STANDARD PRACTICE INSTRUCTION

DATE: Updated and Reviewed July 31, 2023

SUBJECT: Fall Protection Program for Construction

REGULATORY STANDARDS: OSHA - 29 CFR 1926.500

BASIS: In the construction industry in the U.S., falls are the leading cause of worker fatalities. Each year, on average, between 150 and 200 workers are killed and more than 100,000 are injured as a result of falls at construction sites. OSHA recognizes that accidents involving falls are generally complex events frequently involving a variety of factors. Consequently, the standard for fall protection deals with both the human and equipment-related issues in protecting workers from fall hazards. The OSHA Safety Standards establish uniform requirements to make sure that the fall hazards in U.S. workplaces are evaluated, and that this hazard information is transmitted to all affected workers.

GENERAL: This University will ensure that the hazards of all elevated work activities over 6 feet in length are evaluated, and that information concerning their hazards is transmitted to all employees. This standard practice instruction is intended to address comprehensively the issues of: evaluating potential fall hazards, communicating information concerning these hazards, and establishing appropriate protective measures for employees.

RESPONSIBILITY: The Environmental Safety Manager is responsible for the administration of this program and has full authority to make necessary decisions to ensure success of the program. All University employees are responsible for safety at all times. This University has expressly authorized this person to halt any University operation where there is danger of serious personal injury.

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Salisbury University Fall Protection Program

1. Written Program. The University will review and evaluate this standard practice instruction:

- on an annual basis;
- when changes occur to 29 CFR, that prompts revision of this document;
- when University operational changes occur that require a revision of this document;
- when there is an accident or close-call that relates to this area of safety; and
- review the program any time fall protection procedures fail

Effective implementation of this program requires support from all levels of management within this University. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of the number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

2. Statement of Policy. The hazards of potential falls at heights of 6 feet and above will be addressed in this document. This instruction describes a systematic approach that must be used to protect and prevent people from falling. This instruction also lists some of the most common fall hazards, and provides recommendations and guidelines for selecting fall arrest systems.

3. Workplace Evaluation. The workplace will be assessed before each assigned job for potential fall hazards. Proper fall arrest equipment will be used for jobs requiring fall protection when elimination of the hazard(s) is not possible. This University will evaluate the facilities by department to determine fall hazards. This preliminary evaluation will detail the required steps for protecting employees from fall hazards. A fall hazards assessment sheet (see appendix) will be used to document fall hazard assessments. A complete list of fall hazard locations and protective measures procedures will be maintained. This rule does not cover those workers inspecting, investigating, or assessing workplace conditions prior to the actual start of work or after all work has been completed. Also, requirements to provide fall protection for workers on scaffolds and ladders and for workers engaged in steel erection of buildings are covered in other subparts of OSHA regulations.

4. Training. A training program will be provided for all employees who will be exposed to fall hazards in the work area, and will be conducted by competent personnel. The program will include but will not be limited to:

- a description of fall hazards in the work area
- procedures for using fall prevention and protection systems;
- equipment limitations;
- the elements encompassed in total fall distance;
- prevention, control and fall arrest systems; and
- inspection and storage procedures for the equipment

Generally, workers will be trained to recognize the hazards of falling from elevations and to avoid falls from grade level to lower levels through holes or openings in walking/working surfaces. Training programs will include prevention, control and fall arrest systems. It must be ensured that appropriate fall arrest systems are installed, and that employees know how to use them before beginning any work that requires fall protection.

4.1 Initial training. Training will be conducted prior to job assignment. This employer will provide training to ensure that the purpose, function, and proper use of fall protection is understood by employees and that the knowledge and skills required for the safe application, and usage is acquired by employees. This standard practice instruction will be provided to, and read by all employees receiving training. The training will include at a minimum, the following:

4.1.1 Types of fall protection equipment appropriate for use.

4.1.2 Recognition of applicable fall hazards associated with the work to be completed and the locations of such.

4.1.3 Load determination and balancing requirements.

4.1.4 Procedures for removal of protection devices from service for repair or replacement.

4.1.5 All other employees whose work operations are or may be in an area where fall protection devices may be utilized, will be instructed to an awareness level concerning hazards associated with fall protection operations.

