Occupational Safety Program

Fall Protection Program

Manual

Department of Environmental Health & Safety
Phone: (410) 704-2949
Fax: (410) 704-2993
Email: safety@towson.edu
Website: https://www.towson.edu/public-safety/environmental-health-safety/
Emergency: 911
TUPD: (410) 704-4444

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Purpose

The purpose of the program is to maintain a safe and healthful environment for employees that use fall protection, who are exposed to fall hazards and/or falling objects. The procedure establishes a means to analyze elevated work tasks and determine appropriate personal protection against falls in accordance with OSHA.

Scope

This scope of the program relates to fall protection with respect to walking-working surfaces, vehicles, and equipment where an employee fall may occur or the hazard of falling objects exist. The program shall apply to all employees who are exposed to unprotected sides or edges of surfaces that present a falling hazard of four (4) feet or more to a lower level. Employees will not be required, nor allowed to perform any duties which require the employee to get closer than six feet to an unprotected edge, platform, walkway of any building or utilize elevated equipment unless the employee is properly secured from falling.

Exceptions to this requirement include the working sides of loading docks and exposed perimeters of performance/entertainment stages. Employees may use portable ladders without fall protection equipment up to 60 feet. Employees may work on scaffolds and aerial lifts up to 6 feet in height and on the edge of an excavation up to 6 feet in depth without fall protection.

Additionally, this program shall apply to all employees in order to minimize slips, trips, and falls on the same elevation. All employees shall control fall hazards in their work area by maintaining good housekeeping and shall report conditions that may lead to slips, trips and falls to the appropriate facilities maintenance unit. Contractors for Towson University are required to comply with all applicable OSHA/MOSH regulations and shall have their own fall protection program.

Definitions

Aerial lift device: 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.

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

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

Body harness (full-body harness): 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.

Buckle: Any device for holding the body belt or body harness closed around the employee's body.

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.

Connector: 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 (such as a buckle or dee-ring sewn into a body belt or body harness, or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).

Controlled access zone (CAZ): An area in which certain work (e.g., overhand bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Dangerous equipment: Equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

Deceleration device: Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Deceleration distance: The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

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.

Equivalent: Alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

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

Fixed ladder: A ladder, including an individual rung ladder, which 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 belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. 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.

Guardrail system: A barrier erected to prevent employees from falling to lower levels.

Hole: A gap or void 2 inches (5.1 cm) 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: 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, 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: The edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) 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: 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 or surfaces 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 less than or equal to 4 in 12 (vertical to horizontal).

Mechanical equipment: All motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mopcarts.

Opening: A gap or void 30 inches (76 cm) or more high and 18 inches (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.

Overhand bricklaying and related work: The process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. Related work includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.

Personal fall arrest system: 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: 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 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: The exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily become the top surface of a building.

Roofing work: 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: 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: A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Scaffold: 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 slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Snaphook: 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:
1926.500(b)(1)
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
1926.500(b)(2)
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.
Note: Only locking snap hooks are permitted at Towson University.

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: A roof having a slope greater than 4 in 12 (vertical to horizontal).

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

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

Unprotected sides and edges: 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 inches (1.0 m) 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.

Walking/working surface: Any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, 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: 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: That portion of a walking/working surface where job duties are being performed.

Responsibilities

A. Environmental Health & Safety (EHS)

1. EHS will provide training as required.
2. EHS will provide technical information and assist departments in implementing an effective fall protection program.
3. EHS will provide technical information and assist Facilities Management Design and Construction Services in designing controls for fall protection into projects.
4. EHS will provide and/or coordinate fall protection instruction as needed.
5. EHS will investigate and document all reported accidents that are related to fall hazards, recommending corrective actions.
6. EHS will review and revise the program as needed for compliance with applicable regulations.

B. Department of Facilities Management (FM)

1. Facilities Management will maintain and update Design Guidelines requiring that projects be designed according to current OSHA standards and that engineering controls for fall protection such as guardrails and anchorage points for occupant use and maintenance work be designed into projects wherever feasible.
2. Facilities Management will operate the Work Control Center (WCC). WCC will accept reports of hazards and either process work orders to correct the hazard or direct the request to another appropriate unit.

