

Appendix F – Definitions

Activation Distance: The distance traveled by fall arrestor or the amount of line payed out by self retracting lanyard from the onset of a fall to the point where the system locks-off.

Active Fall Protection system: A fall protection system that requires end users to wear or use fall protection equipment.

Anchorage: A secured structure that can safely withstand forces exerted by the activation of fall protection and rescue equipment. The structure can be in the form of a beam, girder, column, or floor. Anchorage is either engineered or improvised.

Anchorage Connector: A component or subsystem by which fall protection or rescue equipment is secured to the anchorage. This can include a steel cable sling, tie-off adopter (anchor strap), load-rated eyebolt, tripod, davit arm, or any other device designed to suspend human loads and capable of withstanding forces generated by a fall.

Anchorage System: A combination of anchorage and anchorage connector.

Arresting Distance: The total vertical distance required to arrest a fall. Includes activation and deceleration distance. Arresting distance does not include free-fall distance.

Arresting Force: Force exerted on a worker or test weight, when a fall protection system stops the fall. The amount usually expresses the peak force experienced during a fall.

Assigned Safety Person (Spotter): An employee assigned to periodically check (at least every 5 minutes) visually or verbally to assure that an end user has not fallen and is suspended in his/her harness. This assigned safety person shall have the ability to make quick contact with the jurisdictional public/Government-emergency response agency. This is also known as the “Buddy System”.

Assisted Rescue: A planned means of rescue, requiring the assistance of others.

Authorized Person: See the definition of End User.

Authorized Rescuer: A person who is trained on rescue procedures and assigned by the Command to rescue an end user who may require rescue.

Automatic Controlled Descent Device: A personal lowering device or mechanism that once engaged will automatically control pay-out speed of line or descent speed under load, self adjusting for a person’s weight and operating by gravity. Some automatic controlled descent devices have self-retracting lanyard capability.

Available Clearance: The distance from the walking working surface to the nearest obstruction that the end user might contact during a fall.

Body Belt: A strap with means both for securing it about the waist and attaching it to a lanyard, lifeline, or deceleration device. **(Use in personal fall arrest systems is prohibited).**

Body Harness: Means of configuration of connected straps secured about the employee in a manner that will distribute the arresting forces over at least the upper thighs, waist, shoulders, chest and pelvis, with means for attaching a lanyard to other components of the personnel fall arrest system. Full-body harness is the only body support device allowed by OSHA or ANSI when a free fall distance exceeds two feet.

Boatswain (Bos'n) Chair: A single-point adjustable suspension scaffold consisting of a seat or strap designed to support one employee in a sitting position. The seat is made of a plywood or strap independently suspended from an anchorage and the employee using full body harness is attached to a separate lanyard or lifeline attached to an independent anchorage may sit to help alleviate the pooling of blood in the legs.

Brake Bar Rack: A series of smooth bars connected together in parallel in which a synthetic rope is intertwined so that the friction of the rope against the bars controls the descent of a lowering device (often used in a rope rescue system).

Buckle: A connector used for attaching the strap or webbing segments together or to themselves.

Cable Grab: See fall arrestor

Carabiner: A connector component generally consisting of an oval or trapezoidal shaped body with a closed gate or similar arrangement. **Only self-locking carabiners are acceptable for use.**

Certified Anchorage: A fall protection or rescue anchorage that a qualified person certifies to be capable of supporting the potential forces that could be encountered in the process of arresting a fall.

Clearance: The distance from a specified reference point, such as the working platform or anchorage of a fall-arrest system, to the lower level that a worker might encounter during a fall.

Competent Person (CP) for Fall Protection: A person designated by the Command to be responsible for the immediate supervision, implementation and monitoring of the fall protection program, who through training knowledge and expertise is capable of identifying, evaluating and addressing existing and potential fall hazards and in the application and use of personal fall arrest and rescue system or any component thereof, AND who has the authority to take prompt corrective measures to eliminate or control the hazards of falling.

Connector: A device used to couple (connect) parts of the personal fall arrest system together. It may be an independent component of the system, such as a carabiner, or it may be an integral

component of part of the system (such as a buckle or D-ring sewn into a body belt or body harness, or a snap hook spliced or sewn to a lanyard or self-retracting lanyard).

Connecting Means: The method to connect body support to an anchorage, such as a lanyard, snaphook or a carabiner for the purpose of providing protected mobility for an elevated work task.

