1.0 Policy

Work activities where employees may be exposed to falls and falling objects shall be conducted safely with associated exposures eliminated and/or controlled.

2.0 Purpose

The purpose of this policy is to establish minimum requirements and guidelines to provide maximum prevention and protection against falls from elevation and falling objects.

3.0 Scope

Applies to all Sunbelt Controls work sites where construction activities involve exposure to heights greater than or equal to six (6) feet and/or falling objects exist. In general industry (e.g. service/repair/maintenance, shops, warehouses, cleaning, etc.) exposure to heights greater than or equal to four (4) feet shall be in place of all references to the construction six (6) foot reference.

4.0 Definitions

Anchorage – a secure point of attachment for lifelines, lanyards, or deceleration devices that is capable of supporting 5,000 lbs. per employee or two times the intended impact load, whichever is greater, or for a positioning system, 3,000 lbs. without failure.

Aerial Personnel Lifts (reference Section Ten [10] of the policy manual)

Approved – for the purpose of this section, authorized by the Safety Manager, tested and certified by the manufacturer or any recognized national testing laboratory to possess the strength requirements specified in this section.

Catenary Line See ***Horizontal Lifeline***

Competent Person – an individual knowledgeable (through experience and/or training) of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance; who is capable of identifying existing and potential fall hazards; who has the authority to take prompt corrective action to eliminate those hazards; and who is knowledgeable of the rules contained in this section regarding the erection, use, inspection, and maintenance of fall protection equipment and systems.

Controlled Access Zone – an area in which certain work may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Deceleration Device – a device manufactured (for use in falls); it is shock-absorbing device whereby the forces of the fall are rapidly reduced to meet acceptable levels.

Drop Line – a vertical lifeline secured to an upper anchorage for the purpose of attaching a lanyard or device.

Employee – every employee regardless of title or contractual relationship.

Fall Arrest System (Personal) – the use of multiple, approved safety equipment components such as body harnesses, shock absorbing lanyards, deceleration devices, drop lines, horizontal

and/or vertical lifelines and anchorages, interconnected and rigged to ones body as to arrest a free fall.

Fall Protection Work Plan – a written planning document in which the employer identifies all areas in the work area where a fall hazard of 6 feet or greater exists, whereby conventional Fall Restraint and Fall Arrest Systems cannot be utilized.

Fall Restraint System – an approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from falling to a lower level.

Fall Distance – the actual distance from the employee's work platform (area) to the level where a fall would stop (ground level or otherwise).

Full Body Harness – a configuration of connection straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, positioning rings, or deceleration devices.

Full Body Harness System – a Class III full body harness and shock absorbing lanyard attached to an anchorage or attached to a horizontal or vertical lifeline which is properly secured to an anchorage(s) capable of withstanding the forces specified in the applicable sections.

Hardware – snap hooks, D-rings, buckles, carabiners, and adjusters used to attach the components of a fall protection system together.

Holes (floor, roof or walking surface) – any opening in the floor greater than two inches whereby falling objects or an employee fall of greater than six foot is possible.

Holes (wall) See **Wall Opening**

Horizontal Lifeline – a rail, rope, or synthetic cable installed in a horizontal plane between two anchorages and used for attachment of an employee's lanyard or lifeline device while moving horizontally.

Lanyard – a flexible line of webbing, rope or cable (usually in two, four or six foot lengths) used to secure a harness to a lifeline or an anchorage point.

Leading Edge – the advancing edge of a floor or roof, where a fall of more than six foot is possible to the ground or to another level.

Lifeline (vertical or horizontal – Safety Line / Static Line) – a vertical line from a fixed overhead anchorage or horizontal line between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured.

Restraint Line – a line from a fixed anchorage or between two anchorages to which an employee is secured in such a way as to restrict the employee from reaching a point where falling to a lower level is possible.