C. Deans, Directors, and Department Heads

1. Department Heads will designate and empower individuals who will act as competent and/or qualified persons who will be responsible for the preparation and

implementation of the program (See Appendices C and D for specific duties of Competent Persons and of Qualified Persons).
2. Department Heads will ensure that employees who will act as competent and/or qualified persons are adequately trained and/or qualified.
3. Department Heads will provide administrative and financial support for this program within individual departments.
4. Department Heads will ensure the program is implemented and maintained within the department.

D. Designated Competent Persons

1. Designated Competent Persons will implement all aspects of the program for work areas under their control.
2. Designated Competent Persons will receive training for Competent Person as defined by OSHA for Fall Protection.
3. Designated Competent Persons will act as the Competent Person for job sites under their control that contain fall hazards.
4. Designated Competent Persons will evaluate fall hazards in work areas under their control.
5. Designated Competent Persons will ensure that employees are informed, trained, and provided with the appropriate fall protection systems and equipment to be protected from potential fall hazards associated with job tasks.

E. Designated Qualified Persons

1. Designated Qualified Persons will maintain professional certification or other requirements in their subject field.
2. Designated Qualified Persons provide design, analysis, evaluation and specification in their subject field.
3. Designated Qualified Persons maintain records of their designs, analyses, evaluations, and specifications according to the requirements of the program.

F. Supervisors

1. Supervisors will assist EHS in identifying new employees for safety training.
2. Supervisors will ensure that employees are informed and trained.
3. Supervisors will ensure that employees are provided with the appropriate fall protection systems and equipment to be protected from potential fall hazards associated with job tasks. Supervisors will act as the Competent Person required to for equipment inspections.
4. Supervisors will coordinate the correction of fall hazards brought to their attention by employees.
5. Supervisors will complete a First Report of Injury report and produce any additional documentation needed to investigate and work-related injuries and illnesses.

G. Employees

1. Employees will contact their Supervisor and/or EHS for any hazards observed which cannot be corrected by the employee.
2. Employees will report any unsafe or unhealthy work conditions and job-related injuries or illnesses to the Supervisor immediately.
3. Employees will comply with the program and any further safety recommendation provided by the Supervisor and/or EHS regarding fall protection.
4. Employees will complete training and request further instruction, if unclear.
5. Employees will conduct assigned tasks in a safe manner and wear all assigned personal protection equipment.

Introduction

The University is dedicated to providing safe work facilities for students, employees, and visitors, and complying with federal and state occupational health and safety standards. Administrators, faculty, staff, and students all share a responsibility to reduce the hazards associated with falls. Fall hazards must first be controlled through engineering controls if feasible. When engineering controls are not feasible, then personal fall arrest systems, administrative controls and training must be instituted.

Falls are among the most common causes of serious work-related injuries and deaths. Falls in the workplace frequently involve:

- Unprotected edges
- Unsafely positioned ladders
- Misused fall protection
- Water, grease, and other contaminants on the floor
- Clutter and tripping hazards in walkways
- Irregularities in the floor and wall openings

The highest counts of nonfatal fall injuries are in the educational and health services and the healthcare and social assistance industries. These injuries are mostly slips and falls on the same level.

According to the Bureau of Labor Statistics, in 2020, 805 workers died from falls. The construction industry experiences the highest frequency of fall-related deaths. These deaths are mostly falls from heights. 211,640 suffered severe injuries requiring days away from work in private industry.

Regulations and standards provide specific measures and performance-based recommendations for fall prevention and protection. However, persistent unsafe practices and low safety culture across many industries define steady fall injury rates each year.
Reducing fall injury and death rates require effective fall prevention and protection, and using appropriate PPE like harnesses, fall guards, and slip-resistant footwear.

