

CHAPTER 15

FALL PROTECTION GUIDELINES

SCOPE

The scope of this guideline addresses the need for fall protection, proper tie-off considerations, anchorage's, vertical and horizontal lifelines and PPE. HTS AmeriTek Plant Services has a 100% tie-off policy.

NEED FOR FALL PROTECTION

Fall protection is required when there is a fall potential of 6' or more from the walking working surface where employees are expected to work. Fall protection is also needed when there is a fall potential of less than 6', depending on client regulations and working over or next to dangerous equipment, excavations deeper than 6' or over impalement hazards.

RESPONSIBILITIES

The competent person is responsible for developing and implementing each site-specific fall protection plan. The responsible safety officer and the supervisor of each job site will be trained to the level of competent person for the purpose of fall protection. The competent person is an individual knowledgeable of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance. The competent person is also capable of identifying existing and potential fall hazards, and has the authority to take prompt, corrective action to eliminate those hazards is knowledgeable of the rules contained in those sections regarding the erection, use, inspection and maintenance of fall protection equipment and systems.

The supervisor on each job site will be trained as the competent person to prepare and implement the fall protection plan. The supervisor is responsible for continual observational safety checks of work operations and enforcement of the safety policy and procedures. The supervisor is also responsible to correct any unsafe acts or conditions immediately. It is the responsibility of the employee to understand and adhere to the procedures of the fall protection plan and to follow the instructions of the supervisor.

It is also the responsibility of the employee to bring to management's attention any unsafe or hazardous conditions or acts that may cause injury to either themselves or any other employees.

DEFINITIONS

- **Anchorage** – A secure point of attachment to which the fall protection system is ultimately connected.
- **Competent Person** – One who is capable of identifying hazardous and dangerous conditions regarding fall protection equipment; and is knowledgeable in the application and use of the equipment; and has the authority to take prompt corrective actions.
- **Deceleration Device (Shock Absorber)** – Any device which serves to dissipate a substantial amount of the energy during fall arrest or otherwise limits the energy imposed on the body during fall arrest.
- **Designated Area** – A fall prevention system composed of a warning line and stanchions erected 6 feet or more from a fall hazard (unprotected roof edge).
- **"D" Ring** – An attachment point on the full body harness for attaching a lanyard or other fall protection device.
- **Fall Protection** – The use of a passive equipment designed to stop and/or control the free fall once a fall has been initiated.
- **Free Fall** – Distance the D-ring travels from the onset of a fall to the time when the fall arrest system is activated (excludes deceleration distance and any system elongation).
- **Full Body Harness** – A personal fall protection device, which is secured around the body, and a lanyard/device attached. It is designed to distribute fall arresting forces primarily over the buttock and thighs.
- **Lanyard** – A flexible strap connected to the full body harness at one end and an anchorage or anchorage connector at the other end.

- **Lifeline** – A flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection at both ends to stretch horizontally (horizontal lifeline), and to which other elements of a fall arrest system are attached.
- **Low Sloped Roof** – A roof having a slope or less than or equal to 4 on 12 (vertical to horizontal).
- **Qualified Person** - One with a recognized degree or professional certification and extensive knowledge in the fall protection field, who is capable of design, analysis, evaluation and specification of fall protection equipment.
- **Restraint Line** – A line from a fixed anchorage to which an employee is secured in such a way as to prevent the employee from reaching an identified fall hazard.
- **Self-Retracting Lifeline** – A fall protection device, which extends up and down automatically as the worker moves eliminating slack. These units have a locking/braking mechanism which senses and arrests free fall.
- **Snap Hook** – A self-closing, self-locking connector used for connecting lanyards/devices to the full body harness D-ring and to the anchorage.

STORAGE

Fall protection equipment must be stored in a clean dry location away from exposure to abrasive or cutting tools, equipment or materials, excessive heat, and chemicals. Full body harness should be hung by the D-ring for storage.