Controlled Access Zone: A zone to restrict access to unprotected edge work. The CAZ is bound by a control line and should run the full length of the unprotected edge and connect on each side to a guardrail or wall. The control line can be made of rope, wire, tape, or equivalent material and shall be supported by stanchions and marked with a highly visible material. **Controlled Access Zones are not allowed on USACE projects**

Deceleration Device: Any mechanism, such as a fall arrester (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.

Deceleration Distance: The vertical distance measured between the location of the user's fall arrest attachment point (Dorsal D ring) at the onset of fall arrest forces during a fall, and after the fall arrest attachment point comes to a complete stop. Is the additional vertical distance a falling employee travels, excluding lifeline elongation and free-fall distance, before stopping, from the point at which the deceleration device begins to operate.

Designated Area Method: A distinct portion of a walking-working surface delineated by a perimeter warning line in which temporary work may be performed without additional fall protection. The designated area method is only used for general industry work.

D-ring: A connector used integrally in a harness as an attachment element for fall arrest. It is also used in lanyards, energy absorbers, lifelines, and anchorage connectors as an integral connector.

End User of Fall Protection (Authorized Person): A person who has been trained in the use of assigned fall protection equipment, including hands-on training and practical demonstrations in a typical fall hazard situation, and uses personal fall arrest or restraint/positioning equipment while performing work assignments at heights.

Energy (Shock) Absorber: A component whose primary function is to dissipate energy and limit deceleration forces that the system imposes on the body and the anchorage system during fall arrest.

Engineered Anchor: An anchorage designed and approved by a qualified person.

Evacuation harness: A component for rescue purposes consisting of elements designed and constructed so that the rescue subject is securely held during the rescue process. Evacuation harness is a special harness.

Failure: Load refusal, breakage, or separation of component parts. Load refusal is the Point where the ultimate strength is exceeded.

Fall Arrest System: A combination of equipment and components such as full body harnesses, lanyards, deceleration devices, anchorages, horizontal or vertical lifelines connected together, designed to stop a person from striking a lower level or an obstruction during a fall.

Fall Arrestor: A fall arrest device that locks by either a cam lock (locking arm) or inertia when a free fall is sensed. It is attached to a worker directly or by a lanyard that slides up or down a fixed or vertical cable or rope lifeline.

Fall Prevention: The elimination and minimization of potential fall hazards, lessening the chance of employee exposure to falls. Any same-level means used to reasonably prevent exposure to a fall hazard; examples of fall prevention are guardrails, walls, floors, and area isolation. Also called passive fall protection system.

Fall Protection: Action and procedures to effectively protect a worker from fall hazards.

Fall Protection Program Manager: A person assigned to be responsible for developing and managing the fall protection program.

Force Factor: The ratio of peak arresting force using rigid weight compared to a human body having the same weight, both falling under identical conditions.

Forced Rollout: An action by which the gate of a **locking** snaphook or carabiner is loaded beyond its design strength forcing it to fail and disengage from the component it was attached to.

Free Fall: The act of falling before a personal-fall-arrest system begins to apply force to arrest a fall.

Free-Fall Distance: The vertical distance from the onset of a fall to a point where a fall-arrest system is activated or engaged. (This is the vertical distance measured from the fall arrest attachment point on the employee's body harness at the onset of the fall to the point just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation which are exerting deceleration forces, but includes any

deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.)

Full-body harness: See the definition of Body Harness.

Horizontal Lifeline (HLL): A fall arrest system that uses a flexible line made from rope, wire rope or synthetic cable that spans horizontally between two end anchorages. The assembly includes the necessary connectors, turnbuckles, in-line energy absorbers, shackles, etc. and may include intermediate anchorages. The system includes fall protection equipment that enables a trained worker to move and safely traverse/work in the horizontal plane.

Ladder Climbing (Safety) Device: A device or climbing sleeve connected to the front D-ring on the climber's full-body harness that slides up or down a rigid rail or cable. Should a fall occur, the device is designed to lock by inertia or cam action to arrest the fall.

Lanyard: A flexible line of rope, wire rope, or strap that generally has a connector at each end for connecting the body harness or body belt to a deceleration device, lifeline, or anchorage.