To reduce falls, the workplace must be set up to prevent employees from falling off of overhead platforms, elevated workstations or into holes in the floor and walls. OSHA requires that fall protection be provided at elevations of four feet in general industry workplaces and six feet in the construction industry. In addition, OSHA requires that fall protection be provided when working over dangerous equipment and machinery, regardless of the fall distance. To prevent employees from being injured from falls:

- Guard every floor hole into which a worker can accidentally walk (using a railing and toe-board or a floor hole cover).
- Provide a guard rail and toe-board around every elevated open sided platform, floor, or runway.
- Regardless of height, if a worker can fall into or onto dangerous machines or equipment guardrails must be provided and toe boards to prevent workers from falling and getting injured.
- Other means of fall protection that may be required on certain jobs include safety harness and line, safety nets, stair railings and handrails.
- Provide working conditions that are free of known dangers.
- Keep floors in work areas in a clean and, so far as possible, a dry condition.
- Select and provide required personal protective equipment at no cost to workers.
- Train workers about job hazards in a language that they can understand.

Applicable Regulations

- 29 CFR 1910 Subpart D – Walking-Working Surfaces
- 29 CFR 1910 Subpart F – Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms
- 29 CFR 1910.132 – General Requirements
- 29 CFR 1910.268 – Telecommunications
- 29 CFR 1926 Subpart L – Scaffolds
- 29 CFR 1926 Subpart M – Fall Protection

Procedure

A. Fall Hazards

1. Each department shall be responsible to inspect for potential fall hazards and to have each potential fall hazard evaluated by a competent person.
    a) Falls may be classified into three general categories:
        i. Slips, trips and falls on the same level;
        ii. Falls on stairs; and
        iii. Falls from elevations.

    b) Slips and trips are generally caused by a lack of good housekeeping and inadequate maintenance of walking and working surfaces. Employees should keep their area clean and orderly. If they are not equipped to eliminate a hazard, they should contact the appropriate maintenance personnel to correct the

problem. These hazards may include icy sidewalks, wet floors, torn floor coverings and stair treads, and missing or broken handrails and guardrails.

2. Fall hazards from elevations include, but are not limited to, unprotected sides and edges of roofs, excavations, skylights, floor holes, wall openings, and all other walking or working surfaces where personnel can possibly fall four feet or more to a lower level.
3. Personnel should alert their supervisors to potential fall hazards not already identified and controlled. The following are fall hazards, which require protection:
   a) Open sided floors, platforms, and runways four feet or more in height.
   b) Open sided floors, ramps, and walkways etc. that are adjacent to or above dangerous operations must be guarded regardless of height.
   c) Wall openings from where there is a drop of more than 4 feet.
   d) Open windows from which there is a drop of more than 4 feet and the bottom of the window is less than 3 feet above the floor or platform.
   e) Hatchways and chutes floor openings.
   f) Any opening more than 4 feet in elevation where a significant portion of the body is leaning over or through to perform work.
   g) Skylights that are even with the roof surface or that may otherwise serve as a walking/working surface.
   h) Scaffolds over 6 feet.
   i) Aerial lift devices.
   j) Protection from overhead falling hazards must be provided.
   k) Placement of toe boards and the use of hard hats shall be required.
   l) Equipment shall not be stored within four feet of an unprotected edge.
   m) Canopy structures may be required in high traffic areas.
   n) The area to which objects could fall must be barricaded and individuals not equipped with hard hats prohibited from entering.

B. Engineering Controls

1. Departments shall have a competent person determine if engineering controls can eliminate or lessen the hazard of the work area or job site. Engineering controls shall be provided where possible to minimize fall hazards. Engineering controls of fall hazards consist of the following:
   a) Guardrails and Toeboards
      *i. These requirements apply to temporary controls on job sites as well as permanent fixtures in general work areas. The **State of Maryland Fire Prevention Code** carries requirements that may be more stringent for permanent guardrails.*
         1) The A standard railing consists of a top rail, mid rail, and posts and is 42 inches high from the top of the rail to the floor, platform, runway, or ramp. Nominal height of the mid rail is 21 inches;