Safety Line See **Lifeline**

Shock Absorbing Lanyard means a flexible line of webbing or rope used to secure a harness to a lifeline or anchorage point that has an integral shock absorber of either a rip stitch or retractable configuration.

Snap Hook – a 'locking' hook at the end of a lanyard or restraining/positioning line that has a double-action locking mechanism intended to eliminate unintentional unhooking from the D-ring of a body harness. Non-locking snap hooks are prohibited.

Standard Guardrail – a top-rail at 42 inches high (plus or minus three inches), a mid-rail installed midway the top edge of the guardrail system and the surface.

Static Line See **Lifeline**

Toeboard – a barrier at the base of the guardrail system to prevent material and objects from falling off the surface; they are at least four (4) inches of nominal height with no less than one (1) inch clearance from the surface.

Unprotected Sides and Edges – any side or edge (except at entrances to points of access) of a floor, roof, ramp, or runway where there is no wall or guardrail system.

Walking / Working Surface – for the purpose of this section, any area whose dimensions are 45 inches or greater in all directions through which employees pass or conduct work, and can include scaffolding and aerial lifts regardless of surface dimensions.

Wall Opening – a gap in a wall where the outside bottom edge is 6 feet or more above lower levels, and the inside bottom edge (e.g. parapet wall) is less than 39 inches above the walking/working surface.

Work Area – that portion of a walking/working surface where work activities are being performed.

5.0 Requirements

5.1 Training

All training is to be documented as part of employee training records. Fall Protection training formats and requirements shall include:

- New employees will be oriented to the Sunbelt Controls Fall Protection Program as part of the 'new employee orientation program'.

Thereafter, every foreseeably exposed employee will be trained on an annual basis with a training duration of not less than one hour, and include the following:

- The nature of fall hazards in the typical work area
- The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems
- The use and operation of conventional and non-conventional fall protection systems
- The role of each employee in the safety monitoring system when such a system is in use
- The limitations on the use of mechanical equipment during the performance of roofing work on low-slope roofs
- The correct procedures for equipment and materials handling and storage, and the erection of overhead protection
- The correct fit, maintenance and use of all (personal) fall arrest system components, as determined by the manufacturer(s)
- Rescue procedures in the event an individual falls
- All other details in this section

Toolbox talks for related issues of this manual section shall be covered periodically.

Any employee who has not received orientation or annual training (as previously outlined) shall not be allowed to work at heights identified by this section.

Retraining will occur and be documented when any of the following conditions are observed: Deficiencies in training, improper use of equipment, or changes in fall protection systems or equipment.

5.2 Conventional Fall Arrest and Fall Restraints Systems shall be utilized where the exposure to falls greater than 6 foot and from falling objects is reasonably foreseen. The following systems shall be utilized:

5.2.1 Guardrail System (fall restraint and potentially from falling objects)

Top rails and mid-rails of guardrail systems constructed of wood shall be at least ¼ inch diameter or thickness to prevent cuts and lacerations.

If wire rope is used for top rails, it shall be flagged at not more 6 feet intervals with high-visibility material. Steel and plastic banding is prohibited for use as top rails or mid-rails. The top edge height of top rails, or (equivalent) guardrails shall be 42 inches, plus or minus 3 inches, above the walking/working level.

When employees are using ladders in distance proximity equivalent to the maximum use-length of the ladder, the top edge height of the top rail, or equivalent member, shall be increased an amount equal to the maximum use-length height of the ladder, **or** see **Special Control Procedures** (reference sub-section 5.4.5 of Section [19] for more information).

Screens, mid-rails, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there are no walls or parapet walls at least 21 inches high. When mid-rails are used, they shall be installed at a height midway

between the top edge of the guardrail system and the walking/working level. When screens and mesh are used, they shall extend from the top rail to the walking/working level.

Intermediate members, such as balusters, when used between posts, will not be more than 19 inches apart.