4.1.6 Fall protection equipment identification. Fall protection equipment having identification numbers will be checked for legibility. Fall protection equipment having illegible identification markings will be turned in to the supervisor for inspection.

4.1.7 Equipment maintenance and inspection requirements.

4.1.8 Equipment donning and doffing procedures.

4.1.9 Equipment strengths and limitations.

4.1.10 Other options such as safety nets, guardrails, controlled access zones, and safety monitoring systems.

4.1.11 Certification. This employer will certify that employee training has been accomplished and is being kept up to date. The certification will

contain each employee's name and dates of training. Training will be accomplished by competent personnel.

4.2 Refresher training. This standard practice instruction will be provided to, and read by all employees receiving refresher training. The training content will be identical to initial training. Refresher training will be conducted on an annual basis or when the following conditions are met, whichever event occurs sooner.

4.2.1 Retraining will be provided for all authorized and affected employees whenever (and prior to) a change in their job assignments, a change in the type of fall protection equipment used, or when a known hazard is added to the work environment which affects the fall protection program.

4.2.2 Additional retraining will also be conducted whenever a periodic inspection reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of fall protection equipment or procedures.

4.2.3 Whenever a fall protection procedure fails.

4.2.4 The retraining will reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.

4.2.5 Certification. This employer will certify that employee training has been accomplished and is being kept up to date. The certification will contain each employee's name and dates of training. Training will be accomplished by competent personnel.

5. Fall Hazard Control Procedures (Fall Prevention).

5.1 Control Procedures Development. Once a workplace evaluation has been accomplished, procedures will be developed, documented and utilized for the control of potential fall hazards. Fall prevention plans will be designed, when necessary, by University competent individuals or other competent personnel. University engineers (where utilized) or other competent personnel will be provided with any required specialized training to recognize fall hazards, to understand and address fall prevention techniques, and to become familiar with fall arrest equipment and procedures. It is critical that they consider fall protection design for the safety of operations where employees must work at elevated heights. Safety during access and egress from elevated work sites will also be considered. The following guidelines will be used when planning work at elevated heights:

- Involve Environmental Safety Manager early in the project planning/job planning so that they can recommend appropriate fall-protection measures and equipment.

- Involve qualified Engineers when load rating of anchorage points must be determined or is in doubt. Required training will be provided as necessary.

- Involve Engineering and Maintenance when anchorage points must be installed.

- The Safety Manager and Engineering Departments will use the expertise of fall protection equipment manufacturers such as Rose Manufacturing University., Miller Equipment University, Research and Trading University and DBI/SALA.

- This University will be specific in dealing with fall hazards when developing contracts. Subcontractors will be required to provide a written fall protection program which describes the Contractors' fall protection policies and procedures when they will be working at elevated heights.

5.2 Procedural Format. The following format will be followed when developing fall protection procedures. The Safety Manager will be responsible for the implementation of these procedures. The procedures will clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized to control fall hazards, and the means to enforce compliance including, but not limited to, the following:

5.2.1 A specific statement of the intended use of the procedure.

5.2.2 A review of accident records, including OSHA 300 logs and Workers' Compensation documentation.

5.2.3 Interviews with employees and groups of employees whose work environment includes or may include fall hazards.

5.2.4 Physical observations of the work environment(s) that involve fall hazards or the potential of such.

5.2.5 Observations of individuals and their job tasks and work habits that expose them to existing or potential fall hazards.

5.2.6 The procedures contained in the University fall protection program.

5.2.7 Specific procedural steps for the use and operation of body harness systems, and other fall protection systems.

5.2.8 Specific procedural steps for the placement, erection, inspection, maintenance, disassembly and transfer of fall protection systems or devices and the person(s) responsible for them.

5.2.9 Specific requirements for testing fall protection systems or equipment to determine and verify the effectiveness of the fall protection control measures (not load testing).