INSPECTION

All fall protection equipment must be inspected by the employee/user prior to each use. Inspections shall consist of an evaluation of the following areas:

HARNESSES

Stitching
Rivets
Buckles
Buckle Tabs
“D” Rings
Rust and Abrasion
Burns, Cuts, Tears

LANYARDS AND LIFELINES

Frayed
Burns
Cuts
Tears
Snap Hooks
Connectors
Corrosion

Equipment found to be defective must be immediately removed from service, tagged as defective and repaired, or destroyed and replaced.

IN-DEPTH INSPECTIONS

A competent person designated by Management must conduct an in-depth inspection of all jobsite fall protection equipment periodically (quarterly). These inspections shall be conducted on the first day of each quarter. Employees will be allowed to bring equipment in one week prior to due date of quarterly inspection. In-depth fall protection inspections must be documented using the form generated from the safety department. Fall protection equipment which has completed the in-depth inspection. The harness and lanyard shall be marked/color coded with colored tie-raps, according to the following schedule:

QUARTERLY INSPECTION SCHEDULE:

- January - March = **White**
- April - June = **Green**
- July - September = **Red**
- October – December = **Orange**

Inspection tags shall not be used to cover any equipment feature/component vital to inspection or performance of the equipment. The tags shall be placed in a manner to visual show/reflect an annual inspection has been done. The harness will be tagged on the back of the D-ring. The lanyard will be tagged on the loop/hole under the top snap hook.

FALL PROTECTION DEVICES

Some types of fall protection equipment (such as self-retracting lifelines) require periodic re-certification by the manufacturer at scheduled intervals. The Competent Person must be familiar with these requirements and have a documented re-certification performed as required. These types of equipment shall also undergo a quarterly inspection by the designated Competent Person, and tagged according to the graph shown above. Fall protection equipment subjected to a fall force, must be immediately removed from service, destroyed, replaced, or re-certified by the manufacturer.

FALL PROTECTION

Only fall protection equipment approved for use by the Company is allowed. Employees are not allowed to use their own personal fall equipment unless: the equipment meets the requirements of the HTS AmeriTek equipment, is approved by HTS AmeriTek Safety Manager, and adheres to the inspection policy. The Company will provide all fall protection to the employee of HTS AmeriTek. All fall protection must be inspected prior to each use and must be maintained in good working order at all times. Equipment found to be defective must be immediately removed from service and replaced as soon as possible. Fall protection equipment is for fall protection use only and is not to be used for any other purpose such as positioning. All components of personal protection; i.e. harness, lanyards, anchorage, lifelines and connectors must have a minimum breaking strength of 5000 pounds. All fall protection equipment must be designed, purchased and used in accordance with this procedure and all applicable manufacturer and regulatory requirements set forth by OSHA. In "hot-work" operations or those involving chemicals or other factors that could cause damage, fall protection equipment must be designed and/or protected to avoid burning or deterioration. All the above listed equipment will be purchased in a new condition that meets ANSI 59.1

TRAINING

Each employee that is exposed to a fall hazard or uses a Personal Fall Arrest System, will be trained in the proper use and care of each component of the PFAS, with documentation recorded and sent to Safety Director. The training will be conducted by either on-site supervision or safety department, in the following areas;

- The nature of the fall hazards in the work place.
- The correct method of erecting, maintaining and disassembling and inspection of the PFAS.
- The use and operation of guardrail systems, PFAS, controlled access zones.
- The proper storage, inspection of each type of PFAS.
- The proper methods for protection from overhead hazards.
- The role of the employee in the fall protection plan.
- The standards contained in Subpart M of CFR 1926.

RE-CERTIFICATION

Re-certification of employee exposed and trained in PFAS will take place when any of the following conditions are detected;

- Employee does not demonstrate competency in skill of use or inspection of PFAS.
- Conditions change to where a different type of PFAS is used or needed.
- Inadequacies in the employee's knowledge or use fall protection, which indicates they have not retained requisite knowledge in the proper use, inspection, storage or other elements of the fall protection policy.