The guardrail system shall be capable of withstanding a force of at least 200 pounds of force applied within 2 inches of the top edge in any outward or downward direction. When the 200 pounds is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level.

Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members will be capable of withstanding a force of at least 150 pounds of force applied in any downward or outward direction at any point along the mid-rail or other member.

Guardrail systems shall be free of sharp edges and burrs to protect against punctures or lacerations and to prevent clothing from snagging.

The ends of top rails and mid-rails shall not overhang terminal posts, except where such an overhang does not constitute a projection hazard.

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

At uncovered holes, guardrail systems shall be set up on all unprotected sides or edges. When holes are used for the passage of materials, the hole shall have not more than two sides with removable guardrail sections.

When the hole is not in use, it shall be covered or provided with guardrails along all unprotected sides/edges.

If guardrail systems are used around uncovered holes that are used as access points (such as ladder ways), gates shall be used or the guardrail shall be offset at a 45-degree angle to prevent accidental walking into the hole. Toeboards shall be utilized around the edges not utilized as the actual access point.

If guardrails are used at unprotected sides or edges of ramps and runways, they shall be erected on each unprotected side/edge. When guardrail systems in combination with netting, is used to prevent materials from falling from one level to another, openings shall be small enough to prevent passage of potential falling objects.

5.2.2 Covers for Holes (fall restraint and from falling objects)

Covers (or a guardrail system with toe boards–see Guardrail Systems (sub-section 5.2.1 of Section [19] within this section) shall be installed over holes in floors, roofs and walkways that are more than 6 feet above lower levels.

Hole covering material shall support at least two times the potential weight that will cross over it. If plywood is chosen as the cover material, it shall be of at least ¾ inch in thickness.

All hole-covers shall be secured in place in such a manner as to not easily be displaced. Examples of securing methods include, but are not limited to: nailing, attached cleats, wire, etc.

Such covers shall have the word '**HOLE**' or '**COVER**' predominately marked on the top surface. Where covers are too small for such marking, they shall be painted or significantly marked in the color **orange.**

5.2.3 Restraining/Positioning System (fall restraint)

Only full body harness systems with positioning rings are to be utilized with any Restraining/Positioning system. Restraint line (rope) length shall not exceed the distance to fall exposure, and shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds, whichever is greater.

Requirements for body harness systems, snap hooks, D-rings, and other connectors used with positioning device systems shall meet the same criteria as those for fall arrest systems (reference sub-section 5.2.4 of Section [19] for further reading)

Body Belts are Prohibited.

5.2.4 (Personal) Fall Arrest System (fall arrest)

(Personal) Fall Arrest Systems shall do all of the following:

- Limit maximum arresting force on an employee to 1,800 pounds.
  Note: total body weight including tools cannot exceed 310 lbs. To stay under arresting force limit
- Be rigged so 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 an employee travels to 3.5 feet
- Have sufficient strength to withstand 5000 lbs. (excluding horizontal lifelines which require a safety factor of at least two times the potential impact energy)
- All components of the (personal) fall arrest system (lanyards, body harness and attached hardware, and shock-absorbing devices) shall meet the design specifications of OSHA 1926.502 Subpart M

The following items/actions are prohibited for use with (personal) fall arrest systems:

- Body belts
- Non-locking snap hooks

- Lanyards without shock absorbers
- Tying back to the lanyard (once around another object) for a means of an anchorage point, unless the lanyard was designed for this purpose by the manufacturer, the object tied around can support the anticipated fall force and the object does not have sharp edges or burrs

5.2.5 (Personal) Fall Arrest Systems shall be utilized in the following manner:

5.2.5.1 Pre-Use Inspection

All components shall be inspected prior to each use for wear damage, and other deterioration (reference Equipment Inspection and Maintenance Procedures under sub-section [5.5] of section [19]).

