Fall PROTECTION PROGRAM

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1.0 INTRODUCTION

1.1 Policy

It is the policy of the University of Nevada, Reno (UNR) to ensure safe and healthy learning, research, work, entertainment and student living environments for faculty, staff, students and visitors. Implicit in this policy is a requirement to provide all individuals with pertinent information about fall hazards.

1.2 Purpose

The Fall Protection Program has been developed to provide UNR employees with the necessary information to identify work situations that require the use of the Fall Protection, the proper use of Fall Protection, and documentation of this information. This information is important to help ensure the safety and health of all employees at the University of Nevada, Reno.

1.3 Scope

UNR employees, who currently utilize the Fall Protection Program or have the potential to encounter fall hazards in the workplace, will be required to participate in the Fall Protection Program. The Fall Protection Program will be used to protect employees from fall hazards and potential fall hazards that are likely to be encountered.

The Fall Protection Program includes information regarding work accessories designed to protect employees from fall hazards.

NOTE: The Fall Protection Program should not be used as a substitute for engineering, safe work practices, and/or administrative controls to protect employees from fall hazards.
2.0 RESPONSIBILITIES

2.1 Directors and Department Managers

- Designate individuals who must participate in and who will be responsible for the preparation and implementation of the Fall Protection Program.
- Provide administrative and financial support for this program within each department.
- Ensure the Fall Protection Program is implemented and maintained within each department.
- Even when an employee provides his or her own fall protection equipment, ensures that the equipment is adequate to protect the employee from hazards at the workplace.

2.2 Supervisors

- Implement all aspects of the Fall Protection Program including documentation of the equipment inspection and employee training. The supervisor has been designated this responsibility, as he/she is involved with employees on a frequent basis.
- Conduct hazard assessments and ensure that employees are informed, trained, and provided with the appropriate fall protection equipment.
- Should be familiar with the applicable government safety regulations, safety standards, and prudent safety practices to protect themselves and their fellow employees.
- Even when an employee provides his or her own fall protection equipment, ensures that the equipment is adequate to protect the employee from hazards at the workplace.

2.3 Employees

- Comply with this program and any further safety recommendations provided by supervisors and/or EH&S regarding the Fall Protection Program.
- Conduct assigned tasks in a safe manner and properly wear and use all fall protection equipment.
- Report any unsafe or unhealthy work conditions and job related injuries or illnesses to the supervisor immediately.
- Inspect all fall protection equipment that the employee will be utilizing that day prior to each work day.
If you elect to bring and wear your own fall protection equipment, you must ensure that the equipment is adequate to protect you from hazards at the workplace and is in proper working conditions. The employer is not responsible for repair or replacement of your own personal fall protection equipment.

2.4 Department of Environmental Health and Safety (EH&S)

- Provide technical information and assist departments in implementing an effective Fall Protection Program in their workplace.
- Assist in providing training for the Fall Protection Program instructions, as needed.
- Review and revise the Fall Protection Program, as needed for compliance with applicable regulations.
- Recommend appropriate engineering controls, administrative controls and personal protective equipment.
3.0 FALL PROTECTION LOCATIONS

Fall protection is required wherever the potential to fall 6' or more exists. The University of Nevada, Reno has identified the following places concerning fall protection:

1) All flat and low sloped roof locations, when within 6' of the roof edge or during roof repair/maintenance (4:12 pitch or less)

2) All exterior and interior equipment platforms, catwalks, antennas/towers, etc.

3) All exterior and interior fixed ladders above 24'

4) All mezzanine and balcony edges

5) All open excavations or pits

6) All tasks requiring use of the articulating man lifts

7) All tasks requiring employees to lean outside the vertical rails of ladders (i.e., painting, stairwell light bulb replacement, etc.)

8) Scaffolding erection – 10' in height or greater

9) Tuckpointing – chimney repair

10) Gym- mezzanine/catwalk areas – whenever an employee must step outside the catwalk, additional fall protection (i.e., 6' lanyard to full body harness, self-retracting lanyard or rope grab system) shall be used

NOTE: Fall protection is not needed if an employee or employees are on a low slope roof (less than 4:12 pitch) for inspection/observation only.
4.0 TYPES OF FALL PROTECTION SYSTEMS

Listed below are the different types of fall protection systems:

1. An articulating man lift provided with a restraint system and full body harness to an anchor point below the waist (preferably at the floor level)

2. Guardrail with a toeboard, midrail and toprail

3. Personal fall arrest systems
   - Anchor points (rated at 5000 lbs per person).
   - Full body harness
   - Restraint line or lanyard
   - Retractable lanyard
   - Rope grabs
   - Connectors (self-locking snap hooks)
   - Energy (shock) absorber

4. Engineered lifelines

5. Warning lines

6. Safety nets

7. Safety monitoring systems

NOTE: The appropriate fall protection will be determined by the task (job) to be performed.
4.1 Fall Protection Guidelines

Engineering Controls

The best way to prevent an exposure is to eliminate the hazard. This should always be the first option for selection whenever possible (e.g., light bulb changing → telescoping arm, changing valve → relocate at ground level, etc.) or utilizing a contractor in extremely hazardous areas.

4.2 Guardrails

Toeboards shall be a minimum of 3½" in vertical height from their top edge to the level of the walking/working surface. They shall have not more than ¼" clearance above the walking/working surface. They shall be solid or have openings not over 1" in greatest dimension. Toeboards shall also be capable of withstanding, without failure, a force of at least 50 lbs applied in any downward or outward direction at any point along the toeboard.

Midrails shall be installed between the top edge of the guardrail (top rail) system and the walking/working surface when there is no wall or parapet wall at least 21" high. The midrails must also be capable of withstanding, without failure, a force of at least 150 lbs applied in any downward or outward direction at any point along the midrail.

Top rails shall be at 42" ± 3" high and can withstand 200 lbs of force in any outward or inward direction. When conditions warrant, the height of the top edge may exceed the 45" height.

On all projects, only guardrails made from steel, wood, and/or wire rope will be acceptable. If wire rope is used for top rails, it shall be flagged at not more than 6' intervals with high-visibility material. All guardrail systems will comply with the current OSHA standards. These guardrails will be placed in the following areas if necessary or feasible based on job location or requirements:

1) On all open sided floor

2) Around all open excavations or pits

3) On leading edges of roofs or mezzanines

4.3 Personal Fall Protection Systems

Any person (employee, contractor or other wise) on any project that will be required to wear a personal fall arrest or restraint system will follow these guidelines:

1) A full body harness will be used at all times; body belts are not acceptable as part of a personal fall arrest system.
2) Only shock absorbing lanyards or retractable lanyards are to be used so as to keep impact forces at a minimum on the body.