REVIEW OF POLICY

HTS AmeriTek's Safety Director will review the fall protection policy in the event that an incident or accident concerning the fall protection program occurs or in the event a new standard comes into place concerning OSHA.

DISTANCE REQUIREMENTS

A fall shall not exceed more than 6 feet. The fall protection system must be used and secured in a fashion so that the user cannot contact the next lower level should a fall occur. This includes:

- Free Fall Distance, Plus
- System Elongation, Plus
- Deceleration Device/Shock Absorbers, Plus
- Employee height (distance from anchor point of D-ring)

Note: The site supervisor shall make provisions for prompt rescue for employees in the event of a fall.

ANCHORAGES

Anchorage must be capable of supporting 5000 pounds, per employee attached or be approved by a qualified person to have a safety factor of two. Anchorage's should be level with the back de-rings of the harness or higher if this cannot be maintained, the lanyard should be shortened to keep the free fall distance to the 6' or lower, requirement. Anchorage points should be taken into consideration when a job requires employee to work at elevations exceeding those above.

FULL BODY HARNESS

Full body harness must fit and be worn properly with the straps tucked so as not to get caught on equipment or otherwise cause a hazard. Chest straps must be worn between the chest and collar bone, with the rear D-ring being worn between the shoulder blades. Additionally, some harnesses come equipped with various "D"-rings whose use is based on their location:

- Back- General Fall Protection Use
- Front- Used with Climbing Systems
- Side- Positioning Devices Only, Not to be Used as Fall Protection
- Shoulder- Rescue Line Attachment

SELF-RETRACTING LANYARDS

Dual lanyard personal SRLs or a fixed overhead SRL shall be used for fall arrest. SRLs typically require 6 feet of clear space below the anchor point to safely arrest a fall. If traversing with a fall hazard of 6 feet or more, 100% tie off is required at all times. This will require utilizing a SRL with dual lanyards. The 6-foot fall distance is measured from the walking/working surface to the next lower walking/working surface. Whenever changing anchor points, the second lanyard must be connected to the new anchor point before the first one can be removed. *Never tie-off by connecting two lanyards hook to hook.* When using dual lanyard SRLs, the time during which a worker is tied off with both lanyards should be minimized; simultaneous deployment of both lanyards may limit the effectiveness or the lanyards may become entangled preventing proper operation. When not in use, the SRL Hook must be secured to the harness with by a break away Lanyard Keeper ONLY. The snap hook will be attached to the adjustable ring in the middle of the lanyard then to the chest D-ring of the harness.

NOTE: Use of single or dual lanyards without an SRL for fall arrest is prohibited without an Approved Deviation from Corporate Safety Management.

SNAP HOOKS

Only self-closing, self-locking snap hooks are allowed for fall protection use on Company projects. Snap hooks must open and close properly, and be fully closed around their anchorage point.

VERTICAL LIFELINES

Vertical lifelines may be used when anchorages are beyond the reach of the employee or employees need to travel straight up and down, at elevations. Vertical lifelines and anchorage's they are attached to, must be capable of supporting 5000 pounds or maintain a safety factor of two, if approved by a qualified person. Only one employee per vertical lifeline is allowed. Rope or cable grabs shall be used; no knots shall be tied in any cable or rope, used for vertical lifelines. Synthetic straps must be approved for use in fall protection. Straps used for material hoisting shall not be used.

HORIZONTAL LIFELINES

Horizontal lifelines shall be designed and installed under the supervision of a qualified person or one who has the technical experience in this field. No horizontal lifeline shall be installed or used without approval from HTS AmeriTek's management.