Leading Edge: The unprotected side and edge that exposes a worker to a fall hazard. It can be the edge of a floor, roof, or formwork for a floor or other walking/working surfaces where the edge changes location as additional floor, roof, decking or formwork sections are placed formed or constructed.

Lifeline: A component consisting of a flexible line which is either connected to an anchorage at one end, and hangs vertically (vertical Lifeline), or is connected to anchorage at both ends and stretches horizontally (Horizontal Lifeline); both of which serves as a means for connecting other components of a personal-fall-arrest system.

Man Overboard Plan: A man overboard plan is an emergency plan for rescuing personnel if they accidentally fall in the water.

Manual Descent Controlled Device: A load lowering device or mechanism that once engaged requires manual attention to control payout speed of line or descent speed under load.

Maximum Arresting Force (MAF): The peak force exerted on the body or test weight when a fall protection system arrests or stops a fall.

Non Certified Fall Protection Anchorages: An unquestionably strong anchorage that a competent person judges to be capable of supporting the predetermined anchorage strength as prescribed by OSHA Standards and ANSI/ASSE Fall Protection Code. Non Certified anchorages are used either for fall arrest, work positioning, travel restraint or rescue.

Orthostatic Intolerance (suspension Trauma): The development of symptoms as a result of suspension in a full body harness, such as light-headedness, palpitations, tremulousness, poor

concentration, fatigue, nausea, dizziness, headache, sweating, weakness, and occasionally fainting and unconsciousness.

Passive Fall Protection System: A system that does not require a worker to use or wear personal fall arrest equipment. Examples include safety nets, guardrails, parapet walls, etc.

Personal-Fall-Arrest System: Assembly of components and subsystems used to arrest an end user falling from height. It consists of an anchorage system, connecting means, and body harness, and may include a lanyard, deceleration device, lifeline, or suitable combination of these. **Use of body belt in a personal fall arrest system is prohibited.**

Positioning System: A combination of equipment including a full body harness rigged to allow the end user to work with both hands free while being supported on an elevated vertical work surface.

Pre-Incident Plan: A formal written plan containing factors that need to be evaluated when assessing the potential situations that could affect a facility during emergency conditions.

Qualified Person (QP) for Fall Protection: A person with a recognized engineering degree or professional certificate and with extensive knowledge training and experience in fall protection and rescue field, who is **capable of performing design, analysis, evaluation, and specifications of fall protection and rescue systems and equipment.**

Rescue: Process of evacuating a person or persons to a safe location where they also may receive medical attention.

Rescue Cradle: A cradle made of synthetic material with polyester webbing with integrated steel rings attachable to flexible line of rope or strap via a carabiner, used to lower injured personnel from heights.

Rescue Ladder: A flexible ladder with rigid rungs and either synthetic webbing or wire rope side rails which can be temporarily hung next to the end user working at heights, or can be lowered down to an end user suspended in a harness to allow him to climb back up to the working surface (or at least stand on the ladder while waiting rescue allowing the necessary circulation of the blood to the entire body while an assisted rescue is being commenced).

Rescue Lanyard: A component consisting of flexible line of rope or strap, which generally has a connector at each end for connecting the body support to components of a rescue system. A rescue lanyard is a special lanyard.

Rescue Plan (Fall Arrest): A written plan that describes the rescue method and procedures to be used to rescue an end user of fall protection who may have fallen from a height and be suspended in a full body harness. The suspended worker may have been injured or incapacitated prior to, or as the result of the fall.

Restraint System: A combination of devices designed to restrain an end user from reaching an exposed fall hazard. The system consists of a full-body harness that can be secured around a worker and attached to a load-bearing anchorage in order to restrict travel and limit fall hazards. The strap can be single or multiple.

Rigid anchorage subsystem: An anchorage system, such as a rigid rail or trolley system or a single point of attachment that does not appreciably deflect, deform, or stretch when a fall-arrest impact occurs.

Rollout: An action by which a snap hook or carabiner unintentionally disengages from another connector or object to which it is attached.

Rope Access: A system consisting of two lifelines independently anchored at the top to protect the authorized person from falling. The ropes directly suspend the person. The technique is used on buildings, bridges, and other structures for conducting inspection, cleaning, and painting.

Rope Grab: See Fall Arrester.

Runway:

1. a passageway for person, elevated above the surrounding floor or ground level, such as a foot-walk along shafting or a walkway between buildings.
2. Elevated crane rails upon which an overhead electric crane travels.

