

Updated 3/20/2024



Fall Protection

UNC CHARLOTTE
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I. Purpose

UNC Charlotte is committed to providing a safe and healthy work environment that protects employees by reducing the risk of injuries or fatalities related to falls in the workplace. This program will achieve this by referencing the Occupational Health & Safety Administrations (OSHA) fall protection standards in 29 Code of Federal Regulation (CFR) 1910 for general industry related work and 29 CFR 1926 for construction related work. UNC Charlotte believes that falls can be prevented by proper planning, providing the correct fall protection equipment, and training all workers on the proper usage of fall protection equipment.

II. Scope

This Fall Protection Program applies to all UNC Charlotte employees. Job specific fall protection guidelines will either originate from 29 CFR 1910 General Industry or 29 CFR 1926 Construction depending on the scale and complexity of the work being performed. The UNC Charlotte Environmental Health & Safety Office will have final determination over which regulatory standard is applicable for internal projects performed on UNC Charlotte property. Any deviations from this program must be immediately brought to the attention of the UNC Charlotte Environmental Health and Safety Office.

III. Program Responsibilities

A. Executive Leadership

1. UNC Charlotte has legal responsibility for compliance with OSHA standards regarding fall protection in the workplace.

B. Program Administrator

1. The Office of Environmental Health and Safety is responsible for:
 - a. Planning and recommending programs that adhere to all applicable Federal, State, and Local laws and regulations pertaining to environmental health and safety.
 - b. Assisting supervisors with implementing environmental health and safety programs in their areas.
 - c. Curtailing or stopping work that poses a clear and imminent danger to the health or safety of UNC Charlotte employees or the University community.

- d. Periodically reviewing the program and updating it, as needed, to ensure compliance with all applicable Federal, State, and local regulations.

C. Departmental Management

- 1. Management is responsible for:
 - a. Planning and developing budget requests for departmental safety programs.
 - b. Developing safety procedures, work practices, and safe working areas for all those under their supervision.
 - c. Supporting safety and health as a model to those they supervise.
 - d. Supplying appropriate equipment and training.
 - e. Enforcing Environmental Health and Safety regulations by invoking disciplinary action or administrative sanctions.

D. Employees

- 1. Every UNC Charlotte employee is responsible for conducting himself/herself in accordance with this program. All employees shall:
 - a. Adhere to all safety policies, programs, procedures, and practices while performing his/her duties in a safe manner.
 - b. Notify your immediate supervisor of unsafe working conditions, potential hazards, and accidents, as soon as possible.

IV. OSHA Interpretation of General Industry Work vs. Construction Work

**Interpretation provided by Russell B. Swanson, Director. OSHA Directorate of Construction*

A. General Industry (Maintenance) Definition(s)

- 1. Work that is anticipated, routine and done on a regularly scheduled/periodic basis to help maintain the original condition of the component, will be suggestive of "maintenance," although this must be considered in light of the scale of the project.
- 2. Maintenance can also be defined as "keeping equipment working in its **existing** state (i.e., preventing its failure or decline)".
- 3. Whether the work is performed in-house or by an outside contractor is not a factor; it is not the personnel which will determine whether

work will be considered maintenance or construction, but the work itself.

B. Construction Work Definition(s)

1. Construction work is not limited to new construction but can include the repair of existing facilities or the replacement of structures and their components.
2. OSHA defines construction work as "construction, alteration, and/or repair, including painting and decorating; construction industry standards apply "to every employment and place of employment of every employee engaged in construction work".
3. It is not the classification of what you are working on as "equipment" or "structure" that is significant, but rather the project's scale and complexity. If the process of removal and replacement is a large-scale project, then it is likely to be construction.