CONTROL ZONE SYSTEM

A controlled access zone means an area designated and clearly marked in which leading edge work may take place without the use of guardrail, safety net or personal fall arrest systems to protect the employees in the area. Control zone systems shall comply with the following provisions:

- When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access. When control lines are used, they shall be erected not less than 6 feet (1.8 m) or more than 60 feet (18 m) or half the length of the member being erected, whichever is less, from the leading edge.
- The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
- The control line shall be connected on each side to a guardrail system or wall.
- Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
 - Each line shall be flagged or otherwise clearly marked at no more than 6-foot (1.8 m) intervals with high-visibility material.
 - Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) from the walking/working surface.
- Each line shall have a minimum breaking strength of 200 pounds (0.88 kN).

FALL PROTECTION SYSTEMS TO BE USED ON A PROJECT

HTS AmeriTek personnel will only use the safety monitoring system when engineered controls cannot be set in place or PPE is not safe or poses a greater hazard due to the area such as type of atmospheric hazards or mechanical equipment...etc. The HTS AmeriTek supervisor over the jobsite will follow the chain of command before resorting to using a safety monitoring system. All parties of upper management will be involved in the planning process. Only individuals with the appropriate experience, skills, and training will be authorized as designated erectors. All employees that will be working as designated erectors under the safety monitoring system shall have been trained and instructed in the following areas:

- Recognition of the fall hazards in the work area (at the leading edge and when making initial connections point of erection).
- Avoidance of fall hazards using established work practices that have been made known to the employees.
- Recognition of unsafe practices or working conditions that could lead to a fall, such as windy conditions.
- The function, use, and operation of safety monitoring systems, guardrail systems, body belt/harness systems, control zones and other protection to be used.
- The correct procedure for erecting, maintaining, disassembling and inspecting the system(s) to be used.
- Knowledge of construction sequence or the erection plan.

A conference will take place prior to starting work involving all members of the erection crew, crane crew and supervisors of any other concerned contractors. The erection supervisor in charge of the project will conduct this conference. During the pre-work conference, erection procedures and sequences pertinent to this job will be thoroughly discussed and safety practices to be used throughout the project will be specified. Further, all personnel will be informed that the controlled access zones are off limits to all personnel other than those designated erectors specifically trained to work in that area.

SAFETY MONITORING SYSTEM

A safety monitoring system means a fall protection system in which a competent person is responsible for recognizing and warning employees of fall hazards. The duties of the safety monitor are to:

- Warn by voice when approaching the open edge in an unsafe manner.
- Warn by voice if there is a dangerous situation developing which cannot be seen by another person involved with product placement such as a member getting out of control.
- Make the designated erectors aware they are in a dangerous area.
- Be competent in recognizing fall hazards.
- Warn employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner.
- Be on the same walking/working surface as the monitored employees and within visual sighting distance of the monitored employees.
- Be close enough to communicate orally with the employees. Not allow other responsibilities to encumber monitoring. If the safety monitor becomes too encumbered with other responsibilities, the monitor shall
 - Stop the erection process; and

- Turn over other responsibilities to a designated erector; or
- Turn over the safety monitoring function to another designated competent person.

Note: The maximum number of workers to be monitored by one safety monitor is six (6). Trained employees will be designated as erectors and will be permitted to enter the monitored zone and work without the use of conventional fall protection. Safety monitoring system shall not be used when the wind is strong enough to cause loads with large surface areas to swing out of radius, or result in loss of control of the load, or when weather conditions cause the walking-working surfaces to become icy or slippery.

Rescue

HTS AmeriTek shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves. Devices with decent capabilities may be considered for self-rescue in some areas. In most cases, we should use the (in plants we are in) emergency rescue team from the plant. We should alert them that we have a circumstance that we could not rescue an employee if they fell and whether they would act as our emergency rescue service for that part of the work. We should confirm that they have the proper equipment, expertise and would be available when we notified them within 15 minutes. If the plant refuses to act as our rescue service, we must contract an outside rescue service and evaluate their capabilities to handle the rescue as to equipment and expertise in their field. They would have to be present onsite at the time of the work.