3) Only nylon rope or nylon straps with locking snap hooks are to be used for restraints.

4) All lanyards will have self-locking snap hooks.

5) The employee will inspect all personal fall arrest equipment before each use. Any deteriorated, bent, damaged, impacted, and/or harness showing excessive wear will be removed immediately from service. **If in doubt – throw it out!**

The maximum free fall distance is not to exceed **6’**. Consideration must be given to the total fall distance. The following factors can affect total fall distance:

1) Length of connecting means (i.e., lanyard length, use of carabiners, snaphooks, etc.)

2) Position and height of anchorage relative to work platform/area (always keep above the head whenever possible).

3) Position of attachment and D-ring slide on the full body harness.

4) Deployment of shock absorber (max. 42”).

5) Movement in the lifeline.

6) Initial position of worker before free fall occurs (i.e., sitting, standing, etc.).

See **OSHA 29CFR1926.502(c)** for additional Personal Fall Protection Systems specific requirements.

**Calculating Total Fall Distance**

It is the total length of shock absorbing lanyard + height of the person + the location distance of the D-ring from the work surface or platform.

Always allow a minimum of 6’ of clearance above the ground, equipment, etc., at the end of the fall from the fall arrest point.

**4.4 Engineered Lifeline (Horizontal & Vertical Lifeline)**

Lifeline systems must be designed and approved by an engineer or qualified person. Lifeline systems must be engineered to have appropriate anchorages, strength of line designed to hold X number of individuals connected to it, line strength to aid in the arrest of a fall, and
durability to hold a fallen employee(s) suspended until a rescue can occur.

1) Verify that on suspended scaffolds or similar work platforms with horizontal lifelines that may become vertical lifelines, the devices used to connect to a horizontal lifeline are capable of locking in both directions on the lifeline.

2) Verify that horizontal lifelines are designed, installed, and used under the supervision of a qualified person as part of a complete personal fall arrest system that maintains a safety factor of at least 2.

3) Verify that lanyards and vertical lifelines have a minimum breaking strength of 5,000 lbs.

4) Verify that when vertical lifelines are used, each employee is attached to a separate lifeline.

**ALSO:** During the construction of elevator shafts, two employees may be attached to the same lifeline in the hoist way, provided that all of the following conditions are met:

a) Both employees are working atop a false car that is equipped with guardrails.

b) The strength of the lifeline is 10,000 lbs (5,000 lbs per employee attached).

c) All other criteria specified in this paragraph for lifelines have been met.

d) Verify that lifelines are protected against being cut or abraded.

5) Verify that self retracting lifelines and lanyards that automatically limit free fall distance to 2' or less are capable of sustaining a minimum tensile load of 3,000 lbs applied to the device with the lifeline or lanyard in the fully extended position.

6) Verify that self retracting lifelines and lanyards that do not limit free fall distance to 2' or less, rip stitch lanyards, and tearing and deforming lanyards are capable of sustaining a minimum tensile load of 5,000 lbs applied to the device with the lifeline or lanyard in the fully extended position.

7) Verify that ropes and straps (webbing) used in lanyards, lifelines, and strength components of body harnesses are made from synthetic fibers.

See OSHA 29CFR1926.502(d)(7) to (d)(14) for additional Engineered Lifeline specific requirements.

**4.5 Warning Line System**

All work on a flat roof greater than 50' wide (i.e., roof with less than 4/12 slope), which is performed 6’ or further back from the edge of the roof can be completed by installing a Warning Line and using a safety monitor. If the roof is flat and less than 50' wide, a competent person safety monitor may be used. Warning Lines will consist of the following:

1) Will be erected 6' from the edge of the roof.

2) Be constructed of stationary posts made of wood or metal.

3) Wire or nylon rope and “Caution” tape will be strung from post to post and must be able
to withstand 16 lbs of force.

4) The warning line will guard the entire perimeter of the roof where work is being performed.

If an employee must access an area within 6' of the roof’s edge, for reasons other than exiting the roof via a ladder or fixed industrial ladder, another employee must monitor that individual and warn him/her of any dangers. If another employee is not available to act as a safety monitor, then the employee must don a full body harness and attach a fall restraint lanyard to an anchor point to prevent reaching the edge of the roof.

4.6 Safety Nets

Safety nets shall be installed as close as practicable under the walking/working surface on which employees are working, but in no case more than 30' below such level. When nets are used on bridges, the potential fall area from the walking/working surface to the net shall be unobstructed.

See OSHA 29CFR1926.502(c) for additional safety net specific requirements.

4.7 Positioning Device System

Positioning device is a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning. The following is required for positioning device use:

- Positioning devices shall be rigged such that an employee cannot free fall more than 2'.
- Positioning devices shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 lbs, whichever is greater.
- Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.
- Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of this system.
- Connecting assemblies shall have a minimum tensile strength of 5,000 lbs
- Dee-rings and snaphooks shall be proof-tested to a minimum tensile load of 3,600 lbs without cracking, breaking, or taking permanent deformation.
- Snaphooks shall be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snaphook by depression of the snaphook keeper by the connected member, or shall be a locking type snaphook designed and used
to prevent disengagement of the snaphook by the contact of the snaphook keeper by the connected member. Only locking type snaphooks shall be used.

- Unless the snaphook is a locking type and designed for the following connections, snaphooks shall not be engaged:
  - directly to webbing, rope or wire rope
  - to each other
  - to a D-ring to which another snaphook or other connector is attached
  - to a horizontal lifeline
  - to any object which is incompatibly shaped or dimensioned in relation to the snaphook such that unintentional disengagement could occur by the connected object being able to depress the snaphook keeper and release itself

- Positioning device systems shall be inspected prior to each use for wear, damage, and other deterioration. Defective components shall be removed from service.

- Body harnesses, and components shall be used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.

For additional information regarding Positioning Device Systems requirements, please see OSHA 29CFR1926.502(e)
4.8 Controlled Access Zone

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' nor more than 25' from the unprotected or leading edge, except when erecting precast concrete members.

When erecting precast concrete members, the control line shall be erected not less than 6' and no more than 60' 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.

When used to control access to areas where overhand bricklaying and related work are taking place:

- The controlled access zone shall be defined by a control line erected not less than 10' and no more than 15' from the working edge.
- The control line shall extend for a distance sufficient for the controlled access zone to enclose all employees performing overhand bricklaying and related work at the working edge and shall be approximately parallel to the working edge.
- Additional control lines shall be erected at each end to enclose the controlled access zone.
- Only employees engaged in overhand bricklaying or related work shall be permitted in the controlled access zone.