5.2.5.2 General Proper Body Harness Fit Guidelines (two employees are usually required to completely fit each other)

- The body harness type and size shall meet the physical needs of its user (male / female or small, medium, large, etc.).
- Follow the manufacturer's guidelines on proper fit.
- Shoulder, thigh, button and chest straps shall be fit snugly whereas it is slightly difficult to slide the hand underneath.
- All loose straps ends shall be folded back under.
- D-ring placement should be between the shoulder blades.
- Chest straps should be positioned across the mid-chest area.

5.2.5.2.1 Sufficient Anchorage Points Utilized

Anchorages shall be used under the supervision of a competent person, as part of a complete (personal) fall arrest system that maintains a safety factor of at least two (i.e., capable of supporting at least twice the weight expected to be imposed upon it).

Anchorages used to attach (personal) fall arrest systems will be independent of any anchorage being used to support or suspend platforms and shall be capable of supporting at least 5,000 pounds of force per person attached.

Anchorage points can include:

- Lifelines (horizontal and vertical)
- Designed anchorage points on aerial lifts
- Eye-bolts listed for use by the manufacturer

Specially designed anchorage tools specifically designed to meet fall force requirements, including:

- Wrap-around lanyards as approved by the manufacturer
- I-beam clamps designed specifically as an anchorage point

Prohibited anchorage points include, but are not limited to:

- Standard guardrails and railing
- Ladders/rungs

- Scaffolding, unless approved by the manufacturer for/with anchorage points
- Light fixtures, ductwork, conduit, pipe vents, wiring/duct/piping harnesses, other roof stacks, vents or fans
- C-clamps
- Piping (unless capable of meeting the criteria of an anchorage point)
- To a lanyard (around a solid object), unless the lanyard and hardware is manufactured for that purpose

5.2.5.3 Lifeline/Lanyard Applications

Lanyards shall only be attached to anchorage points sufficient to meet the fall force requirements. Shock-absorbing lanyards are required to limit the fall force to less than 1800 pounds.

Self-retracting lanyards (retractable) capable of withstanding the tensile load of 3,000 lbs. that limit the free fall distance to two (2) feet or less **are required when the fall distance is less than nineteen and one-half (19½) feet**.

Lanyards that do not limit free fall distance to 2 feet or less, such as rip stitch lanyards and tearing/deforming lanyards will be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

Horizontal lifelines will be designed, installed, and used under the supervision of a Competent Person, as part of a complete (personal) fall arrest system. Lifelines shall be protected against being cut or abraded. Horizontal lifelines cannot exceed sixty feet in length.

Vertical lifelines shall be utilized with leading edge work, shall reach the ground, and the method of anchorage attachment shall be of proper design (i.e. no knots).

5.2.6 Safety Net System (fall arrest and potentially from falling objects)

When utilized, safety nets shall be installed as close as practicable under the walking/working surface on which employees are working and never more than 30 feet below such levels.

Safety nets will be inspected at least once a week for wear, damage, and other deterioration. The maximum size of each safety net mesh opening will not exceed 36 square inches nor be longer than 6 inches on any side, and the openings, measured center-to-center, of mesh ropes or webbing, will not exceed 6 inches.

Defective/unfit nets are not to be used and are to be taken from service and immediately destroyed by cutting into un-useful sizes and properly disposed.

All mesh crossings will be secured to prevent enlargement of the mesh opening. Each safety net or section will have a border rope for webbing with a minimum breaking strength of 5,000 pounds. Connections between safety net panels will be as strong as

integral net components and be spaced no more than 6 inches apart. Safety nets shall extend outward from the outermost projection of the work surface as follows:

- Vertical distance from working level to horizontal plane of net surface.
- Minimum required horizontal distance of outer edge of net from edge of working surface.
- Up to 5 feet 8 feet
- More than 5 feet up to10 feet 10 feet
- More than 10 feet 13 feet

Safety nets shall be tested at the beginning of each workday and shall be capable of absorbing an impact force of a drop test consisting of a 400- pound bag of sand 30 inches in diameter dropped from the highest walking/working surface at which workers are exposed, but not from less than 42 inches above that level. Employees shall not be allowed in work areas controlled with safety nets until this test is complete.