IV. Procedures

A. General

1. All employees will be protected from falling when working on a surface that has an unprotected side, edge, etc., elevated work platforms four feet or more above adjacent lower levels, and when working above dangerous equipment while working in general industry. While performing construction type activities, all employees will be protected from falling from a surface six feet or more above a lower level. Scaffolds used during construction type activity require fall protection to be used at 10 feet or more above a lower level. In construction activities involving steel erection, employees who are on a walking working surface with an unprotected edge more than 15 feet above a lower level must be protected by conventional fall protection. When working from aerial lifts, review the UNC Charlotte Aerial Lift (Mobile Elevating Work Platform-MEWP) program for additional guidance.
2. Fall hazards will be evaluated by the Environmental Health & Safety Office and management to determine the best method to protect employees. When selecting what type of fall protection to use, the Environmental Health & Safety Office will consider the hierarchy of hazard control, which organizes risk control techniques from the most- to the least-effective. Examples are shown below in order of decreasing effectiveness and preference).
 - i. Elimination of the fall hazard by bringing the work down to safe ground level.

- ii. Passive fall protection systems, such as guard rails that do not require active participation by the worker.
- iii. Fall restraint that prevents a person from reaching a fall hazard.
- iv. Fall arrest that utilizes equipment to stop a fall after it occurs.
- v. Administrative controls such as work practices or procedures to signal or warn a worker to avoid approaching a potential fall hazard.

B. Fall Hazard Evaluation

- 1. The Environmental Health & Safety Office program administrator and departmental management will assess assigned job tasks and areas for potential fall hazards. This evaluation will document the required steps for protecting employees from the identified fall hazards.

C. General Industry Fall Hazards

1. Loading Docks

Loading docks over 4 feet high will be protected by guardrails, chains, or other OSHA compliant dock barriers. The barrier will have removable sections to provide access for loading vehicles, but rails must remain in place when loading is not in progress. (See 29 CFR 1910.28(b)(1)(i))

2. Openings

All openings on a walking-working surface near an opening, including one with a chute attached, where the inside bottom edge of the opening is less than 39 inches (99 cm) above that walking-working surface and the outside bottom edge of the opening is 4 feet (1.2 m) or more above a lower level is protected from falling by the use of a guardrail system, safety net system, travel restraint system, or personal fall arrest system.

3. Dangerous Equipment or Materials

When working at any height above dangerous equipment or materials, each worker will be protected from falling into or onto the dangerous equipment or materials by a guardrail system, equipment guards, safety net system or personal fall arrest system.

4. Skylights

Skylights are considered an opening when present on a roof. Skylight covers must be capable of supporting without failure, at least twice the maximum intended load that may be imposed on the cover at any one time and secured to prevent accidental displacement. For skylight covers, the

maximum intended load means the total load (weight and force) of all employees, equipment, vehicles, tools, materials, and other loads the employer reasonably anticipated to be applied to a walking-working surface at any one time. 1910.29(b) 1910.29(e)

5. Holes

A gap or open space in a floor, roof, horizontal walking-working surface, or similar surface that is at greater than 2 inches(5cm) in its least dimension in any floor, platform, pavement, or yard through which persons may fall, such as a hatchway, stair or ladder opening, pit, or large manhole. 1910.21(b)

6. Ladders

Anytime portable ladders are used to elevate personnel or other equipment; ladders need to be inspected to ensure proper load capacity, landing placement, and intended use. Fixed ladders should also be inspected to ensure maximum intended load, fall protection requirements, and ladder integrity before subjecting it to any load.

D. Construction Industry Fall Hazards

1. Leading Edges

Each worker working on or near a leading edge six feet or more above a lower level will be protected by guardrail systems, safety net systems or personal fall arrest systems. 1926.501(b)(2)(i)

2. Low-Slope Roofs

Workers on a low-slope (less than or equal to 4/12 pitch) roof that has one or more unprotected side or edge 6 feet or more above a lower level shall be protected from falling by one of the following:

- a. Guardrail system
- b. Safety net system
- c. Personal fall arrest system
- d. A combination of conventional fall protection system and warning line system.
- e. A warning line system and a safety monitoring system **Note:** When engaged in roofing work on low-slope roofs 50 feet or less in width, the use of a safety monitoring system without a warning line system is permitted.

3. Steep Roofs

Workers on a steep roof (greater than 4/12 pitch) that has one or more unprotected side or edge 6 feet or more above a lower level, shall be protected from fall by one of the following:

- a. Guardrail systems with toe boards
- b. Safety net systems
- c. Personal fall arrest systems

4. Wall Openings

All workers working on, at, above or near wall openings (including those with chutes attached), where the outside bottom edge of the wall opening is 6 feet (1.8 m) or more, above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 m) above the walking/working surface, shall be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

5. Openings

Means a gap or void 30 inches (76 cm) or higher and 18 inches (48 cm) or wider, in a wall or partition, through which employees can fall to a lower level.