5.2.10 The correct procedures to rescue employees who have fallen.

5.2.11 The role of each employee in fall protection plans and applicable policies.

5.2.12 Specific requirements for testing fall protection systems or equipment.

5.2.13 Requirements for guardrail installation

5.2.14 Other requirements including safety net systems, controlled access zones, and safety monitoring systems.

6. Protective Materials and Hardware. Appropriate fall protection devices will be provided for potential fall hazards. Selection of the equipment will be based on the fall protection evaluation. Evaluations will be conducted by personnel authorized to evaluate fall protection requirements.

6.1 Selection Criteria.

6.1.1 Fall Protection devices will be singularly identified; will be the only devices(s) used for controlling falls; will not be used for other purposes; and will meet the following requirements:

6.1.1.1 Capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

6.1.1.2 Anchor points will not deteriorate when located in corrosive environments such as areas where acid and alkali chemicals are handled and stored.

6.1.1.3 Capable of withstanding the ultimate load of 5,000 lbs. for the maximum period of time that exposure is expected.

6.1.1.4 Standardization within SU facilities. Fall protection devices will be standardized whenever possible.

7. Fall Protection Systems. When fall hazards cannot be eliminated through any other means, fall protection systems will be used to control falls. Proper training on fall protection systems is essential and will be provided prior to working on any jobsite.

7.1 Personal Fall Arrest Systems. A personal fall arrest system consists of a full-body harness, lanyard, energy shock absorber, self-locking snap hook and an anchorage point. If a personal fall arrest system is used for fall protection, it must do the following:

7.1.1 Limit maximum arresting force on an employee to 900 pounds (4 kilonewtons) when used with a body belt. **NOTE:** As of January 1, 1998, the use of a body belt for fall arrest was prohibited; however, the use of a body belt in a positioning device system is acceptable.

7.1.2 Limit maximum arresting force on an employee to 1,800 pounds (8 kilonewtons) when used with a body harness.

7.1.3 Be rigged so that an employee can neither free fall more than 6 feet (1.8 meters) nor contact any lower level.

7.1.4 Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (1.07 meters)

7.1.5 Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet (1.8 meters) or the free fall distance permitted by the system, whichever is less.

7.1.6 Personal fall arrest systems must be inspected prior to each use for wear or damage, and other deterioration. Defective components must be removed from service.

7.2 Dee-rings and Snaphooks

7.2.1 Dee-rings and snaphooks must have a minimum tensile strength of 5,000 pounds (22.2 kilonewtons). Dee-rings and snaphooks shall be proof-tested to a minimum tensile load of 3,600 pounds (16 kilonewtons) without cracking, breaking, or suffering permanent deformation.

7.2.2 Snaphooks shall be sized to be compatible with the member to which they will be connected, or shall be of a locking configuration. Unless the snaphook is a locking type and designed for the following connections, they shall not be engaged:

1. directly to webbing, rope, or wire rope
2. to each other
3. to a dee-ring to which another snaphook or other connecter is attached
4. to a horizontal lifeline

5. to any object incompatible in shape or dimension relative to the snaphook, thereby causing the connected object to depress the snaphook keeper and release unintentionally.

OSHA considers a hook to be compatible when the diameter of the dee-ring to which the snaphook is attached is greater than the inside length of the snaphook when measured from the bottom (hinged end) of the snaphook keeper to the inside curve of the top of the snaphook. Thus, no matter how the dee-ring is positioned or moved (rolls) with the snaphook attached, the dee-ring cannot touch the outside of the keeper, thus depressing it open. As of January 1, 1998, the use of nonlocking snaphooks was prohibited.

7.3 Retractable Lifelines

7.3.1 A retractable lifeline is a fall arrest device used in conjunction with other components of a fall arrest system. Retractable lifelines should be used by one person at a time.

7.3.2 A properly inspected and maintained retractable lifeline, when correctly installed and used as part of the fall arrest system, automatically stops a person's descent in a short distance after the onset of an accidental fall.

7.3.3 Retractable lifelines may be considered when working in areas such as on roofs and scaffolds, or in tanks, towers, vessels, and manholes. Also, retractable lifelines should be considered when climbing such equipment as vertical fixed ladders. The following apply to the use of retractable lifelines:

7.3.3.1 Retractable lifelines that automatically limit free fall distance to 2 feet (0.61 meters) or less shall be capable of sustaining a minimum tensile load of 3,000 pounds (13.3 kilonewtons) applied to the device with the lifeline in the fully extended position.

