



## **Fall Protection Policy and Procedure**

### **Guardrail systems**

Guardrails are needed at the edge of work areas 3 meters or more in height to protect employees from falling. This includes the edge of excavations greater than 1.2 meters in depth. Guardrail systems need to meet the following criteria:

- Toprail is 1.09 M (42 inches, +/- 3 inches) above the walking/working level
- Midrail is located midway between the top rail and the walking/working level
- It is important to remember that the working level is that level where the work is being done. Someone working on a stepladder next to an edge may raise his/her working surface well above the walking surface.
- Both top and midrails should be constructed of materials at least 51mm x 102 mm (2"x4") if constructed of wood. If wire rope is used for toprails it must be 8mm (3/8") in thickness, it needs to be flagged with a high-visibility material at least every 1.5 meters (5') and have turnbuckles or other means to provide adequate tension on the wire rope. Manufactured railing systems made of light weight metal are also available for use as a guardrail system.
- The system should be smooth to prevent punctures, lacerations or snagging of clothing
- The ends of the top rail should not overhang the terminal posts, except when such overhang does not present a projection hazard
- When a hoisting area is needed, a chain, gate or removable guardrail section must be placed across the access opening when hoisting operations are not taking place.

### **Personal Fall Arrest Systems**

Personnel requiring the use of personal fall protection equipment shall employ the "Buddy System" or have an observer to render assistance when and if required.

There are three main components to the personal fall arrest system. This includes the personal protective equipment the employee wears, the connecting devices and the anchorage point. Prior to tying off to perform the work, a means of rescue must be immediately available.

## Personal Protective Equipment

- If a fall occurs, the employee should not be able to free fall more than 1.22 meter (4 feet) nor contact a lower level.
- To ensure this, add the height of the worker, the lanyard length and an elongation length of 1.07 meters (3.5 feet). Using this formula, a six-foot worker with a six-foot lanyard with a shock absorber and allowances for .4318 meters (1.5 feet) for D ring slide and .6069 meters (2 foot) safety factor would require a tie-off point at least 5.64 meters (18.5 feet) above the next lower level.
- Full body harnesses are required. The use of body belts is prohibited.
- Use the shortest possible lanyard for the job.
- It is preferable to use the Type 1 SRL ( Self Retracting lifeline) for lower altitude work as it reduces the user's free fall, therefore keeping impact forces lower.
- The attachment point of the body harness is the center D-ring on the back.
- Employees must always tie off at or above the D ring of the harness except when using a lifeline, always calculate your fall distance when using fall arrest equipment.
- Harnesses or lanyards that have been subjected to an impact load must be destroyed.
- Load testing shall not be performed on fall protection equipment.

## Connecting devices

- This device can be a rope or web lanyard, rope grab or retractable lifeline.
- Only locking snaphooks may be used.
- Horizontal lifelines will be designed by a professional engineer and installed in accordance with the design requirements.
- Lanyards and vertical lifelines need a minimum breaking strength of 17.8 kn or approximately 4,000 pounds.
- Lanyards may not be clipped back to itself (e.g. around an anchor point) unless specifically designed to do so.
- If vertical lifelines are used, each employee will be attached to a separate lifeline.
- Lifelines need to be protected against being cut or abraded.

## Anchorage

Secure anchor points are the most critical component when employees must use fall arrest equipment. Buildings may have existing structures (e.g., steel beams that may meet the criteria for a secure anchor point). Other work locations and assignments may require the installation of a temporary or permanent anchor. As a minimum, the following criteria must be considered for each type of anchor point:

- Structure must be sound and capable of withstanding a 17.8 KN or approximately 4000 lb. static load/person attached.
- Structure/anchor must be easily accessible to avoid fall hazards during hook up.
- Direct tying off around sharp edged structures can reduce breaking strength by 70% therefore; chafing pads or abrasion resistant straps must be used around sharp edged structures to prevent cutting action against safety lanyards or lifelines.
- Structures used as anchor points must be at the worker's shoulder level or higher to limit free fall to 1.22 meters (4feet) or less and prevent contact with any lower level.
- Choose structures for anchor points that will prevent swing fall hazards. Potentially dangerous "pendulum" like swing falls can result when a worker moves horizontally away from a fixed anchor point and falls. The arc of the swing produces as much energy as a vertical free fall and the hazard of swinging into an obstruction becomes a major factor. Raising the height of the anchor point can reduce the angle of the arc and the force of the swing. Horizontal lifelines can help maintain the attachment point overhead and limit the fall vertically. A professional engineer must design a horizontal lifeline.

### **Permanent Anchor Requirements**

In addition to all the criteria listed above, the following points must be considered:

- Environmental factors and dissimilarity of materials can degrade exposed anchors.
- Compatibility of permanent anchors with employee's fall arrest equipment.
- Inclusion of permanent anchors into a Preventive Maintenance Program with scheduled annual re-certification.
- Visibly label permanent anchors.
- Anchors must be immediately removed from service and re-certified if subjected to fall arrest forces.
- Include in the design/planning of new/renovated buildings.

### **Work from Aerial Lifts and Self Powered Work Platforms**

- Body harnesses must be worn with a shock-absorbing lanyard (preferably not to exceed 3 feet in length) and must be worn when working from an elevated work platform. The point of attachment must be the lift's boom or work platform. Personnel cannot attach lanyards to adjacent poles, structures or equipment while they are working from the aerial lift.
- Personnel cannot move an aerial lift while the boom is in an elevated working position and the operator is inside of the lift platform. (Truck Mounted Lifts)
- Inspection

- The employee will inspect the entire personal fall arrest system prior to every use. The supervisor will inspect the entire system in use at the initial installation and periodically during its use.

### **Rescue Plans**

All sites where fall protection systems are used must have a site specific rescue plan and procedure. Supervisors are responsible to ensure that rescue plans are in place.