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 not more than 6' 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" from the walking/working surface and its highest point is not more than 45" (50" when overhand bricklaying operations are being performed) from the walking/working surface.
- Each line shall have a minimum breaking strength of 200 lbs.
On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones shall be enlarged, as necessary, to enclose all points of access, material handling areas, and storage areas.

On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work shall be removed.

See OSHA 29CFR1926.502(g) for additional Controlled Access Zone specific requirements.
5.0 HOW TO SELECT A FULL-BODY HARNESS

Two ways to improve the use of fall protection are:

- Properly train the employee
- Selecting the right full-body harness.

No matter how thorough the training, employees might leave the equipment behind if it isn't comfortable.

Note that all harnesses are not the same. Everything from harness construction to strap placement can be compared and contrasted. All of these elements do make a difference in the comfort and safety the harness offers the user.

**Donning a Harness**

The ability to adjust a harness correctly is important. Some employees may prefer full-body harnesses with stretchable webbing that allows workers to flex and bend.

**How safe is that Safety Harness?**

Most buyers would expect a harness to meet specific standards, but surprisingly, some brands don't meet basic safety standards. Before purchasing fall protection products, ask these questions, and ask for written proof from the manufacturers:

- **Where are the products manufactured? Does the facility have ISO 9001 certification?**
  ISO 9001 certification proves facilities meet strict international standards in quality assurance for design, development, production, installation, and service.

- **Do the products meet ANSI and CSA standards?**
  Not all harnesses meet ANSI Z359.1, ANSI A10.14, CSA Z259, and CSA 259. Insist on written proof in addition to product labeling.

- **Does the fall protection manufacturer have a Statistical Process Control (SPC) program?**
  Fall protection products are only as good as the quality of the raw materials/components.

- **Does the manufacturer participate in SEI or any other recognized third-party testing?**
  Reputable manufacturers often are members of Safety Equipment Institute (SEI), which provides independent testing programs for all fall protection products.

- **Does the manufacturer have qualified engineers designing/testing products in an in-house testing facility?**
  Ask for documented results of the dynamic drop tests and static load tests.
Strapping Down Safety

Harness construction is anything but standard. Some harnesses are manufactured without a back strap. In the event of a fall, the person may actually fall out of the back of the harness. Chest straps should be easy to adjust and must withstand a fall without tearing or breaking. The stronger the straps and stitching, the better the fall protection.

Selection, Inspection and Maintenance

A harness should have hardware that's sturdy, but not oversized and awkward. At the same time, the hardware should easily attach to connecting devices. For example, the D-rings on some harnesses are so small that hooking a lanyard can be a tricky process.

Harness hardware also poses a hazard if it has sharp edges. The edges can cut into harness webbing or can be positioned in such a way that they dig into the skin in the event of a fall. To protect workers from hardware injuries, the components must be appropriately manufactured and assembled.

Hardware with exposed springs should be avoided. Exposed springs, especially on friction buckles, can be easily disabled or removed. Reliable hardware construction is an important feature because friction buckles that are not spring-loaded can easily begin to loosen once the harness has been adjusted to fit.
Avoiding Tangled Webs

Webbing may seem like an innocuous item that would be similar in all cases, but it varies drastically from brand to brand. Some harnesses use webbing that folds over and tangles.

Harness webbing should be composed of sturdy with tightly woven yarns so the webbing slides easily through the hardware. If webbing snags when it glides under hardware, it can result in cuts to the webbing. Once cut, the harness must be taken out of service.

Examining the tensile strength of webbing is also important. After abrasion tests, some webbing begins to fray and pucker bringing the harness to the end of service. Stitching is just as important as the structure of the webbing. The stitching must not rip away during a fall.

Harness webbing should resist the effects of sun, heat, and moisture for an extended period of time. If a harness is used in an electrical environment, it must also resist conductivity. If it is used in a harsh chemical environment, the webbing must be able to resist exposure to degrading chemicals.

Inspecting for Wear

In order to ensure a harness will perform its intended function--saving a life--it must be inspected prior to every use. Remember that all harnesses have a limited life. The length of wearable life will vary depending on the amount of wear it receives and what type of environment it is worn. For example, a harness worn only indoors a couple of times in a week, will have a much longer life than one worn outdoors every day. A harness worn outdoors endures a variety of environmental forces and may even show visible signs of damage or corrosion in a matter of months. When inspecting your harness, a good rule of thumb is: Any doubts, toss it out.

Padding is meant to make the harness more comfortable, but if it's difficult to adjust or is made of material that becomes brittle in cold weather, it can discourage proper use of the harness.

How Does It Work?

Clear, easy-to-read instructions should accompany every harness. Ideally, the instructions will be in more than one language. All instructions should include explicit guidelines for usage, maintenance, and inspection.
It Adds Up to Safety

When purchasing a harness, make sure you are buying the correct harness for the appropriate application. Remember, employees will more readily and properly wear a comfortable harness that easily adapts to lanyards and other connecting devices. The better the harness the more likely it will be worn which increases regulatory compliance and most importantly saves lives.
6.0 DONNING A HARNESS: Steps that Could Save Your Life

Harness styles vary. Always refer to the instructions enclosed with your harness.

1) Hold the harness by the back D-ring. Shake the harness to allow all straps to fall in place. If chest, leg, and/or waist straps are buckled, release the straps and unbuckle at this time.
2) Slip the straps over shoulders so the D-ring is located in middle of the back between shoulder blades.
3) Pull the leg strap between legs and connect to the opposite end. Repeat with the second leg strap. For belted harnesses, connect the waist strap after the leg straps. The waist strap should be tight, but not binding.
4) Connect the chest strap and position in the mid-chest area. Tighten to keep the shoulder straps taut.
5) After all straps have been buckled, tighten all buckles so the harness fits snugly but allows full range of movement. Pass excess strap through loop keepers.

Mating Buckle

1) Pull the center bar buckle completely through the square link.
2) Allow the center bar buckle to fall into place on top of the square link.
3) Pull the loose end of the strap to tighten adjustment of the harness.
4) Slide keepers to hold any excess webbing.

Tongue Buckle

1) Insert the loose strap of webbing through the tongue buckle, placing the buckle tongue through the appropriate grommet.
2) Push remaining webbing through the keeper to retain the loose end.