7.3.3.2 Retractable lifelines that do not limit free fall distance to 2 feet (0.61 meters) or less, shall be capable of sustaining a minimum tensile load of 5,000 pounds (22.2 kilonewtons) applied to the device with the lifeline in the fully extended position.

7.4 Ropes and Straps (webbing)

7.4.1 Ropes and straps used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made of synthetic fibers.

7.4.2 Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds (22.2 kilonewtons).

7.5 Anchorage Points

7.5.1 Anchorages shall be 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 two, i.e., capable of supporting at least twice the weight expected to be imposed on it.

7.5.2 Anchorages used to attach personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms and must be capable of supporting at least 5,000 pounds (22.2 kilonewtons) per person attached.

8. Guardrail Systems. Salisbury University may choose to use guardrail systems to protect workers from falls. When utilized, guardrail systems will meet the following criteria;

8.1 The top edge height of toprails, or (equivalent) guardrails must be 42 inches (1.1 meters) plus or minus 3 inches (8 centimeters), above the walking/ working level.

8.2 The guardrail system must be capable of withstanding a force of at least 200 pounds (890 kilonewtons) applied within 2 inches of the top edge in any outward or downward direction. When the 200 pounds test is applied in a downward direction, the top edge of the guardrail must not deflect to a height less than 39 inches (1 meter) above the walking/ working level.

8.3 Toprails and midrails must be at least one-quarter inch (0.6 centimeters) nominal diameter of thickness to prevent cuts and lacerations. If wire rope is used for toprails, it must be flagged at not more than 6 feet (1.8 meters) intervals with high-visibility material. Steel and plastic banding cannot be used as toprails and midrails. Manila, plastic, or synthetic rope used for toprails or midrails must be inspected as frequently as necessary to ensure strength and stability.

8.4 Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/ working surface when there are no walls or parapet walls at least 21 inches (53 centimeters) high. When midrails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking/ working level. When screens and mesh are used, they must extend from the top rail to the walking/ working level and along the entire opening between top rail supports. Intermediate members, such as balusters,

when used between posts, shall not be more than 19 inches (48 centimeters) apart.

8.5 Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding a force of at least 150 pounds (666 Newtons) applied in any downward or outward direction at any point along the midrail or other member.

8.6 Guardrail systems shall be surfaced to protect workers from punctures or lacerations and to prevent clothing from snagging.

8.7 The ends of top rails and midrails must not overhang terminal posts, except where such an overhang does not constitute a projection hazard.

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

8.9 At holes, guardrail systems must be set up on all unprotected sides or edges. When holes are used for the passage of materials, the hole shall not have more than two sides with removable guardrail sections. When the hole is not in use, it must be covered or provided with guardrails along all unprotected sides or edges.

8.10 If guardrail systems are used around holes that are used as access points (such as ladderways), gates must be used or the point of access must be offset to prevent accidental walking into the hole.

8.11 If guardrails are used at unprotected sides or edges of ramps and runways, they must be erected on each unprotected side or edge.

9. Safety Monitoring Systems. When no other alternative fall protection has been implemented, Salisbury University shall implement a safety monitoring system. A competent person will be appointed to monitor the safety of workers

9.1 Safety Monitor Criteria- Salisbury University shall ensure the Safety Monitor:

1. Is competent in the recognition of fall hazards
2. Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices.
3. Is operating on the same walking/ working surfaces of the workers and can see them, and
4. Is close enough to work operations to communicate orally with workers and has no other duties to distract from the monitoring function.

9.2 Mechanical equipment shall not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-sloped roofs.

9.3 No worker, other than one engaged in roofing work (on low-sloped roofs) or one covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

9.4 All workers in a controlled access zone shall be instructed to promptly comply with fall hazard warnings issued by safety monitors.

10. Safety Net Systems. Salisbury University does not utilize safety net systems as part of fall protection, even though the option exists. If safety nets are introduced to the workplace, current usage criteria will be evaluated and adhered to.