6. Excavations

Excavations 6 feet or more deep shall be protected by a guardrail system, fence or barricade when the excavation cannot be readily seen because of plant growth or other visual barrier. Workers at the edge of a well, pit, shaft, or similar excavation 6 feet or more deep will be protected from falling by a guardrail system, fence, barricade, or cover.

7. Dangerous Equipment or Materials

When working at any height above dangerous equipment or materials, each worker will be protected from falling into or onto the dangerous equipment or materials by a guardrail system, equipment guards, safety net system or personal fall arrest system.

8. Holes

Each employee on walking/working surfaces shall be protected from falling through holes that are greater than 12 in x 12 in and more than 6 feet (1.8 m) above lower levels (including skylights), by personal fall arrest systems,

covers, or guardrail systems erected around such holes. Each employee on a walking/working surface shall be protected from tripping in or stepping into or through holes (including skylights) by covers. Each employee on a walking/working surface shall be protected from objects falling through holes (including skylights) by covers.

9. Covers

Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements: Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover. All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time. All covers shall be secured when installed to prevent accidental displacement by the wind, equipment, or employees. All covers shall be color coded or they shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard. **Note:** This provision does not apply to cast iron manhole covers or steel grates used on streets or roadways.

10. MEWP and Self-Powered Work Platforms

Body harnesses must be worn with a lanyard, not to exceed 3 feet in length, or a self-retracting lifeline when working from all elevated mobile work platforms. The point of attachment must be the anchor point installed and designated by the equipment manufacturer. Personnel will not attach lanyards to adjacent poles, structures, or equipment while they are working from the aerial lift. Personnel will not move an aerial lift while the boom is in an elevated working position and the operator is inside the lift platform. Scissor lifts and telescoping lifts that can only move vertically do not require the use of a harness and lanyard as long as the work platform is protected by a proper guardrail system and occupants do not stand on the above guardrail system.

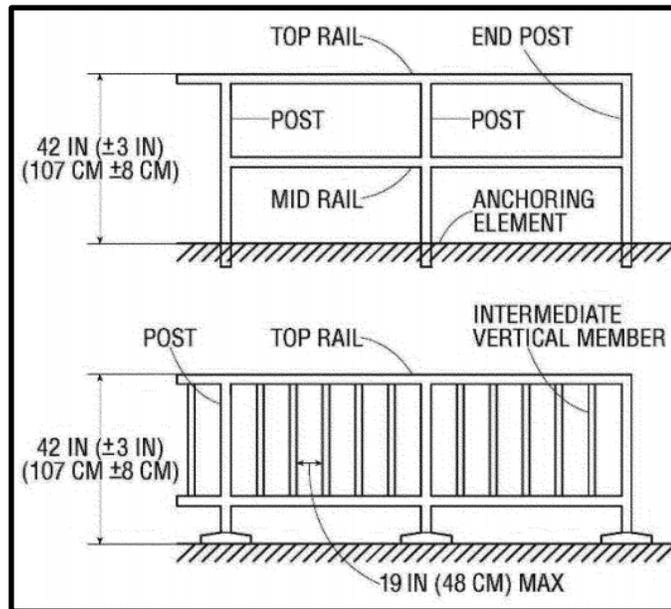
VI. Fall Protection Systems

A. Guardrail Systems

1. If eliminating the elevated work is not possible, guardrails are the preferred method for the protection of fall hazards. Typical locations that require guardrails include floor openings, wall openings, open-sided floors, platforms, and runways.
2. All guardrail systems used by UNC Charlotte employees will meet the following criteria for all General Industry (29 CFR 1910.29(b)) and Construction (29 CFR 1926.502(b)) related activities:

- a. Top rail is 42 inches, +/- 3 inches above the walking/working level.
- b. Midrail is located midway between the top rail of guardrail and the walking/working level.
- c. Top rails and midrails will be constructed of materials at least one-quarter inch in thickness or diameter. If wire rope is used for top rails, it must be flagged with a high-visibility material at least every 6 feet and can have no more than 3" of deflection.
- d. The top rail must be capable of withstanding a force of 200 pounds when applied in any downward or outward direction.
- e. The midrail must withstand a force of 150 pounds applied in any downward or outward direction.
- f. Toe boards are required for all guardrails on elevated walking or working platforms where employees working below are exposed to falling objects.
- g. Toe boards must be 3.5 inches in height and must be securely fastened.
- h. The system will be smooth to prevent punctures, lacerations or snagging of clothing.
- i. The ends of the top rail should not overhang the terminal posts, except when such overhang does not present a projection hazard.
- j. When a hoisting area is needed, a chain, gate or removable guardrail section must be placed across the access opening when hoisting operations are not taking place.

Figure 1: Guardrail Systems



B. Safety Nets

1. When safety nets are the appropriate option for fall protection, they will be installed as close as practicable under the walking/working surface on which employees are working, but in no case more than 30 feet below such level.
2. Safety nets must meet the following criteria for all General Industry (29 CFR 1910.29(c)) and Construction (29 CFR 1926.502(c)) related activities:
 - a. Pass a 400 pound drop test or certified by employer or competent person before being used as a fall protection system, whenever relocated, after major repairs or at 6-month intervals if left in place.
 - b. Extend sufficiently from the outer edge of the walking/working surface to catch a falling employee. (Reference 1926.502(c)(2) for minimum requirements chart)
 - c. Have a maximum mesh size not to exceed 6 inches by 6 inches.
 - d. Be inspected at least weekly for wear, deterioration, and damage.
 - e. All objects must be removed as soon as possible but at last before the next shift.

- f. Have a 5,000 pound minimum breaking strength of border rope.
- g. Have an unobstructed fall area.

C. Personal Fall Arrest Systems

1. If a fall occurs, the employee must not be able to freefall more than 6 feet, nor contact a lower level. To ensure this, the Environmental Health and Safety Office Program Administrator will add the height of the worker, the lanyard length, and an elongation length of 3.5 feet to determine the anchorage point. All personal fall arrest system components that are subjected to an impact load, must be removed from service immediately. Personal fall arrest systems will be inspected prior to each use, and damaged or deteriorated components removed from service and destroyed.
2. There are three main components to a personal fall arrest system: **anchorage points, body harnesses, and connecting devices.**
3. All personal fall arrest system components must meet the requirements listed in OSHA 1910.140(c), OSHA 1926.502(d) and ANSI Z359.

- a. Anchorage. Secure anchor points are the most critical component when employees must use fall arrest equipment. Some UNC Charlotte buildings have existing identified anchor structures. Other work locations may require the installation of a temporary or permanent anchor. All anchor points will be:
 - i. Sound and capable of withstanding a 5,000 pound static load per employee attached and independent of any anchorage used to support or suspend platforms.
 - ii. Easily accessible by employees to avoid fall hazards during hook-up.
 - iii. Free of sharp edges that could reduce breaking strength when tying off. Chafing pads or abrasion-resistant straps must be used on any sharp-edged structures to prevent cutting of safety lanyards or lifelines.
 - iv. At the worker's shoulder level or higher to limit freefall to 6 feet or less and prevent contact with any lower level (except when using a self-retracting lifeline or 3 foot lanyard).
 - v. Able to prevent or limit swing fall hazards. Horizontal lifelines will be used to keep the attachment point overhead and limit the fall vertically.

- vi. Guardrails and hoists cannot be used as anchorage points.

Note: In addition to all the criteria listed above, permanent anchor points will be periodically inspected and re-certified to meet static load requirements. They will be visibly labeled as permanent anchors and all anchors must be immediately removed from service and re-certified if subjected to fall arrest forces.

- b. Body Harness Straps that secure the employee in a manner to distribute 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 protection system. The following stipulations must be followed anytime the use of Body Harnesses are implemented:

- i. A full body harness is required. The use of body belts is prohibited.
- ii. The only attachment point allowed on the body harness is the center D-ring on the wearer's back near shoulder level, or above the wearer's head.
- iii. Employees must always tie off at or above the D ring of the harness except when using lanyards 3 feet or less in length.
- iv. Fall protection equipment will never be load tested.