Friction Buckle

1) Pass webbing under the buckle, over knurled bar, and back down between knurled bar and frame.
2) Pull web end to tighten.
7.0 INSPECTION OF FALL PROTECTION SYSTEMS

The following criteria will be utilized to maintain all equipment in good working condition:

7.1 Full Body Harnesses

*Visual inspection before each use is required. To maintain service life and high performance, harnesses should be inspected frequently for wear, damage, or corrosion by a competent person. Replace equipment if any defective conditions exist.*

- Inspect before each use.

  a) **Webbing**
  Grasp the webbing with your hands 6 to 8 inches apart. Bend the webbing in an inverted "U" as shown. The resulting surface tension makes damaged fibers or cuts easier to see. Follow this procedure the entire length of the webbing, inspecting both sides of each strap. Watch for frayed edges, broken fibers, pulled stitches, cuts, burns, and chemical damage.

  b) **D-Rings/Back Pads**
  Check D-rings for distortion, cracks, breaks, and rough or sharp edges. The D-ring should pivot freely. D-ring back pads should also be inspected for damage.

  c) **Attaching Buckles**
  Attachments of buckles and D-rings should be given special attention. Note any unusual wear, frayed or cut fibers, or distortion of the buckles or D-rings.

  d) **The Tongue/Grommets**
  The tongue receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted, or broken grommets. Webbing should not have additional punched holes.

  e) **Tongue Buckle**
  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.

  f) **Friction and Mating Buckles**
  Inspect the buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar.

  g) **Visual Indications of Damage to Webbing and Rope**
  i) **Heat.** In excessive heat, fibers become brittle and have a shriveled brownish appearance. The fibers will break when flexed and should not be used above 180° F.
ii) Chemical. Chemical exposure may change fiber color usually appearing as brownish smearing or smudges. Transverse cracks may occur when bent over a mandrel. Loss of elasticity may also occur.

iii) Molten metal or flame. Exposure to molten metal or flame may result in webbing strands fusing together, hard shiny spots, or make the fibers hard and brittle.

iv) Paint and solvents. Paint that penetrates and dries restricts movement of the fibers. Drying agents and solvents in some paints cause chemical damage.

- A competent person will complete an annual inspection of all harnesses and documentation will be maintained (see Appendix I).
- Storage will consist of hanging in an enclosed cabinet, to protect from damage.
- All harnesses that are involved in a fall will be destroyed.

NOTE: UNR does not approve harnesses that have Velcro for chest straps.

### 7.2 Snaphooks

1) Inspect before each use.
   a) Inspect snap hook for any hook and eye distortions.
   b) Verify there are no cracks or pitted surfaces.
   c) The keeper latch should not be bent, distorted, or obstructed.
   d) Verify that the keeper latch seats into the nose without binding.
   e) Verify that the keeper spring securely closes the keeper latch.
   f) Test the locking mechanism to verify that the keeper latch locks properly.

2) A competent person will complete an annual inspection of all snap hooks and documentation will be maintained (see Appendix III).

3) All snap hooks involved in a fall will be destroyed.

### 7.3 Lanyards/Shock Absorbing Lanyards

2) A competent person will complete an annual inspection of all lanyards and documentation will be maintained (see Appendix II).

3) Storage will consist of hanging in an enclosed cabinet, to protect from damage.

4) All lanyards that are involved in a fall will be destroyed.
7.4 Self-Retracting Lanyards/Lifelines

1) Inspect before each use, as follows:
   a) Visually inspect the body to ensure there is no physical damage.
   b) Make sure all nuts and rivets are tight.
   c) Make sure the entire length of the nylon strap/wire rope is free from any cuts, burns, abrasions, kinks, knots, broken stitches/strands, excessive wear and retracts freely.
   d) Test the unit by pulling sharply on the lanyard/lifeline to verify that the locking mechanism is operating correctly.
   e) If the manufacturer requires, make certain the retractable lanyard is returned to the manufacturer for scheduled annual inspections.

2) A competent person will conduct monthly inspection of all self-retracting lanyards/lifelines and documentation will be maintained (see Appendix IV).

3) Service per manufacturer specifications (1-2 years).

4) Inspect for proper function after every fall.

7.5 Tie-Off Adapters/Anchorages

1) Inspect for integrity and attachment to solid surface.

2) A competent person will complete an annual inspection of all tie-offs and anchorages and documentation will be maintained.

3) All tie-offs and anchorages will be destroyed after a fall.

7.6 Articulating Man Lift

1) Inspect before each use.

2) Inspect/service per manufacturer guidelines. Forklift, scissors lifts, and safety nets will be inspected at the beginning of each shift in use. Structural integrity of the forklift basket will be checked per the same schedule.

3) A competent person will complete an annual inspection of the forklift basket and documentation will be maintained.
7.7 Horizontal Lifelines

1) Inspect before each use for structural integrity of line and anchors.

2) A competent person will complete an annual inspection.

7.8 Guardrails

1) Temporary systems – Daily visual inspection will be completed by a competent person.

2) Temporary systems – Weekly, a complete structural inspection will be completed by a competent person.

3) Permanent systems – Annual structural inspections will be completed by a competent person with future frequency of inspection defined based on conditions/controls present.
8.0 STORAGE & MAINTENANCE OF FALL PROTECTION EQUIPMENT

1) Never store the personal fall arrest equipment in the bottom of a toolbox, on the ground, or outdoors exposed to the elements (i.e., sun, rain, snow, etc.).

2) Hang equipment in a cool, dry location in a manner that retains its shape.

3) Always follow manufacturer recommendations for inspections.

4) Clean with a mild, nonabrasive soap and hang to dry.

5) Never force dry or use strong detergents in cleaning.

6) Never store equipment near excessive heat, chemicals, moisture, or sunlight.

7) Never store in an area with exposures to chemicals or corrosive elements.

8) Avoid dirt or other types of build-up on equipment.

9) Never use this equipment for any purpose other than personal fall arrest.

10) Once exposed to a fall, remove equipment from service immediately.
9.0 RESCUE PROCEDURES

9.1 Rescue Methods/Options of Fallen Personnel

In the unlikely event that a fall arrest occurs on-site, personnel with the use of an articulating man lift or ladders where feasible, will rescue all employees. Alternate rescue would be through the local emergency services.

9.2 Communication Issues

In the event of a fall, the following people will be notified as soon as possible.