If safety nets are utilized for the dual purpose of employee fall protection and the protection of other workers from fall objects, the net webbing opening shall be small enough to prevent passage of potential falling objects. Items that have fallen into safety nets, such as materials, scrap, equipment, and tools, shall be removed as soon as possible and at least before the next work shift.

5.3 Where conventional fall restraint and fall arrest methods cannot be utilized (or utilized safely), the following non-conventional methods can be utilized

A written work plan shall be developed when a project or task possesses a fall exposure whereby these systems are utilized. A sample written plan format can be found in OSHA 29 CFR 1926 Subpart M Appendix E.

A Competent Person will develop and implement a written Fall Protection Work Plan including; each area of the work place where the employees are assigned and where fall hazards of 6 feet or more will exist. The Risk Assessment for this project/task should be fulfilled using the Fall Protection Work Plan Checklist (reference Appendix 19-A for the Fall Protection Work Plan)

The written Fall Protection Work Plan shall include:

- Identification of all fall hazards in the work area
- Describe the non-conventional method (or in combination with conventional method) of fall protection to be provided
- Describe the correct procedures for the assembly, maintenance, inspection, and disassembly of any fall protection system to be used
- Describe the correct procedures for the handling, storage, and securing of tools and materials
- Describe the method of providing overhead protection for workers who may be in or pass through the area below the work site
- Describe the method for prompt, safe removal of injured workers
- Describe the method for destruction of personal fall arrest system equipment subjected to the forces of any fall
- Be available at all times on the jobsite

5.3.1 Controlled Access Zone System

Controlled access zone systems shall be set up as follows:

- Zone shall be established no closer than six (6) feet or further than twenty-five (25) feet from any leading edge
- Control line shall extend parallel along the entire length of the unprotected or leading edge
- Only trained employees are allowed in the Zone
- The Zone shall have signage marking it as a 'Controlled Access Zone'

5.3.2 Warning Line System (pitches of <4:12 and flat surfaces only)

Warning line systems consist of ropes, wires, or chains, and supporting stanchions and are set up as follows:

- Flagged at not more than 6-foot intervals with high-visibility material
- Rigged and supported so that the lowest point including sag is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface
- Stanchions, after being rigged with warning lines, will be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge
- The rope, wire, or chain will have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, shall support without breaking the load applied to the stanchions as prescribed above
- Line will be attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before the stanchion tips over
- Warning lines will be erected around all sides of roof work areas. When mechanical equipment is being used, the warning line will be erected not less than 6 feet from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge perpendicular to the direction of mechanical equipment operation

When mechanical equipment is not being used, the warning line shall be erected not less than 6 feet from the roof edge.

The warning line system shall be used in conjunction with one of the following:

- Safety monitoring system (most common); or
- (Personal) fall arrest system; or
- Safety net system; or
- Guardrails

5.3.3 Safety Monitoring System

A competent person will appoint a 'safety monitor' and will ensure that said 'safety monitor':

- Is competent in the recognition of fall hazards

- Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices
- Is operating on the same walking/working surfaces of the employees and can see them
- Is close enough to work operations to communicate orally with the employees and has no other duties but the monitoring function
- Has the authority to stop work

Only employees engaged in roof/surface work and the safety monitor shall be allowed in an area where an employee is being protected by a safety monitoring system.

5.4 Specific Fall Hazard Procedures

5.4.1 Aerial Personnel Lifts *(reference also Aerial Personnel Lifts under section ten [10])*

Employees utilizing aerial personnel lifts (e.g. genie lifts, cherry-pickers, boom-lifts, etc.) shall use a restraint/positioning system or (personal) fall arrest system, even though a guardrail system is in place.