- c. Connecting Devices. Devices used to couple (connect) parts of the fall protection system together. The following stipulations must be followed anytime the use of Connecting Devices are implemented:

- i. Allowable devices include rope or web lanyards, rope grabs or retractable lifelines.
- ii. All snap hooks must be self-locking.
- iii. Horizontal lifelines will be designed by a qualified person and installed in accordance with the design requirements.
- iv. Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds.
- v. The length of a single lanyard will not exceed 6 feet.
- vi. The use of steel lanyards is prohibited.
- vii. A lanyard may not be clipped back to itself (e.g., around an anchor point) unless specifically designed to do so.
- viii. If vertical lifelines are used, each employee must be attached to a separate lifeline.
- ix. Lifelines must be protected against cuts and abrasion.

D. Warning Line Systems and Controlled Access Zones

1. Warning line systems and work controlled access zones will be developed and be based on the specific task in accordance with OSHA regulation 1910.29 and 1926.502 before employees are exposed to fall hazards.
2. Control zone systems must comply with the following:
 - a. Controlled access zones will be defined by a control line or other means that restricts access.
 - b. Control lines will extend the entire length of the unprotected or leading edge and be approximately parallel to the unprotected or leading edge.
 - c. Control lines must be connected on each side to a guardrail system or wall.
 - d. Control lines may consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions.
 - e. Control lines must be flagged or otherwise clearly marked at 6 foot intervals (maximum) with high-visibility material.
 - f. Control lines must be rigged and supported in such a way that the lowest point (including sag) is not less than 34 inches from the walking/working surface and the highest point is not more than 39 inches above the walking/working surface.
 - g. Control lines must have a minimum breaking strength of 200 pounds.

VII. Ladders

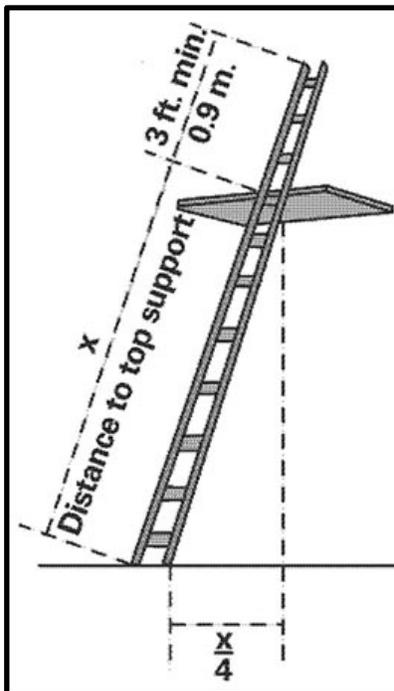
A. General Portable Ladder Safety Guidelines

**OSHA 1910.23 & 1926.1053*

1. Portable Ladders are ladders that can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces. All portable ladders used by UNC Charlotte employees will meet the following requirements:
 - a. Rated greater than the weight of the worker and any tools or equipment carried by the worker.
 - b. Mobile ladder stands and platforms are capable of supporting at least four times their maximum intended load.

- c. Appropriate ladder style for the job (i.e., step ladders will not be used in a folded position, step ladders will be tall enough to perform work without standing on the top step, extension ladders will extend a minimum of three feet above the discharge point).
 - d. Visually inspected prior to each use.
 - e. Metal ladders will not be used near electrical lines or sources.
 - f. All safety feet must be in place, secure and in sound condition.
2. Ladders must be set up on a surface that is firm, flat and is not slippery. The top of extension ladders must be against a solid, fixed surface and extend at least 3 feet above the landing surface. Extension ladders will be set up using the 4-to-1 rule (base of the ladder placed at a distance from the wall that is equal to one fourth of the height that the ladder is extended). When employees are on extension ladders at heights of 20 feet or higher, either a second person must steady the ladder base, or the top of the ladder must be effectively tied off to a sound anchor point.