2) *Standard toe boards must be a minimum of 4 inches high (3 inches for construction), no more than 1/4-inch clearance to the floor. If a mesh material is used, the opening must be less that 1 inch;*
3) *The anchoring of posts and framing of members for railings of all types must be of such construction that the completed structure is capable of withstanding a load of 200 pounds applied in any direction at any point on the top rail;*
4) *Guardrail systems have a surface that prevents injuries such as punctures and lacerations and prevents snagging of clothing; and*
5) *When guardrail systems are in hoisting areas, a chain gate or removable guardrail section shall be in place when not being used.*

b) Skylights
   i. *The Skylights that may be used as a walking or working surface must be protected by a standard railing, standard skylight screen, grill work with 4 by 4-inch openings or slatwork with 2-inch openings; and*
   ii. *Standard skylight screens must be capable of withstanding minimum load of 200 pounds applied perpendicular to any point on the screen and will not deflect under ordinary loads and impacts and break glass.*

c) Covers
   i. *Covers for holes, including grates, 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;*
   ii. *Covers located on 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 it;*
   iii. *All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees;*
   iv. *Covers shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard when it is not readily apparent; and*
   v. *While a cover is not in place, the pit or trap opening shall be constantly attended by someone or shall be protected on all exposed sides by removable standard railings.*

C. Fall Protection Personal Protective Equipment

1. Personal protective equipment shall be used to minimize fall hazards where engineering controls do not eliminate the hazard or in conjunction with engineering controls.
2. Fall protection equipment is divided into five functional categories: a) Fall Arrest, b) Positioning Device, c) Suspension, d) Retrieval, and e) Restraint.

a) Fall Arrest

i. The use of a personal fall arrest system is the required personal protective equipment for fall hazards at Towson University. A personal fall arrest system consists of a full-body harness, lanyard, and anchor point OR a full-body harness, lanyard, lifeline, anchor point, and deceleration/grabbing device.

ii. All fall protection equipment shall meet or exceed appropriate American National Standards Institute (ANSI) standards.

iii. Towson University employees shall use only commercially manufactured equipment specifically designed for fall protection and certified by a nationally recognized testing laboratory. All fall protection equipment must bear the marking of the manufacturer and approvals for specified use.

iv. Requirements for a personal fall arrest system include but are not limited to the following:

1) Body Harness - Only full-body harnesses shall be used. The use of a body belt is prohibited.

2) Connecting Device - Shock-absorbing lanyards and lifelines

A. Lanyards and lifelines shall have a minimum breaking strength of 5000 pounds;
B. Lanyards shall not exceed six feet in length. Lanyards used on aerial lift devices should not exceed 4 feet in length to reduce slack;
C. Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body harnesses shall be made from synthetic fibers;
D. Connecting assemblies shall have a minimum tensile strength of 5,000 pounds;
E. Self-retracting lifelines and lanyards shall have a tensile strength of at least 3000 pounds and limit free fall to two feet or less (5,000 pounds for rip-stitch lanyards, and tearing and deforming lanyards);
F. Personal fall arrest systems shall limit the maximum arresting forces to 1800 pounds with a full body harness;
G. The maximum free fall distance is six feet for all systems;
H. The maximum deceleration distance is 3.5 feet;
I. Personal fall arrest systems shall have sufficient strength to withstand twice the potential impact energy of the falling employee;
J. Lifelines shall be protected against cutting and abrasions;
K. Horizontal lifelines shall be designed, installed and used under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of two. On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline; and
L. Each employee shall be attached to a separate lifeline when vertical lifelines are used. On suspended scaffolds or similar work platforms with horizontal lifelines, which may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

3) Anchorage - Anchorage point and anchorage connector

A. The used of anchorage for personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms and be capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed (temporarily or permanently), and used as part of a complete fall arrest

system which maintains a factor of two and under the supervision of a qualified person;

B. A qualified person shall determine all anchor points, both temporary and permanent. Permanent anchor points shall be properly marked;
C. Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists except as specified in other regulations.