Attachment points for these systems shall be capable of withstanding 5,000 pounds and shall be maintained in the floor of the lift or where designed by the manufacturer.

Rails of such lifts shall not to be used as attachment points unless designed for that purpose by the manufacturer.

5.4.2 Excavations *(reference also Excavation and Trenching under section eighteen [18])*

Employees who work at the edge of an excavation 6 feet or more deep will be protected from falling into the excavation by guardrail systems or covers.

Where walk-ways are provided to permit employees to cross over excavations, guardrails are required on the walkway if the fall would be 6 feet or more to the lower level.

5.4.3 Hoist Areas

Each employee in a hoist area will be protected from falling 6 feet or more by guardrail, restraint/positioning or (personal) fall arrest systems.

If guardrail systems (or chain gate or guardrail), or portions thereof, must be removed to facilitate hoisting operations, as during the landing of materials, and a worker shall lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee shall be protected by a (personal) fall arrest system.

5.4.4 Falling Objects (additional protection from)

Except for scaffolding and aerial lifts, no materials or equipment shall be stored within 6 feet of working edges.

When **canopies** are used as protection from falling objects, canopies shall be strong enough to prevent collapse and to prevent penetration by any objects that may fall onto them.

When **toeboards** are used as protection from falling objects, they shall be erected along the edges of the overhead walking or working surface for a distance sufficient to protect persons working below. Toeboards will be capable of withstanding a force of at least 50 pounds of force applied in any downward or outward direction at any point along the toeboard.

Toeboards will be a minimum of four (4) inches tall from their top edge to the level of the walking/working surface, have no more than one (1) inch clearance between its bottom and the surface.

5.4.5 Ladders (where work height (due to leaning out) exposure exceeds six foot and/or the maximum ladder height is within the distance to a leading edge)
(Personal) Fall Arrest Systems should be utilized as anchorage points are available.

If anchorage points are not available or other traditional fall control systems are not feasible, a non-conventional system can be utilized (reference sub-section 5.3 of Section [19] of this portion of the policy manual section).

5.4.6 Leading Edge Work
Employees working near a leading edge 6 feet or more above lower levels shall be protected by guardrail, safety net, restraint/positioning, or (personal) fall arrest systems. If these systems are not feasible the systems under sub-section 5.3 of Section [19] of this manual section can be utilized.

5.4.7 Roadway/Vehicular Passage Covers
Covers located in roadways and vehicular aisles shall be able to support at least twice the maximum axle load of the largest vehicle to which the cover might be subjected, and secured/marked as indicated in sub-section 5.2.2 of Section [19] of this manual section.

5.4.8 Roofs (work from or on)

5.4.8.1 Low-sloped (<4:12 pitch)
Employees engaged in roof activities on low-slope roofs with unprotected sides and edges 6 feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, (personal) fall arrest systems or a combination of a warning line system and guard-rail system, warning line system and safety net system, warning line system and (personal) fall arrest system, or warning line system and safety monitoring system.

5.4.8.2 Steep Roofs (>4:12 pitch)
Employees on a steep roof with unprotected sides and edges 6 feet or more above lower levels will be protected by either guardrail systems with toeboards, a safety net system, or a (personal) fall arrest systems.

5.4.9 Wall Openings
Employee working on, at, above, or near wall openings (including those with chutes attached) shall be protected from falling by the use of either a guardrail system, a safety net system, or a (personal) fall arrest system.

5.5 Equipment Inspection and Maintenance Procedures

5.5.1 Inspection, Replacement and Destruction

All equipment hereafter noted shall be visually inspected before each use, replaced immediately if any of the defective conditions are found, tagged 'out of service' and sent back to the central tool room for destruction.

5.5.2 Body Harness Inspection

Beginning at one end and holding the body side of the harness toward you, grasp one area of the harness with your hands six to eight inches apart.