1) Rescue personnel (i.e., maintenance personnel)

2) Manager/Supervisor

3) Occupational Safety Officer (EH&S Department)

4) Fire Department and emergency medical services if necessary

At the beginning of any work activity where fall protection is an issue, rescue plans must be identified and discussed with all employees in case of a fall. The supervisor will develop the rescue plan(s).

All employees involved in a fall arrest or fall will be sent immediately for a medical evaluation to determine the extent of injuries, if any.
10.0 FALL INVESTIGATION

All falls will be investigated by the employee’s immediate supervisor or their department manager and the EH&S Department.

The following documentation will be completed as part of the fall investigation:

1. Interviews with staff and witnesses
2. Employee injury/accident report
3. Supervisor injury/accident report
11.0 PROGRAM EVALUATION

This fall protection program will be evaluated periodically to determine the effectiveness. The following criteria will be used to evaluate its performance:

1. Accident reports
2. Number of accidents
3. Management/staff compliance with program components
4. Periodic on-site audits
5. Staff feedback and interviews
12.0 CONTRACTORS

All outside contractors working in or on the premises of UNR will be required to follow the guidelines set forth in this fall protection program. Contractors in the pre-job meeting will be informed of these requirements as well as the on-site construction rules that apply.
13.0 TRAINING

Fall Protection Training is required for each employee who might be exposed to fall hazards. The training program must include recognition of the fall hazards and procedures to minimize these hazards. Training materials must be reviewed to verify that each employee has been trained, as necessary, by a competent person qualified in the following areas:

1) the nature of fall hazards in the work area
2) the correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used
3) the use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, CAZS, and other protection to be used
4) the role of each employee in the safety monitoring system when this system is used
5) the limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs
6) the correct procedures for the handling and storage of equipment and materials and the erection of overhead protection
7) the role of employees in fall protection plans
8) The requirements contained in 29 CFR 1926 Subpart M
9) understanding and following all components of this fall protection program and identifying the enforceable Department of Commerce/OSHA standards and ANSI standards that pertain to fall prevention.

Employers must maintain a written certification record for employee training. The record must contain the following information:

1) the name or other identity of the employee trained
2) the date(s) of the training; and
3) the signature of the person who conducted the training or the signature of the employer.

Re-Training

When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by 29 CFR 1926.503(a), the employer must retrain that employee. Retraining is required at least in the following circumstances:
1) changes in the workplace render previous training obsolete;
2) changes in the types of fall protection systems or equipment to be used render previous training obsolete; or
3) inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.
14.0 GLOSSARY

**Aerial lift device:** means equipment such as powered platforms, vehicle-mounted elevated and rotating work platforms, extensible boom platforms, aerial ladders, articulating boom platforms, vertical towers and powered industrial truck platforms.

**Anchor point:** A secure point of attachment for lifelines, lanyards or deceleration (grabbing) devices.

**Anchorage:** A secured structure that can safely withstand forces exerted by fall protection or rescue equipment.

**Authorized Person:** A person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or job site, i.e., building maintenance, roof repair, etc.

**Body belt:** A strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration (grabbing) device. **Body belts are prohibited at the University of Nevada, Reno.**

**Body harness (also referred as Full-body harness):** An interconnected set of straps that may be secured about a person in a manner that distributes the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with a means for attaching the harness to other components of a personal fall arrest system.

**Connector:** A device that is used to connect parts of a personal fall arrest system together (i.e. D-rings, and snap hooks).

**Competent person:** A person who is capable of recognizing existing and predictable hazards and has the authority to take corrective action. Additionally, a person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof as well as in their application and use with related equipment. To be considered a competent person, an 8-hour training class must be completed for general fall protection and an additional 4-hour training class must be completed for scaffolds. To be considered a competent person for equipment inspections, the manufacturer's training guidelines shall be followed.

**Deceleration device:** Any mechanism, such as a rope, grabbing device, ripstitch lanyard, specially woven lanyard or automatic self-retracting lifeline/lanyard, which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limits the energy imposed on an employee during fall arrest.

**Deceleration distance:** The additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate.
**Designated area:** a space which has a perimeter barrier erected to warn employees when they approach an unprotected side or edge, and serves also to designate an area where work may be performed without additional fall protection.

**Fixed ladder:** a ladder, including individual rung ladders, that is permanently attached to a structure, building, or equipment. It does not include ship's stairs or manhole steps.

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

**Free Fall Distance:** The vertical displacement of the fall arrest attachment point on the employee’s body harness between the onset of the fall, and just before the system begins to apply force to arrest the fall. Free fall distance must not exceed 6’. This distance excludes deceleration distance and lifeline/lanyard elongation distance.

**Full Body Harness:** Webbing/straps which are secured about an employee’s body in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system, preferably at the shoulders and/or middle of the back.

**Guard rail:** A barrier erected to prevent personnel from falling to lower levels.

**Guardrail System:** A barrier erected to prevent employees from falling to lower levels. This system includes a mid-rail and toe-board able to withstand 200 pounds applied to the top rail in any direction.

**Hole:** A void or gap 2" or more in its least dimension in a floor, roof, or other walking/working surface.

**Horizontal lifeline:** a flexible line between two horizontal fixed anchorages to which a fall arrest device is connected.

**Infeasible:** means that it is impossible to perform the construction work using a conventional fall protection system (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use any one of these systems to provide fall protection.

**Ladder:** a device typically used to gain access to a different elevation consisting of two or more structural members crossed by rungs, steps, or cleats.

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

**Leading Edge:** The edge of a floor, roof, or other walking/working surface, which changes location as additional floor, roof, etc., is placed or constructed. A leading edge is considered an unprotected side or edge when not under active construction.
**Lifeline:** A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

**Lower levels:** Those areas or surfaces to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

**Low-slope roof:** A roof having a slope of less than or equal to 4 in 12 (vertical to horizontal). Approximately a roof with a 19.5° slope or less.

**Mechanical equipment:** means all motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mop carts.

**Opening:** A gap or void 30" or more high and 18" or more wide in a wall or partition, through which personnel can fall to a lower level.

**Positioning device system:** means a body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

**Personal fall arrest system:** A system used to arrest (catch) an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

**Qualified Climber:** a person who by virtue of physical capabilities, training, work experience and job assignment who is authorized by the employer to routinely climb fixed ladders and step bolts on structures such as towers and poles that do not have ladder protection devices such as cages and rest platforms.

**Qualified person:** one with a recognized degree or professional certificate and extensive knowledge and experience in the subject field who is capable of design, analysis, evaluation and specifications in the subject work, project or product.

**Restraint line:** a device which is attached between the employee and an anchorage to prevent the employee from walking or falling off an elevated surface.