b) Positioning Device
   i. *A positioning device is not a substitute for a personal arrest system and is limited to use as 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.*
   ii. *Where positioning device is used, it shall comply with the following:*
      1) *Only a full-body harness shall be worn as part of a positioning device system. Bodybelts are not acceptable;*
      2) *Positioning devices shall be rigged such that a free fall cannot be more than 2 feet; and*
      3) *Positioning devices shall be secured to an anchorage point capable of supporting at least twice the potential impact load of an employee's fall or 3,000 lbs, whichever is greater.*

c) Suspension
   i. *Personal suspension systems are used for window washing and painting and are designed to lower and support a worker to perform tasks. The components of a suspension system are:*
      1) *Full-Body Harness;*
      2) *Workline;*
      3) *Anchorage; and*
      4) *Positioning device such as a boatwains chair.*
   ii. *A boatswain's chair system is considered a single-point adjustable suspended scaffold. Since the suspension system components are not designed to arrest a free fall, a back-up fall arrest system should be used in conjunction with the personal suspension system that would activate only if the worker were to experience a free fall.*

d) Retrieval
   i. *Personal retrieval systems are used for confined space entry and on-entry rescue. Refer to the Confined Space Entry Program for information on confined space entry. Personal retrieval systems consist of the following:*
      1) *Full body hardness;*
      2) *Retractable lifeline/rescue unit; and*
      3) *Tripod.*

e) Restraint
   i. *A restraint line is a device that is attached between the employee and an anchorage point to prevent the employee from walking or falling off an elevated surface. It does not support an employee at an elevated surface, but rather, prevents the employee from leaving the elevated surface or work position.*
   ii. ***Prompt rescue shall be provided for personnel who have fallen by contacting x4-4444 or 9-1-1 or radioing for help. No work shall be performed where an emergency cannot be immediately observed and prompt rescue assistance summoned.***
   iii. *Any other personal protective equipment deemed necessary for the task under the Personal Protective Equipment Standard must be worn. This includes but is not limited to hard hats, gloves, safety glasses, and steel toed boots. Hard hats shall be worn within an area beneath elevated work where objects could fall from a height and strike a worker. Refer to the Personal Protective Equipment Program for more information.*

D. Equipment Inspections & Maintenance

1. Impact Loading
   a) Any fall arrest system or component that has been used to arrest a fall (impact loading) shall be immediately removed from service until is inspected and determined by a competent person to be undamaged.
2. Inspection
   a) Personnel prior to each use shall conduct visual equipment inspections. If, upon inspection, a piece of equipment shows any signs of wear it must immediately be removed from service and the supervisor notified.
3. Maintenance
   a) When needed, fall protection devices should be washed in warm water using a mild detergent, rinsed thoroughly in clean warm water and allowed to dry at room temperature.
   b) Stow equipment in clean area away from strong sunlight and extreme temperatures that could degrade materials.
   c) Check the manufacturer's recommendations for cleaning, maintenance, and storage information.

E. Roofing

1. The hazards associated with work on roofs include falling through openings and falling off edges. The protection of openings is discussed in the engineering control section of this program.
2. Effective roof work fall protection techniques are intended to protect workers while providing the mobility and comfort necessary to perform work tasks. Several techniques are available and are described below.

a) Low-slope or Flat Roofs

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

b) Steep Roofs
   i. *Each employee on a steep roof with unprotected sides and edges 6 feet (1.8 m) or more above lower levels shall be protected from falling by guardrail systems with toe boards, safety net systems, or personal fall arrest systems.*

c) Personal Fall Arrest System
   i. *The system of choice for fall protection on roofs is the personal fall arrest system;*
      1) *Requirements for personal fall arrest systems are found in the Fall Protection Personal Protection Equipment section of this program; and*
      2) *A qualified person must design personal fall arrest systems for roof work.*

d) Designated Areas
   i. *As an alternative to installing guardrails, a designated area may be established.*
   ii. *The following condition and requirements must be met in order to use designated areas in lieu of other fall protection measures:*
      1) *The work must be of a temporary nature, such as maintenance on roof top equipment;*
      2) *Designated areas shall be established only on surfaces that have a slope from horizontal of 10 degrees or less; and*
      3) *The designated area shall consist of an area surrounded by a rope, wire, or chain and supporting stanchions.*
      4) *After being erected with the line attached, stanchions shall be capable or resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion;*
      5) *The line shall have a minimum breaking or tensile strength or 500 pounds;*
      6) *The line shall be attached at 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 adjacent sections before the stanchion tips over;*
      7) *The line shall be installed in such a manner that its lowest point is no less that 34 inches nor more than 39 inches from the work surface;*