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

1. Flagged at not more than 6-foot (1.8 meters) intervals with high visibility material.
2. Rigged and supported so that the lowest point including sag is no less than 34 inches (0.9 meters) from the walking/ working surface and its highest point is no more than 39 inches (1 meter) from the walking/ working surface.
3. Stanchions, after being rigged with warning lines, shall be capable of resisting, without tipping over, a force of at least 16 pounds (71 Newtons) applied horizontally against the stanchion, 30 inches (0.8 meters) above the walking/ working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge.
4. The rope, wire, or chain shall have a minimum tensile strength of 500 pounds (2.22 kilonewtons), and after being attached to the stanchions, must support, without breaking, the load applied to the stanchions as prescribed above.
5. Shall be attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before the stanchion tips over.

11.1 Warning lines shall be erected around all sides of roof work areas.

11.2 When mechanical equipment is being used, the warning line shall be erected not less than 6 feet (1.8 meters) from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet (3 meters) from the roof edge perpendicular to the direction of mechanical equipment operation.

11.3 When mechanical equipment is not being used, the warning line must be erected not less than 6 feet (1.8 meters) from the roof edge.

12. Controlled Access Zones. A controlled access zone is a work area designated and clearly marked in which certain types of work (such as overhand bricklaying) may take place without the use of conventional fall protection systems- guardrail, personal fall arrest or safety net- to protect the employees working in the zone.

12.1 Controlled access zones will be used to keep out workers other than those authorized to enter work areas from which guardrails have been removed. Where there are no guardrails, masons are the only workers allowed in controlled access zones.

12.2 Controlled access zones, when created to limit entrance to areas where leading edge work and other operations are taking place, must be defined by a control line or by any other means that restrict access.

12.3 Control lines shall consist of ropes, wires, tapes or equivalent materials, and supporting stanchions, and each must be:

1. Flagged or otherwise clearly marked at not more than 6-foot (1.8 meters) intervals with high-visibility material.
2. Rigged and supported in such a way that the lowest point (including sag) is not less than 39 inches (1 meter) from the walking/ working surface and the highest point is not more than 45 inches (1.3 meters) – nor more than 50 inches (1.4 meters) when overhand bricklaying operations are being performed- from the walking/ working surface.
3. Strong enough to sustain stress of not less than 200 pounds (0.88 kilonewtons). Control lines shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
4. Control lines also must be connected on each side to a guardrail system or wall.

12.4 When control lines are used, they shall be erected not less than 6 feet (1.8 meters) nor more than 25 feet (7.6 meters) from the unprotected or leading edge, except when precast concrete members are being erected. In the latter case, the control line is to be erected not less than 6 feet (1.8 meters) nor more than 60 feet (18 meters) or half the length of the member being erected, whichever is less, from the leading edge.

12.5 Controlled access zones, when used to determine access to areas where overhand bricklaying and related work are taking place, are to be defined by a control line erected not less than 10 feet (3 meters) nor more than 15 feet (4.6 meters) from the working edge. Additional control lines must be erected at each end to enclose the controlled access zone. Only employees engaged in overhand bricklaying or related work are permitted in the controlled access zones.

12.6 On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones must be enlarged as necessary to enclose all points of access, material handling areas, and storage areas.

12.7 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.

13. Additional Fall Protection Requirements. In addition to the systems and criteria already mentioned, the following fall hazards will be evaluated and the listed fall protection requirements will be adhered to.

13.1 Excavations- Each employee at the edge of an excavation 6 feet (1.8 meters) or deeper shall be protected from falling by guardrail systems, fences, barricades, or covers. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway if the fall would be 6 feet (1.8 meters) or more to the lower level.

13.2 Covers- Covers located in roadways and vehicular aisles must be able to support at least twice the maximum axle load of the largest vehicle to which the cover might be subjected. All other covers must be able to support at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any time. To prevent accidental displacement resulting from wind, equipment, or worker's activities, all covers must be secured. All covers must be color-coded or bear the word "HOLE" or "COVER."