**Roof:** means the exterior surface on the top of a building.

**Roofing work:** means the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

**Rope grab (grabbing device):** A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.
**Safety Monitoring System**: A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards. All other fall protection systems must be deemed “infeasible” (through infeasibility study/review) to select/use a safety monitoring system.

**Scaffold**: means any temporary elevated or suspended platform, at its supporting structures, used for supporting employees or materials or both.

**Self-retracting lifeline/lanyard**: A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under minimal tension during normal movement and which, after onset of a fall, automatically locks the drum and arrests the fall (usually within two feet or less).

**Standard railing**: A vertical barrier erected along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of persons.

**Steep roof**: means a roof having a slope greater than 4 in 12 (vertical to horizontal). A steep roof is a roof with a slope greater than 19.5°.

**Snap hook**: A connector consisting of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released automatically closes to retain the object. Snap hooks must be self-closing with a self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection, thus preventing the opportunity for the object to “rollout” of the snap hook. **Only locking snap hooks are permitted at the University of Nevada, Reno**

**Toe board**: A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling, usually 4” or greater in height.

**Total Fall Distance**: The maximum vertical change in distance from the bottom of an individual’s feet at the onset of a fall, to the position of the feet after the fall is arrested - including free fall distance and deceleration distance.

**Tie-Off**: A procedure of connecting directly or indirectly to an anchorage point.

**Unprotected sides and edges**: means any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39” high.

**Vertical Lifeline**: A component consisting of a flexible line for connection to an anchor point at one end to hang vertically and that serves as a means for connecting other components of a personal fall arrest system to the anchor point. **NOTE**: When vertical Lifelines are used, each employee shall be attached to a separate lifeline.
**Walking/working surface:** means 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.

**Warning line system:** A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which work can be conducted without the use of guardrails, personal fall arrest systems, or safety nets to protect employees in the area. This will be utilized on any roof greater than 50'' wide and in conjunction with a safety monitor only where the other forms of fall protection have been deemed infeasible to use.

**Work area:** means that portion of a walking/working surface where job duties are being performed.
Appendix I

Full Body Harness
Annual Inspection Checklist
Lot Number:
Date of Purchase:

Harness
Model/Name:
Serial Number:
Date of Manufacture:
Comments:

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Hardware: includes D-rings, buckles, keepers and back pads. Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>2) Webbing: Inspect for cuts, burns, tears, abrasions, frays, excessive soiling and discoloration.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>3) Stitching: Inspect for pulled or cut stitches.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>4) Labels: Inspect, making certain all labels are securely held in place and are legible.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>5) Other:</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>6) Other:</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>7) Overall Disposition:</td>
<td>Accepted Rejected</td>
<td>Inspected by &amp; date</td>
</tr>
</tbody>
</table>
## Lanyards

### Annual Inspection Checklist

Lot Number:  
Date of Purchase:  

<table>
<thead>
<tr>
<th>Lanyard</th>
<th>Model/Name:</th>
<th>Serial Number:</th>
<th>Date of Manufacture:</th>
<th>Comments:</th>
</tr>
</thead>
</table>

### General Factors

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) <strong>Hardware:</strong> (includes snaphooks, carabiners, adjusters, keepers, thimbles and D-rings) Inspect for damage, distortion, sharp edges, burrs, cracks, corrosion and proper operation.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>2) <strong>Webbing:</strong> Inspect for cuts, burns, tears, abrasions, frays, excessive soiling and discoloration.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>3) <strong>Stitching:</strong> Inspect for pulled or cut stitches</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>4) <strong>Synthetic Rope:</strong> Inspect for pulled or cut yarns, burns, abrasions, knots, excessive soiling and discoloration.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>5) <strong>Energy Absorbing Component:</strong> Inspect for elongation, tears and excessive soiling.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>6) <strong>Labels:</strong> Inspect, making certain all labels are securely held in place and are legible.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
</tbody>
</table>

### Overall Disposition:

<table>
<thead>
<tr>
<th>Overall Disposition:</th>
<th>Accepted/Rejected</th>
<th>Inspected By: Date Inspected:</th>
</tr>
</thead>
</table>

**Appendix II**
Appendix III

Self-Retracting Lanyard/Lifeline

Annual Inspection Checklist

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Impact Indicator: Inspect indicator for activation (rupture of red stitching, elongated indicator, etc.).</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>2) Screws/Fasteners: Inspect for damage and make certain all screws and fasteners are tight.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>3) Housing: Inspect for distortion, cracks and other damage. Inspect anchoring loop for distortion or damage.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>4) Lanyard/Lifeline: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling and discoloration. (See impact indicator section.)</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>5) Locking Action: Inspect for proper lock-up of brake mechanism.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>6) Retraction/Extension: Inspect spring tension by pulling lanyard out fully and allowing to fully retract (lifeline must be taut with no slack).</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>7) Hooks/Carabiners: Inspect for physical damage, corrosion, proper orientation and markings.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>8) Labels: Inspect, making certain all labels are securely held in place and are legible.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>Overall Disposition:</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
</tbody>
</table>

Inspected By: Date Inspected:
Appendix IV

Snaphooks/Carabiners

Annual Inspection Checklist

Hook/Carabiner Model/Name:  
Serial Number: Lot Number: 
Date of Manufacture: Date of Purchase: 
Comments:

<table>
<thead>
<tr>
<th>General Factors</th>
<th>Accepted/Rejected</th>
<th>Supportive Details/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Physical Damage: Inspect for cracks, sharp edges, burrs, deformities and locking operations.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>2) Excessive Corrosion: Inspect for corrosion, which affects the operation and/or the strength.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>3) Markings: Inspect and make certain marking(s) are legible.</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>4) Other:</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>5) Other:</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>6) Other:</td>
<td>Accepted Rejected</td>
<td></td>
</tr>
<tr>
<td>Overall Disposition:</td>
<td>Accepted Rejected</td>
<td>Inspected By: Date Inspected:</td>
</tr>
</tbody>
</table>