Bend the strap in an inverted "U". Follow this procedure the entire length of the belt or harness. Watch for frayed edges, broken fibers, pulled stitches, cuts, burn marks or chemical damage. Special attention should be given to the attachment of buckles and D-rings to strap webbing. Inspect for frayed or broken strands. Broken webbing strands generally appear as tufts on the webbing surface.

Rivets should be tight and unmovable with fingers. Body-side rivet base and outside rivet burr should be flat against the material. Bent rivets will fail under stress. Especially note condition of D-ring rivets and D-ring metal wear pads (if applicable). Discolored, pitted, or cracked rivets indicate chemical corrosion.

The tongue or billet of bolts receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted, or broken grommets. Harnesses using punched holes without grommets should be checked for torn or elongated holes causing slippage of the tongue buckle.

5.5.3 Hardware (Buckles, D-Rings, Snaps and Thimbles)

Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on frame. Check for distortion or sharp edges.

Inspect the friction buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar.

Inspect the sliding bar buckle frame and sliding bar for cracks, distortion, or sharp edges. The sliding bar should move freely. Knurled edge will slip if worn smooth. Pay special attention to corners and ends of sliding bar.

Inspect the forged steel D-ring for cracks or other defects. Inspect the assembly of the D-ring to the body pad or D-saddle. If the D-ring can be moved vertically independent of the body pad or D-saddle, the harness should be replaced. Check D-Rings and D-Ring metal wear pad (if any) for distortion, cracks, breaks, and rough or sharp edges. The D-Ring bar should be at a 90-degree angle with the long axis of the belt and should pivot freely.

Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seal into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the

keeper. The thimble must be unmovable in the eyes of the splice, and the splice should have no loose or cut strands. The edges must be free of sharp edges, distortion, or cracks.

5.5.4 Lanyard (shock-absorbing)

Begin at one end and work to the opposite end. Slowly rotate the lanyard so the entire circumference is checked. Factory spliced ends require particular attention.

5.5.5 Lanyard (Webbing) Retractable

Bend the webbing over a non-lacerating edge and observe each side of the webbed lanyard. This will reveal any cuts or breaks. Swelling, discoloration, cracks, and charring are obvious signs of chemical or heat damage. Closely observe for any breaks in the stitching.

5.5.6 Rope

Rotation of the rope lanyard while inspecting from end to end will bring to light any fuzzy, worn, broken, or cut fibers. Areas weakened by extreme loads will appear as noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period.

Strands should be separated and inspected since the rope may wear on the inside if grit or moisture becomes embedded.

5.5.7 Storage/Cleaning

Storage areas shall be maintained as clean, dry and free of exposure to fumes or corrosive elements.

Cleaning methods established by the manufacturer shall be followed for all components. Generally, the following applies for body harnesses:

- Wipe off all surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion
- Wipe the belt dry with a clean cloth. Hang freely to dry but away from excessive heat
- Bolts and other equipment should dry thoroughly without close exposure to heat, steam, or long periods of sunlight
- Mildly dirty cotton may be cleaned normally. For heavy dirt or grease, soak belts in a solution of one tablespoon of grease cutter to one gallon of water. DO NOT USE A STRONGER SOLUTION. After soaking, rinse again, then hang to dry
- All fall protection, which is not in the original package, shall be stored in a clean, dry area

5.6 Post-Fall Incidents

All employees involved in a fall with a fall distance of over 6ft shall be required to receive an immediate medical evaluation. All components of a (personal) fall arrest system involved in any fall with a fall distance of over six feet shall be immediately and completely replaced. Such equipment shall be tagged 'out of service' and sent back to the central tool room for destruction. An incident investigation shall be completed for any fall incident (reference Section [33] Incidents & Injuries, Appendix 33-B Root Causation Analysis).

6.0 References

OSHA 29 CFR 1926 Subpart M
OSHA 29 CFR 1910 Subpart D
CCR Title 8 Section 1670