13.3 Formwork and Reinforcing Steel- For employees, while moving vertically and/or horizontally on the vertical face of rebar assemblies built in place, fall protection is not required when employees are moving. OSHA considers the multiple hand-holds and foot-holds on rebar assemblies as providing similar protection as that provided by a fixed ladder. Consequently, no fall protection is necessary while moving point to point for heights below 24 feet (7.3 meters). An employee must be provided with fall protection when climbing or otherwise moving at a height more than 24 feet (7.3 meters), the same as for fixed ladders.

13.4 Hoist Areas – Each employee in a hoist area shall be protected from falling 6 feet (1.8 meters) or more by guardrail systems or personal fall arrest systems. If guardrail systems (or chain gate or guardrail) or portions thereof must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee must be protected by a personal fall arrest system.

13.5 Holes – Personal fall arrest systems, covers, or guardrail systems shall be erected around holes (including skylights) that are more than 6 feet (1.8 meters) above lower levels.

13.6 Leading Edges – Each employee who is constructing a leading edge 6 feet (1.8 meters) or more above lower levels shall be protected by guardrail systems, safety net systems, or personal fall arrest systems. If Salisbury University can demonstrate that it is infeasible or creates a greater hazard to implement these systems, then we will develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k).

13.7 Overhand Bricklaying and Related Work – Each employee performing overhand bricklaying and related work 6 feet (1.8 meters) or more above lower levels shall be protected by guardrail systems, safety net systems, or personal fall arrest systems, or shall work in a controlled access zone. All employees reaching more than 10 inches (25 centimeters) below the level of a walking/ working surface on which they are working shall be protected by a guardrail system, safety net system, or personal fall arrest system.

13.8 Precast Concrete Erection – Each employee who is 6 feet (1.8 meters) or more above lower levels while erecting precast concrete members and related operations such as grouting of precast concrete members shall be protected by guardrail systems, safety net systems, or personal fall arrest systems. Where Salisbury University can demonstrate, however, that it is infeasible or creates a greater hazard to use those systems, then we will develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k).

13.9 Roofing –

13.9.1 Low-slope Roofs – Each employee engaged in roofing activities on low-slope roofs with unprotected sides and edges 6 feet (1.8 meters) or more above lower levels, shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems or a combination of a warning line system and guardrail system, warning line system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet (15.25 meters) or less in width, the use of a safety monitoring system without a warning line system is permitted.

13.9.2 Steep Roofs – Each employee on a steep roof with unprotected sides and edges 6 feet (1.8 meters) or more above lower levels shall be protected by either guardrail systems with toeboards, a safety net system, or a personal fall arrest system.

13.10 Wall Openings – Each employee 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 meters) or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1 meter) above the walking/ working surface, must be protected from falling by the use of either a guardrail system, a safety net system, or a personal fall arrest system.

14. Protection from Falling Objects. When guardrail systems are used to prevent materials from one level to another, any openings must be small enough to prevent passage of potential falling objects.

14.1 No materials or equipment except masonry and mortar shall be stored within 4 feet (1.2 meters) of working edges. Excess mortar, broken or scattered masonry units, and all other materials and debris shall be kept clear of the working area by removal at regular intervals.

14.2 During roofing work, materials and equipment shall not be stored within 6 feet (1.8 meters) of a roof edge unless guardrails are erected at the edge, and materials piled, grouped, or stacked near a roof edge must be stable and self-supporting.

14.3 Canopies - When used as protection from falling objects, canopies must be strong enough to prevent collapse and to prevent penetration by any objects that may fall onto them.

14.4 Toeboards – When toeboards are used as protection from falling objects, they must be erected along the edges of the overhead walking or working surface for a distance sufficient to protect persons working below. Toeboards shall be capable of withstanding a force of at least 50 pounds (222 Newtons) applied in any downward or outward direction at any point along the toeboard. Toeboards shall be a minimum of 3.5 inches (9 centimeters) tall from their top edge to the level of the walking/ working surface, have no more than 0.25 inches (0.6 centimeters) clearance above the walking/ working surface, and be solid or have openings no larger than 1 inch (2.5 centimeters) in size. When tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening must be erected from the walking/ working surface or toeboard to the top of a guardrail system's top rail or midrail, for a distance sufficient to protect employees below.