Inspected: 12/24/2007
# CHECKLIST FOR INSPECTING WALKING-WORKING SURFACES

## General Work Environment

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is a documented, functioning housekeeping program in place?</td>
</tr>
<tr>
<td>Are all worksites clean, sanitary, and orderly?</td>
</tr>
<tr>
<td>Are work surfaces kept dry or is appropriate means taken to assure the surfaces are slip-resistant?</td>
</tr>
<tr>
<td>Are all spilled hazardous materials or liquids, including blood and other potentially infectious materials, cleaned up immediately and according to proper procedures?</td>
</tr>
<tr>
<td>Is combustible scrap, debris and waste stored safely and removed from the worksite properly?</td>
</tr>
<tr>
<td>Is all regulated waste, as defined in the OSHA bloodborne pathogens standard (1910.1030), discarded according to federal, state, and local regulations?</td>
</tr>
<tr>
<td>Are accumulations of combustible dust routinely removed from elevated surfaces including the overhead structure of buildings, etc.?</td>
</tr>
<tr>
<td>Is combustible dust cleaned up with a vacuum system to prevent the dust from going into suspension?</td>
</tr>
<tr>
<td>Is metallic or conductive dust prevented from entering or accumulating on or around electrical enclosures or equipment?</td>
</tr>
<tr>
<td>Are covered metal waste cans used for oily and paint-soaked waste?</td>
</tr>
</tbody>
</table>

## Walkways

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are aisles and passageways kept clear?</td>
</tr>
<tr>
<td>Are aisles and walkways marked as appropriate?</td>
</tr>
<tr>
<td>Are wet surfaces covered with non-slip materials?</td>
</tr>
<tr>
<td>Are holes in the floor, sidewalk or other walking surface repaired properly, covered or otherwise made safe?</td>
</tr>
<tr>
<td>Is there safe clearance for walking in aisles where motorized or mechanical handling equipment is operating?</td>
</tr>
<tr>
<td>Are materials or equipment stored in such a way that sharp objects will not interfere with the walkway?</td>
</tr>
<tr>
<td>Are spilled materials cleaned up immediately?</td>
</tr>
<tr>
<td>Are changes of direction or elevation readily identifiable?</td>
</tr>
<tr>
<td>Are aisles or walkways that pass near moving or operating machinery, welding operations or similar operations arranged so employees will not be subjected to potential hazards?</td>
</tr>
<tr>
<td>Is adequate headroom provided for the entire length of any aisle or walkway?</td>
</tr>
<tr>
<td>Are standard guardrails provided wherever aisle or walkway surfaces are elevated more than 30 inches above any adjacent floor or the ground?</td>
</tr>
<tr>
<td>Are bridges provided over conveyors and similar hazards?</td>
</tr>
</tbody>
</table>

## Floor and Wall Openings

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are floor openings guarded by a cover, a guardrail, or equivalent on all sides (except at entrance to stairways or ladders)?</td>
</tr>
<tr>
<td>Are toeboards installed around the edges of permanent floor openings (where persons may pass below the opening)?</td>
</tr>
<tr>
<td>Are skylight screens of such construction and mounting that they will withstand a load of at least</td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Is the glass in the windows, doors, glass walls, etc., which are subject to human impact, of sufficient thickness and type for the condition of use?</td>
</tr>
<tr>
<td>Are grates or similar type covers over floor openings such as floor drains of such design that foot traffic or rolling equipment will not be affected by the grate spacing?</td>
</tr>
<tr>
<td>Are unused portions of service pits and pits not actually in use either covered or protected by guardrails or equivalent?</td>
</tr>
<tr>
<td>Are manhole covers, trench covers and similar covers, plus their supports designed to carry a truck rear axle load of at least 20,000 pounds when located in roadways and subject to vehicle traffic?</td>
</tr>
<tr>
<td>Are floor or wall openings in fire resistive construction provided with doors or covers compatible with the fire rating of the structure and provided with a self-closing feature when appropriate?</td>
</tr>
<tr>
<td>Stairs and Stairways</td>
</tr>
<tr>
<td>Are standard stair rails or handrails on all stairways having four or more risers?</td>
</tr>
<tr>
<td>Are all stairways at least 22 inches wide?</td>
</tr>
<tr>
<td>Do stairs have landing platforms not less than 30 inches in the direction of travel and extend 22 inches in width at every 12 feet or less of vertical rise?</td>
</tr>
<tr>
<td>Do stairs angle no more than 50 and no less than 30 degrees?</td>
</tr>
<tr>
<td>Are step risers on stairs uniform from top to bottom?</td>
</tr>
<tr>
<td>Are steps on stairs and stairways designed or provided with a surface that renders them slip resistant?</td>
</tr>
<tr>
<td>Are stairway handrails located between 30 and 34 inches above the leading edge of stair treads?</td>
</tr>
<tr>
<td>Do stairway handrails have at least 3 inches of clearance between the handrails and the wall or surface they are mounted on?</td>
</tr>
<tr>
<td>Where doors or gates open directly on a stairway, is there a platform provided so the swing of the door does not reduce the width of the platform to less than 21 inches?</td>
</tr>
<tr>
<td>Where stairs or stairways exit directly into any area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?</td>
</tr>
<tr>
<td>Do stairway landings have a dimension measured in the direction of travel, at least equal to the width of the stairway?</td>
</tr>
<tr>
<td>Elevated Surfaces</td>
</tr>
<tr>
<td>Are signs posted, when appropriate, showing the elevated surface load capacity?</td>
</tr>
<tr>
<td>Are surfaces elevated more than 30 inches above the floor or ground provided with standard guardrails?</td>
</tr>
<tr>
<td>Are all elevated surfaces (beneath which people or machinery could be exposed to falling objects) provided with standard 4-inch toeboards?</td>
</tr>
<tr>
<td>Is a permanent means of access and egress provided to elevated storage and work surfaces?</td>
</tr>
<tr>
<td>Is required headroom provided where necessary?</td>
</tr>
<tr>
<td>Is material on elevated surfaces piled, stacked or racked in a manner to prevent it from tipping, falling, collapsing, rolling or spreading?</td>
</tr>
<tr>
<td>Are dock boards or bridge plates used when transferring materials between docks and trucks or rail cars?</td>
</tr>
</tbody>
</table>
Appendix VI

OSHA/Construction Guidelines

1) Do the walking/working surfaces meet certain requirements? (29 CFR 1926.501(a)(2))

Are the walking/working surfaces on which employees are working have the strength and structural integrity to support employees safely?

Are the employees are allowed to work only on those surfaces that have the requisite strength and structural integrity.

2) Are the walking/working surface protected from falling under certain circumstances? (29 CFR 1926.501(b)(1))

Verify that each employee on a walking/working surface (horizontal and vertical) with an unprotected side or edge that is 6' or more above a lower level is protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

3) Are employees who are constructing leading edges or working nearby protected from falling? (29 CFR 1926.501(b)(2))

Verify that each employee who is constructing a leading edge that is 6' or more above lower levels is protected from failing by the use of guardrail systems, safety net systems, or personal fall arrest systems.

