

Fall Protection

- **Fall Protection Requirements**
- **Fall Hazard Locations**
- **Fall Prevention**
- **Personal Fall Arrest System**

Safety Tips from the WorkSafe People

Fall Protection

Any construction activity that exposes an employee to a fall hazard of 6” or more will require the implementation of fall protection. This may be in the form of the conventional personal fall arrest system, a guardrail system, or a safety net system.

Fall Hazard Locations: Identify those locations at the work site where a fall is most likely to occur.

These include:

- Ladders
- Scaffolds
- Work Platforms
- Formwork
- Bridges
- Structural Steel
- Floor and Wall Openings
- Reinforcing Steel
- Stay-in-Place Decking
- Areas adjacent to dangerous equipment or processes
- Excavation
- Roofs
- Walkways/Ramps

Residential construction

- Hoisting Areas
- Leading edges on floors such as decking
- Overhand Bricklaying

Develop a written Fall Protection Program on the job site by a qualified person which includes informing and training employees of the:

- Fall hazards identified on the job site and any changes that may occur
- The use of the fall protection systems or alternatives for the job site
- Erecting, disassembling and maintaining equipment
- Informing management of damaged fall protection systems
- Establishment and training on assigned roles in the fall protection program
- The restricted use and limitations of positioning devices on the job site

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Identifying Fall Hazards: Prevent falls by identifying and controlling or eliminating the fall hazard.

- Observe the work site **and plans**.
- Ask questions and listen to the answers.
- Conduct a walk around with a checklist.
- Discuss/review your observations with management

List the conventional methods of fall protection that could be used and the alternatives such as:

- **Control access zone:** area designated for control used particularly with overhead brick laying and pre-cast concrete work; marked off with ropes, chains or other means
- **Warning line systems:** at least 6-10 feet where equipment is used; at least 6ft. where equipment is not used
- **Safety monitoring program:** competent person warning employees of the fall hazard; person must be able to communicate directly with the employees

Fall Prevention Measures: In the planning and scheduling stage, provide for alternative approach to the work through the use of engineering controls.

- Implement at the design stage.
- Maximize structural pre-assembly.
- Use mechanical pin extractors for rigging disconnect.
- Design for attachment.
- Provide protection at elevation.
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Alternative Work Approaches:

- Review job activity to determine if it can be done from a different location.
- Use radios to signal a crane.

Provide Proper Access – Install and use the following:

- Ladders
- Scaffolds
- Stairways
- Fall arrest, lifelines

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Provide Guardrail Protection:

- Scaffolds
- Openings and holes
- Unprotected sides of ramps/stairways/platform
- Elevated work platform

Personal Fall Arrest System: This system consists of an anchorage, connectors, and a body belt or body harness. It may also include a deceleration device, lifeline, or combination. If a personal fall system is used for fall protection it must be able to:

- Limit maximum arresting force to 900 pounds when used with a body belt.
- Limit maximum arresting force to 1,800 pounds when used with a body harness.
- Be rigged to limit the free fall to 6 feet or no contact is made with the lower level.
- Have the strength to withstand twice the potential impact of a 6" free fall or the free fall distance permitted by the system, whichever is less.
- The use of body belts for fall arrest is no longer allowed.

Fall Arrest System Components:

- Anchorage, structure and component
- Connecting, devices, lanyards, lifeline
- Full body harness

The key to designing a good fall arrest system begins with preplanning the anchorage. The point for anchoring lifelines and lanyards should be positioned on an independent structure. Key points to remember when selecting an anchorage point:

- **Strength** — The required strength the anchor must withstand depends on the potential forces and integrity of the anchor.
- **Free of Working Platform** — Fall protection anchor points must remain independent of the working platform.
- **Clearance** — Review the total height to ensure the fall protection will prevent the wearer from coming into contact with the ground or other objects.
- **Height** — Select an anchor sight that will minimize the free fall to the shortest distance as possible.
- **Training** — All users shall be trained on what is and what is not an acceptable anchor.

Acceptable anchoring points and devices:

- Structural supports
- Eyebolts
- Imbeds
- Slings
- Cross Arm Straps
- Retractable *devices*
- Anchors and Fasteners

Unacceptable anchoring points:

- Pipe Vents
- Rungs
- Railings
- Guardrails
- C-Clamps
- Bolt Holes

Training Programs: All employees must be trained by a competent person and certified to recognize the hazards of falling and train each employee:

- On the nature of the fall hazards in work areas
- Correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems
- The use of all fall arrest systems
- Role of each employee in the safety monitoring program
- Limitations of the mechanical aids in roofing operations
- The roll of employees in fall protection plans
- Retraining employees when performance and use of fall protection is unacceptable or changes in fall protection systems is made

Lifeline Connections

Common hazards associated with the use of a lifeline:

- Anchorage strength not sufficient
- Lifeline not in position or installed correctly
- Sharp edges were not protected
- Lines were knotted at the anchor points
- Overloading the lifeline with employees

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Lanyards

Common hazards associated with the use of a lanyard:

- Incorrect length
- Tying knots to shorten the length
- Sharp edges were not protected
- Failure to follow manufacturer's instructions
- Exposure to solvents, acids, welding and cutting, concrete

Body Harness: Selection shall be determined based on anticipated usage as well as the type of fall arrest system.

- Full Body Harness — distributes the force of the fall over the entire body and has a sliding D-ring, designed to eliminate excess whipping of the neck
- Body Belts — may not be used

Equipment Selection/Fall Distance

Contact a well-known supplier and review what is available. Select the proper equipment for the work sites based on:

- Task requirements
- Mobility of the user
- Number of users
- Potential fall distance- be sure to calculate the fall distance including the position of the anchor point, D-ring point on back of employee, length of the lanyard and stretch distance of the decelerating device, and any obstructions below the person
- Environmental factors: dirt, moisture, solvents

Not Possible to Eliminate Fall Hazards

When it is not possible to eliminate the fall hazards, then it will be necessary to use fall prevention.

- Controlled Access Zone
- Unguarded Openings
- Leading Edges
- Hoist Areas
- Formwork and Reinforcing Steel

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Notes