15. Fall Protection Plan. This option is available only to employees engaged in leading edge work, precast concrete erection work, or residential construction work who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment. Salisbury University realizes it has the burden of establishing that it is appropriate to implement a fall protection plan which complies with the standard for a particular workplace situation, in lieu of implementing any of those systems. The fall protection plan will conform to the following provisions:

15.1 The fall protection plan will be prepared by a qualified person and developed specifically for the site where the leading-edge work, precast concrete work, or residential construction work is being performed, and will be maintained up to date.

15.2 Any changes to the fall protection plan shall be approved by a qualified person.

15.3 A copy of the fall protection plan with all approved changes shall be maintained at the job site.

15.4 The implementation of the fall protection plan shall be under the supervision of a competent person.

15.5 The fall protection plan shall document the reasons why the use of conventional fall protection systems is infeasible or why their use would create a greater hazard.

15.6 The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems.

15.7 The fall protection plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones and Salisbury University will comply with the criteria discussed earlier in section 12.

15.8 Where no other alternative measure has been implemented, Salisbury University shall implement a safety monitoring system in conformance with 1926.502(h).

15.9 The fall protection plan will include a statement which provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones.

15.10 In the event an employee falls, or some other related, serious incident occurs, Salisbury University shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed, and shall implement those changes to prevent similar types of falls or incidents.

16. Subcontractor Responsibilities. In addition to complying with the fall protection requirements that apply to all University employees, each subcontractor who is retained to perform operations that involve fall protection will:

16.1 Obtain any available information regarding fall hazards and protective measures from this University.

16.2 Coordinate fall protection operations with the University, when both University personnel and subcontractor personnel will be working in or near recognized fall hazard locations.

16.3 Inform the University of the fall protection program that the subcontractor will follow and of any hazards confronted or created in conducting operations involving fall protection on any jobsite through a debriefing immediately prior to the operation.

17. Definitions

Anchorage means a secure point of attachment for lifelines, lanyards or deceleration devices.

Body belt means a strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.

Body harness means straps which may be secured about the employee 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.

Competent person means a person who is capable of identifying hazardous or dangerous conditions in any personal fall arrest system or any component thereof, as well as in their application and use with related equipment.

Connector means a device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabiner, or it may be an integral component of part of the system.

Deceleration device means any mechanism with a maximum length of 3.5 feet, such as a rope grab, ripstitch lanyard, tearing or deforming lanyards, self-retracting lifelines, etc. which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Energy shock absorber means a device that limits shock-load forces on the body.

Failure means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Fall arrest system means a system specifically designed to secure, suspend, or assist in retrieving a worker in or from a hazardous work area. The basic components of a fall arrest system include anchorage, anchorage connector, lanyard, shock absorber, harness, and self-locking snap hook.

Free fall means the act of falling before a personal fall arrest system begins to apply force to arrest the fall.

Free fall *distance* means the vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall (maximum of 6 feet). This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

Hole means a gap or void 2 inches or more in its least dimension, in a floor, roof, or other walking/working surface.

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

Leading edge means the edge of a floor roof, or formwork for a floor or other walking/working surface which changes location as additional floor, roof, decking, or formwork sections are placed, formed or constructed. A leading edge is considered to be an unprotected side and edge during periods when it is not actively and continuously under construction.

Lifeline means a component consisting of a flexible line for connection to an anchorage at one end to hang vertically or for connection to anchorages at both ends to stretch horizontally and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Opening means a gap or void 30 inches or higher and 18 inches or wider, in a wall or partition, through which employees can fall to a lower level.

Personal fall arrest system means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Positioning device system means 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.

Qualified person means 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.

Retractable lifeline means a fall arrest device that allows free travel without slack rope, but locks instantly when a fall begins.

Rope grab means a deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

Safety-monitoring system means a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Self-retracting lifeline/lanyard means a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Snaphook means a connector comprised 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. Snaphooks are generally one of two types:

- The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or
- The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. As of January 1, 1998, the use of a non-locking snaphook as part of personal fall arrest systems and positioning device systems is prohibited.

Toeboard means a low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

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, formwork 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 means 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 roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.

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