**ALSO:** When an employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer must develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k). However, there is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above listed fall protection systems; accordingly, the burden of proof is on the employer to establish that it is appropriate to implement the fall protection plan only.

Verify that each employee on a walking/working surface 6' or more above a lower level where leading edges are under construction, but who is not engaged in the leading edge work, is protected from falling by a guardrail system, safety net system, or personal fall arrest system.

4) Are the employees in a hoist area protected from falling? (29 CFR 1926.501(b)(3))

Verify that each employee in a hoist area is protected from failing 6' or more to lower levels by guardrail systems or personal fall arrest systems.

Review work practices to verify that if chains, gates, Guardrail systems, or portions thereof are removed to facilitate the hoist (e.g., during landing of materials), and if an employee must lean through the access opening or out over the edge (e.g., to receive or
guide materials), then the employee is protected from fall hazards by a personal fall arrest system.

5) Are employees on walking/working surfaces with holes protected from falling?
   (29CFR1926.501(b)(4))

   Verify that each employee on walking/working surfaces is protected from falling through holes (including skylights) more than 6' above lower levels by personal fall arrest systems or covers or Guardrail systems erected over or around such holes.

   Verify that each employee on a walking/working surface is protected from tripping in or stepping into or through holes (including skylights) by covers.

   Verify that each employee on a walking/working surface is protected from objects falling through holes (including skylights) by covers.

6) Are employees on the face of formwork or reinforcing steel protected from falling?
   (29CFR1926.501(b)(5))

   Verify that each employee on the face of formwork or reinforcing steel is protected from falling 6 ft or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems.

7) Are employees on ramps, runways, and other walkways protected from falling?
   (29CFR1926.50(1)(b)(6))

   Verify that each employee on ramps, runways, and other walkways is protected from falling 6' or more to lower levels by guardrail systems.

8) Are employees at the edge of excavations protected from falling? (29CFR1926.501(b)(7))

   Verify that each employee at the edge of excavations 6' or more in depth is protected from falling by guardrail systems or fences or, when the excavations are not readily seen because of plant growth or other visual barrier, by barricades.

   Verify that each employee at the edge of a well, pit, shaft, and similar excavation 6 ft or more in depth is protected from failing by Guardrail systems, fences, barricades, or covers.

9) Are employees that are working above dangerous equipment protected from failing?
   (29CFR1926.501(b)(8))

   Verify that each employee less than 6' above dangerous equipment is protected from failing into or onto the equipment by Guardrails systems or by equipment guards.
Verify that each employee 6’ or more above dangerous equipment is protected from fall hazards by guardrail systems, personal fall arrest systems, or safety net systems.

10) Are employees performing overhand bricklaying and related work protected from falling? *(29CFR1926.501(b)(9))*

Except as provided otherwise in 29 CFR 1926.501(b), verify that each employee performing bricklaying and related work 6’ or more above lower levels is protected from falling by guardrail systems, safety net systems, or personal fall arrest systems or that the work is in a controlled access zone (CAZ).

Review work practices to verify that employees reaching more than 10" below the level of the walking/working surface on which they are working are protected from falling by a guardrail system, safety net system, or personal fall arrest system.

11) Are employees engaged in roofing activities on low slope roofs protected from falling? *(29CFR1926.501(b)(10))*

Except as provided otherwise in 29 CFR 1926.501(b), verify that each employee engaged in roofing activities on low sloped roofs, with unprotected sides and edges 6’ or more above lower levels is protected from falling, by any of the following:

i) guardrail systems; safety net systems; personal fall arrest systems;

ii) a combination of a warning line system and guardrail system;

iii) a combination of a warning line system and safety net system;

iv) a combination of a warning line system and personal fall arrest system;

v) a combination of a warning line system and safety monitoring system; or

vi) a safety monitoring system alone (on roofs 50" or less in width only).

12) Are employees on a steep roof protected from falling? *(29CFR1926.501(b)(11))*

Verify that each employee on a steep roof with unprotected sides and edges 6’ or more above lower levels is protected from falling by guardrail systems with toe boards, safety net systems, or personal fall arrest systems.

13) Are employees engaged in the erection of pre-cast concrete members protected from falling? *(29CFR1926.501(b)(12))*

Verify that each employee who is engaged in the erection of pre-cast concrete members (including but not limited to the erection of wall panels, columns beams, and floor and roof "tees") and related operations (such as grouting of pre-cast concrete members) and who is 6' or more above lower levels is protected from falling by any of the following (unless 29 CFR 1926.501(b) provides for an alternative fall protection measure):
1) guardrail systems;  
2) safety net systems; or  
3) personal fall arrest systems

**ALSO:** When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer can develop and implement a fall protection plan that meets the requirements of 29CFR1926.502(k). However, there is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above listed fall protection systems, accordingly, the burden of proof is on the employer to establish that it is appropriate to implement the fall protection plan only.

14) Are employees engaged in residential construction protected from falling?  
(29CFR1926.501(b)(13))

Verify that each employee engaged in residential construction who is 6' or more above lower levels is protected from failing by any of the following (unless 29CFR1926.501(b) provides for an alternative fall protection measure):

1) guardrail systems;  
2) safety net systems; or  
3) personal fall arrest systems.

**ALSO:** When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer can develop and implement a fall protection plan that meets the requirements of 29CFR1926.502(k). However, there is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above listed fall protection systems; accordingly, the burden of proof is on the employer to establish that it is appropriate to implement the fall protection plan only.

15) Are employees working on, at, above, or near wall openings protected from falling?  
(29CFR1926.501(b)(13))

If there are wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6' or more above lower levels and the inside bottom edge of the wall opening is less than 39" above the walking/working surface, then verify that each employee working on, at, above, or near such openings is protected from falling by any of the following:

1) guardrail systems;  
2) safety net systems; or  
3) personal fall arrest systems.
16) Are employees protected from falling objects? *(29CFR1926.501(c))*

Verify that when employees are exposed to falling objects, the employer has each employee wear a hard hat and implements one of the following actions:

i) erects toe boards, screens, or guardrail systems to prevent objects from falling from higher levels;

ii) erects a canopy structure and keeps potential fall objects far enough from the edge of the higher level so that objects will not go over the edge if they are accidentally displaced; or

iii) barricades the area to which objects could fall, prohibits employees from entering the barricaded area, and keeps objects that may fall far enough away from the edge of the higher level so that those objects will not go over the edge if they are accidentally displaced.