 5.9.10.4 Hardware

Hardware must be thoroughly inspected and the following precautions taken:

**Locking Snap hooks** - Check for distortion, cracks, pitted surfaces, and corrosion. Assure that the latch seats properly and the spring exerts sufficient force to close the latch. Check to make sure the locking mechanism is properly working.

**Thimbles** - The thimble must be firmly seated. The splice will be free from cut strands or loose ends.

#### 5.9.10.5 Rope Lanyard

Observe the number of fibers broken on the outside. Open up the rope by untwisting the strands. The interior should be as bright and clean as when it was new. In manila rope, an accumulation of powder-like sawdust indicates excessive internal wear.

Displacement of yarns or strands, variation in size or roundness of strands, discoloration, and rotting are indicators that the rope should be taken out of service.

Spots where the rope has been exposed to oils or chemicals indicate an unsafe rope. Rope lanyards that have been continuously exposed to chemical atmospheres for over one week will be closely examined.

The "fingernail test" is a quick test for chemical damage. Scratching the fibers with a fingernail can make a good estimate of the strength of fibers—fibers of poor strength will readily part.

#### 5.9.10.6 Web Lanyard

Bend the webbing over a pipe or mandrel and look at each side of the webbed lanyard. By doing this, cuts and breaks will be revealed. Any swelling, discoloration, cracks, or charring are obvious signs of chemical or heat damage.

The stitching will be observed closely for any breaks.

Note: Due to the motion or slippage on a supporting surface when under high tension, synthetics sometimes melt on the surface and form a skin. This may be evidence of deterioration.

### 5.9.11 Training Requirements

Each employee that might be exposed to a fall hazard must be trained prior to performing the work operation. The training will enable each employee to recognize the hazards of falling and the procedures to be followed to minimize these hazards.

The SSC or PM will assure that employees have been trained, as necessary, in the following areas:

- Nature of fall hazards in work areas.
- Correct procedure for erecting, maintaining, disassembling, and inspecting the fall protection system to be used.
- The use and operation of the applicable fall protection system to be used (i.e., guardrail systems, safety harnesses/lanyards, retractable lifelines, etc.)
- Specialized fall protection procedures (safety monitor, warning lines, controlled access zone, etc.), if used.
- Limitations of mechanical equipment use during performance.
- Correct procedure for handling and storage of equipment and materials and the erection of overhead protection.
- The role of employee in fall protection plans.

#### 5.9.11.1 Certification

A written certification of training will contain as per 29 CPR 1926 Subpart M:

- Name and social security number of the employees trained.
- Date(s) of training.
- Name and signature of the person conducting the training and the subject of training.

The records of training will be maintained for the length of the project, plus one year, and will be available for inspection by management personnel.

#### 5.9.11.2 Retraining

Employees will be retrained when:

- Changes in workplace render previous training obsolete.
- A change in the type of fall protection system or equipment occurs.
- The affected employee has not retained the necessary understanding of the fall protection system or equipment and the necessary skill.

## 5.9.12 FALL PROTECTION WORK PLAN

Name of Building: _____

Identify location of work site to which the plan applies: _____

| |
|---|
| All jobs and tasks must be reviewed that require employees to work 10 feet or more above the ground, above water, or above another work surface (this includes the means of access). |
| Identify Fall Hazards: |
| Determine the method of fall restraint or fall arrest to be provided to each job. Examples are: Scaffolding with standard guardrail or full body harness with lanyard secured to an anchorage point. |
| Specify protection methods for workers exposed to fall hazard: |
| Describe the method of providing overhead protection for workers below the work site. Example: Barricade the area below to eliminate access by other workers or passersby. |
| Specify protection methods for people below fall hazard: |
| Describe procedures for assembly and disassembly of work site: |
| Identify the individuals responsible for the assembly and disassembly tasks: |
| This maintenance and inspection will be conducted at the start of each working day and after major changes in the weather conditions. |
| Specify the persons who will be conducting the maintenance and inspection: |
| Describe the procedures for handling and storage of materials and tools used in the task:<br>(Example: Materials and tools are stored at least six feet from the exposed edge.) |
| Ensure that the employees assigned to the tasks have already received training and instruction on the items described above. A copy of the training record shall be available on the job site. Never allow a worker to work alone. |
| Names of workers and pre-assignment training dates: |

Name of Lead Worker/Supervisor:

Print: _____ Signature: _____ Date: _____

**EMERGENCY RESCUE PROTOCOL**

**CALL - 911**

If fallen worker is suspended in the air, request Local Fire Department LINE RESCUE.
Be very clear and exact about accident location. Administer general first aid as necessary.

## 5.9.13 FALL PROTECTION TRAINING

Date _____ Location _____

### Trainee Certification

I have received training on the subjects listed below:

This training has provided me adequate opportunity to ask questions and practice procedures to determine and correct skill deficiencies. I understand that performing these procedures/practices safely is a condition of employment. I fully intend to comply with all safety and operational requirements discussed. I understand that failure to comply with these requirements may result in progressive discipline (or corrective actions) up to and including termination.

| _____ | _____ | _____ |
|---|---|---|
| Trainee Name | Signature | Date |

**The following instruction was conducted:**

__ Overview of the company's fall protection requirements & purpose of the fall protection program
__ Anticipated fall hazards expected in my task/work area
__ Calculating fall distances using a personal fall arrest system
__ Rescue methods when using personal fall arrest

**The following procedures were practiced:**

__ Donning and doffing a full body harness.
__ Inspecting full body harness, lanyards, lifelines, anchor points.
__ Selecting, inspecting, and maintenance of personal fall arrest and position devices.
__ Use and operation of guardrail systems, personal fall arrest, safety nets, warning lines, safety monitoring system, personal fall restraint, slide guards, positioning devices, etc.
__ Correct procedures for the handling, storage of equipment and materials for the erection of overhead protection.

**Trainer Certification:** I have conducted instruction/on-the-job training to the employee listed above. I have explained related procedures, practices and policies. The employee was given the opportunity to ask questions and practice procedures taught under my supervision. Based on the employee performance, I have determined that he/she has adequate knowledge and skill to safely perform these procedures/practices.

| _____ | _____ | _____ |
|---|---|---|
| Trainer Name | Signature | Date |

**Training Validation:** On _____ (date), I have observed the above employee successfully applying the knowledge and skills learned during the training.

| _____ | _____ | _____ |
|---|---|---|
| Supervisor Name | Signature | Date |