Safety Strap/Relief Step Strap: A coiled strap in an attached pouch to the lanyard which is manually deployed after a fall, and allows the end-user to insert one foot (or two feet depending on the style) into the loop step and stand allowing the necessary circulation of blood to the entire body while an assisted rescue is being commenced.

Sag: The distance the wire rope or synthetic cable of a horizontal lifeline deviates from the horizontal plane established by the end anchorage. This is defined by the line between two anchorages and measuring downward at the mid-point of the wire rope or cable.

Self-Retracting Lanyard (SRL): 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.

Self-Retracting Lanyard with Integral Rescue Capability: A device meeting ANSI/ASSE Z359 Fall Protection Code/Standards definition for self retracting lanyard and including integral means for assisted-rescue via raising or lowering the rescue subject.

Self-Retracting Lanyard With Leading Edge Capability (SRL-LE); A self-retracting device used for horizontal applications which is mounted or anchored at “foot” level and where there is the possibility of free fall. The device includes integral means to withstand impact loading of the line constituent with a sharp or abrasive edge during fall arrest and for controlling fall arrest

forces on the user. The device can also be used for vertical applications where it is mounted overhead.

Seat Sling: A seat sling designed for attachment to a full body harness that is designed so that a worker may sit for a short period of time without pooling of blood in the legs.

Self/Manual Deploying Rescue Ladder: A coiled webbing rescue ladder in a pouch connected to the lanyard or anchorage which either self-deploys during a fall or is manually released by the end user after a fall, and is left dangling next to the suspended end-user which allows the end user to climb back up to the anchorage (or at least simply stand in the ladder allowing the necessary circulation of blood to the entire body while an assisted rescue is being commenced).

Shock Absorber: See Energy Absorber

Snap Hook: A connector comprised of a hook-shaped body with a normally closed gate or similar arrangement, which may be opened to permit the hook to receive an object and when it is released, automatically closes to retain the object. **Only self-locking (single or double locking) snap hooks are acceptable for use.**

Suspension Trauma (Harness Induced Pathology): Where the body is at rest in a vertical state with the lower body motionless, and as such, blood begins to pool in the lower extremities because the muscles in the legs are not contracting on the veins and helping the blood back to the heart (against gravity). Blood is not properly circulated, the individual's blood pressure drops, the brain does not receive adequate blood flow and unconsciousness follows.

Suspension Work seat: A seat board with integral body belt, suspension D-rings, and adjustable leg and shoulder straps designed so that a worker may sit for long periods of time without pooling of blood in the legs.

Swing fall: A pendulum-like motion that can result from moving horizontally away from, or toward, a fixed anchorage and falling. Swing falls generate the same amount of force when falling the same distance vertically. Swing fall has the hazards in both the horizontal direction (swinging into obstruction) and vertical direction (falling onto obstructions or ground).

Synthetic Rope Tackle Block: A load lifting and/or lowering device that does not include a winding or traction drum but use pulleys to achieve a mechanical lifting advantage (often used in a rope rescue system).

Toe-Board: A deck level protective barrier that will prevent the fall of materials and equipment to lower levels.

Total Fall Distance: The maximum distance fallen by the worker using a fall-arrest system between the onset of a fall and the instant when the worker first achieves zero vertical velocity. Or is the vertical distance fallen by an end user connected by a fall arrest system to an anchorage measured from the walking/working surface and extending downward to a position after the fall

is arrested. The total fall distance includes the sum of the free fall, elongation and deceleration distances of the system.

Travel Restraint: See restraint system.

Vertical lifeline (VLL): A vertically suspended flexible line connected at the upper end for fastening to an overhead anchorage and along which a fall arrester travels.

Warning Line System: A barrier erected on roof to warn workers they are approaching unprotected side or roof edge and which designates an area where roof work may take place without the use of guardrail, fall arrest, or safety net systems to protect workers in the area. Work performed outside barriers will require fall protection. Warning line system is used during construction work.

Walking/Working Surface: Any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, 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.

Winch/hoist: A load lifting and/or lowering device that incorporates a winding drum and means for controlling pay-out and take-up of the line from the drum.

Winch/hoist capstan: A load lifting and/or lowering device that incorporates a traction drum and a means for controlling pay-out and take-up of the line from the drum. Device relies on reduction gearing and/or lever principals to achieve a mechanical lifting advantage.