Figure 2: Portable Ladder Set-Up



B. General Fixed Ladder Safety Guidelines

**OSHA 1910.23 & 1926.1053*

- 1. Fixed ladders are ladders with rails or individual rungs that are permanently attached to a structure, building, or equipment. Fixed ladders include individual-rung ladders, but not ship stairs, step bolts,

or manhole steps. All fixed ladders used by UNC Charlotte employees will meet the following requirements:

- a. Fixed ladders shall be provided with cages, wells, ladder safety devices, or self-retracting lifelines where the length of climb is less than 24 feet, but the top of the ladder is at a distance greater than 24 feet above lower levels.
- b. All ladders on University property installed before November 19, 2018, must be equipped with a personal fall arrest system, ladder safety system, cage, or well. 29 CFR 1910.28(b)(10)(ii) **Note: Final deadline.** On and after November 18, 2036, all fixed ladders must be equipped with a personal fall arrest system or a ladder safety system.
- c. Each fixed ladder installed on University property on and after November 19, 2018, must be equipped with a personal fall arrest system or a ladder safety system.
- d. The rungs and steps of fixed metal ladders manufactured after March 15, 1991, shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.
- e. Fixed ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, shall be withdrawn from service until repaired.

VIII. Scaffolds

A. General Scaffold Safety Guidelines

1. Scaffolds are complex systems with multiple connection points, subject to a number of factors that could affect their stability and reliability. UNC Charlotte will use only a competent person/company who has received specific training to erect and use scaffolds. All scaffolding used by UNC Charlotte employees must meet the following requirements before use: OSHA 1926.451
 - a. The working edge of the scaffold will be placed no more than 14 inches from the front of the building or structure.
 - b. Platforms will extend over the end supported by at least 6 inches, and not more than 12 inches, unless cleated or restrained.

- c. All components that are supplied by the manufacturer will be used unless they are parts specifically designed for optional uses and are not being used at the time.
- d. All parts, including casters, pipes/poles, rails, toe boards, platforms, cams, locking pins and all connection devices must be inspected and found to be in good condition prior to each use.
- e. A workplace inspection will be conducted and documented prior and during the erection of the scaffolding, as well as prior to each use.
- f. Guardrails are to be placed between 36 and 45 inches high and placed at the open ends and sides of the platform and must be able to withstand a force of 200 pounds. Midrails will be placed halfway between the toprail and the toeboard. Toeboards must be in place where employees working below are exposed to falling objects.
- g. Cross bracing and railings should not be used as a means of climbing to or accessing the platform. Workers will only use the installed ladders.
- h. For mobile scaffolds, the caster wheels must be locked and all locking pins in place prior to use.
- i. Fall protection systems are required when employees erect and disassemble scaffolding.
- j. Hard hats are to be worn at all times while working on or around scaffolding.

IX. Loading Docks

A. General Loading Dock Safety Guidelines *OSHA 29 CFR 1910 Subpart D*

- 1. Loading docks pose potential fall hazards because they are often elevated at a height of 4 feet or greater than the pavement below, and the leading edge of a loading dock has to be open-access to allow materials to be on- and off-loaded. Loading docks support campus operations by allowing equipment, materials, and supplies to be moved in and out of buildings with minimal inconvenience to occupants. Due to the activities that occur routinely at docks, it is important that the campus community is aware of potential hazards in these areas. For instance, when trucks are not present at the dock,

dock equipment and pedestrians can fall off the dock edge if left unprotected. Guardrails or similar protective devices are to be used at loading dock edges over 4 feet high to prevent fall injuries.

B. Common Loading Dock Hazards

1. Collisions with forklifts and other moving equipment.
2. Falling off from unprotected dock edges.
3. Slipping on wet/oily surfaces.
4. Tripping over stationery items/uneven surfaces.
5. Injuries caused by improper lifting and carrying.
6. Guardrails (or other OSHA compliant dock barriers) not replaced/secured at dock edges.
7. Dock lighting is not adequate for loading activities.
8. Injuries resulting from not using a stairway to access the elevated dock.

C. Safety Procedures for Loading and Unloading of Vehicles at Docks

1. Conduct a safety inspection of the area before you operate a forklift or lift truck.
2. If operating a forklift or lift truck, all operators must be appropriately trained and authorized to operate the equipment.
3. If accessing a vehicle parked at the dock with a forklift or lift truck, confirm that the vehicle's wheels are correctly chocked. Use available stairways to access elevated dock surfaces. Do not climb up or down from an elevated dock.
4. When appropriate (e.g., when operating a forklift or lift truck), use dock leveling plates to provide a stable surface to move materials and prevent falls. Ensure dock plates are level with the dock surface when loading is complete.
5. Stay aware of vehicles, materials, and pedestrians in the area.
6. Use gloves and other personal protective equipment when needed.

D. Safety Procedures at Loading Docks

1. Do not empty trash containers/bags into a trash dumpster from an elevated dock unless a protective barrier is in place. Empty trash containers at ground level if protective barriers are not in place.
2. Check the dock surface for spills, uneven edges, and stored items that could cause injury.
3. Be aware of dock edges at all times. Avoid walking/standing by unguarded dock edges.
4. Report potential hazards to a supervisor as soon as possible.
5. Wear the appropriate footwear (e.g., slip-resistant soles, safety-toe protection) and other personal protective equipment while working in dock areas.

6. Refrain from using docks to enter/exit buildings. Campus docks are designed for loading/unloading activities only.
7. Use docks during daytime hours and avoid using docks with limited lighting at night to prevent injuries.
8. Be courteous to equipment operators, signal them when you are nearby, and try not to interrupt their work tasks.
9. Use stairways when accessing elevated dock areas to avoid injury. Choose an alternative route if stairways are not available.
10. After opening gates, removing chains, railing, or other OSHA compliant dock barriers along dock edges, be sure to close gates/replace equipment when your work task is completed to ensure the safety of others.

X. Personal Fall Arrest System Inspection

A. UNC Charlotte Employee Personal Fall Arrest System Pre-Use Inspections

1. Before any UNC Charlotte employee can perform a Personal Fall Arrest System Pre-Use Inspection, they must be properly trained and show competency of the items listed in the pre-use inspection checklist.
2. Employees must visually inspect their entire personal fall arrest system prior to every use. The inspection will follow the manufacturer’s recommendations. Any damaged components must be removed from service immediately.
 - a. Fall arrest systems components that are constructed out of webbing should not be marked with any permanent or paint-based markers. These products have certain chemical properties that could impact the integrity of fall arrest system components.
3. The following inspection checklist below covers basic personal fall arrest system pre-use items, employees must incorporate any manufacturer recommendations, specific to each piece of equipment, in this pre-use inspection process.

UNC Charlotte Employee Personal Fall Arrest System Pre-Use Inspection Checklist		
Step Number	Fall Arrest Component	Inspection Procedures
1.	Webbing	The entire surface of webbing must be inspected for damage. Beginning at one end, bend the webbing in an inverted “U.” Holding the body side of the belt toward you, grasp the belt

		with your hands six to eight inches apart. This surface tension makes the damaged fibers or cuts easier to see. Watch for frayed edges, broken fibers, pulled stitches, cuts, burns and chemical damage. Check the tongue for loose, distorted, or broken grommets. The webbing cannot have any additional punched holes.
2.	D-Rings / Back Pads	D-rings will be checked 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.
3.	Buckles	Buckles will be inspected to identify any unusual wear, frayed, or cut fibers or distortion. Buckle tongues must be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. The roller should turn freely on the frame. Friction and mating buckles must be inspected to ensure the outer bars and center bars are straight. Pay special attention to corners and attachment points of the center bar.
4.	Snaps	Must be inspected closely for hook-and-eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should sit into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. Keeper locks must prevent the keeper from opening when the keeper closes.
5.	Thimbles	The thimble must be firmly seated in the eye of the splice, and splice should have no loose or cut strands. The edges of the thimble must be free of sharp edges, distortion, or cracks.
6.	Web Lanyard	Inspect the lanyard by bending the webbing over a curved surface, such as a pipe, observing each side of the webbed lanyard for any cuts or breaks. Examine the webbing for swelling, discoloration, cracks or burns. Check closely for any breaks in the stitching.
7.	Rope Lanyard	Rotate the rope lanyard while inspecting from end to end. This will make any fuzzy, worn, broken or cut fibers more apparent. The rope diameter should be uniform throughout, following a short break-in period. Weakened areas from extreme loads will appear as a noticeable change from the original diameter. Make sure the rope has no knots tied in it. Knots can reduce the strength of the rope by up to 60 percent.
8.	Shock - Absorbing Lanyard	Shock-absorbing lanyards should be examined similarly to a web lanyard. However, also look for signs of deployment. If the lanyard shows signs of having been put under load (e.g., torn out stitching), remove it from service.
9.	Self - Retracting Lanyard / Lifeline	The lanyard housing must be inspected to ensure that casing bolts are tight and that there are no loose fasteners, missing parts, cracks or excessive wear or corrosion. Webbing must be inspected for cuts, nicks, or tears as well as for any broken fibers, stitching or fraying. Steel lanyards will be inspected for cuts, fraying, broken wires, overall deterioration, and excessive wear. Check fittings for wear or cracks and obvious damage. Employees will follow manufacturer's recommendations for additional inspection tasks and for any requirements that the unit be sent into the manufacturer for periodic inspection.

XI. Rescue

A. General Rescue Procedures

1. Personnel requiring the use of personal fall protection equipment will use a "Buddy System" or have an observer to render assistance when and if required. Prior to tying off to perform the work, a means

of rescue in the event of a fall must be immediately available if employees cannot be expected to rescue themselves.

2. All components of the fall arrest system impacted by a fall event shall be removed from service immediately. The fall arrest components will be tagged with the employee's name, date, and activity at time of fall. These equipment items must then be delivered to the Environmental Health and Safety office Fall Protection Program Administrator.

- a. Self-Rescue

- i. Persons working at heights may be able to perform a self-rescue by climbing back up to the level from which they fell, typically a few inches to 3 feet. Employees who fall any distance should return to the floor or ground to be medically evaluated.

- b. Assisted Rescue

- i. Persons unable to self-rescue will be assisted, if appropriate, by their "buddy" or other observer. The "buddy" will immediately contact Police & Public Safety for rescue assistance. UNC Charlotte Police and Public Safety will coordinate rescue with the Charlotte Fire Department.

XII. Training

A. Fall Protection Training Guidelines

1. Each employee who may be exposed to fall hazards must be trained to recognize the hazards and the procedures to follow to minimize the hazards. Training will consist of the following requirements listed in OSHA 1910.30 & OSHA 1926.503:
 - a. Fall hazards in the work area.
 - b. Correct procedures for erecting, using, maintaining, disassembling, and inspecting the fall prevention and protection systems.
 - c. Selection, proper use, and care of equipment of a personal fall arrest system.
 - d. Limitations of fall protection equipment.
 - e. Role of employees in fall protection plans.

- f. Rescue procedures to follow in case of a fall.
 - g. Overview of the OSHA fall protection requirements.
2. The frequency of training will depend on the following factors:
- a. Initial assignment to fall hazard job task.
 - b. Whenever the employee's responsibilities or designated actions under the plan change.
 - c. Whenever changes are made to the plan.
 - d. Whenever there is a change in the type of fall protection equipment used.
 - e. Whenever a new employee is hired or assigned.
 - f. Whenever a known hazard is added to the work environment.
 - g. Whenever a fall protection procedure fails.
3. Specific safety training will be required for the following equipment:
- a. MEWPS
 - b. Scaffolds
 - c. Ladders

XIII. Outside Contractors

A. Contractor Guidelines for Fall Protection

1. Each contractor who is retained to perform operations that require fall protection shall:
 - a. Review and follow all guidelines in the UNC Charlotte Contractor Safety Program.
 - b. Have an established and implemented fall protection program that follows all State, Federal, and Local laws.
 - c. Coordinate fall protection with UNC Charlotte Project Manager.

XIV. Periodic Program Review

A. Program Review Frequency

1. At least annually, the Environmental Health and Safety Program Administrator will conduct a review to assess the plan's effectiveness. The annual review will be evaluated, and the program updated, as needed.

XV. Record Retention

A. UNC Charlotte Record Retention Policy

1. UNC Charlotte will maintain the Fall Protection Program records according to all University, State, Federal, and Local guidelines.