8) *The line forming the designated area shall be clearly visible from any unobstructed location within the designated area up to 25 feet away;*
9) *The stanchions shall be erected as close to the work area as is permitted by the task;*
10) *The perimeter of the designated area shall be erected no less than 6 feet from the unprotected side or edge; and*
11) *Access to the designated area shall be by a clear path formed by two lines attached to stanchions.*

F. Scaffolding

1. Use of Scaffolds

a) Selection

i. *The proper scaffold selected for the task by the competent person is based upon the type of work to be conducted and the working load to be supported.*
ii. *Light duty scaffolds are intended for workers and tools only. The design load should be that it will support a working load of 25 pounds per square foot.*
iii. *Medium duty scaffolds are intended for workers, tools, and construction materials. The design load should be that it will support a working load of 50 pounds per square foot.*
iv. *Heavy-duty scaffolds are intended for workers, tools, stored materials, and construction materials. The design load of the scaffold should be that it would support a working load of 75 pounds per square foot.*
v. *All scaffolds must be capable of supporting at least four times the design load.*

b) General Requirements

i. *Fall protection is required for all scaffolds used 6 feet above a lower level.*
ii. *All scaffolds, where work is conducted in excess of 6 feet in height, shall have 4-inch toe boards.*
iii. *A scaffold shall not be moved while personnel are on it.*
iv. *Follow all manufacturer's guidelines and special warnings if the scaffold is commercially produced.*
v. *The maximum work level height shall not exceed 4 times the least base dimension of the scaffold. Example: a four foot by six-foot scaffold cannot exceed sixteen feet in height at the work platform level.*
vi. *The minimum working platform width is two feet.*
vii. *The supporting structure for the scaffold must be rigidly braced, using adequate cross bracing or diagonal bracing with rigid platforms at each work level.*
viii. *Working platforms should have a nonslip surface.*
ix. *Scaffolds should be used only on an even surface.*
x. *The platform surface should be kept clear of extraneous tools and materials.*

xi. *The work level platform shall be wood, aluminum, plywood planking, steel or expanded metal for the full width of the scaffold, except for necessary protected openings.*
xii. *Work platforms shall be secured in position.*

xiii. *All work platform planking shall be in compliance with OSHA 1926.453(a)(3)(v). Wood shall be compliance grade lumber. Planks shall be overlapped a minimum of 12 inches and extended over supports 6-12 inches.*
xiv. *Follow all manufacturer guidelines in the assembly of the scaffold. Do not use or assemble the scaffold, if unsure of the correct assembly procedure.*
xv. *Hard hats must be worn within an area beneath elevated work where objects could fall from a height and strike a worker.*
xvi. *Mobile scaffolds shall not be moved unless the surface of travel is within 3 degrees of level and free of pits, holes and obstructions and the employee on the scaffold has advanced knowledge of the movement.*

2. Inspection of Scaffolds
   a) Prior to the use of any scaffold, an inspection must be conducted, and then daily during usage of the scaffold.
      i. *Carefully examine the scaffold for broken or missing cross bracing, broken supporting structure, working platform, and other damaged parts. In addition, all walking and working surfaces must be free of grease, oil, paint, or other slippery substances.*
      ii. *The scaffold should be equipped with positive wheel lock casters that are secured in place.*
      iii. *The joint between working platform and supporting structure must be tight, and all hardware and fittings should be attached firmly. Movable parts should operate freely without binding or undue play.*
      iv. *All wood parts must be free of sharp edges and splinters. Visually inspect the scaffold to be free of shakes, warpage, decay, or other irregularities. Metal parts must be free of sharp edges, burrs, and corrosion. Inspect for dents or bends in supporting structure, cross braces and walking/working surfaces.*
      v. *Check all working platform to support structure connections, hardware connections and rivets. If a scaffold tips over, inspect the scaffold for damage before continuing work.*
      vi. *Damaged scaffolds must be withdrawn from service and either repaired or destroyed. When a defect or unsafe condition is found, personnel shall tag or mark the scaffold so that it will not be used until corrective action is taken. Defective or unsafe situations shall be reported to the supervisor. Field repairs and the fabrication of improvised scaffolds is prohibited.*

3. Maintenance of Scaffolds
   a) A qualified person must do all scaffold repairs.

4. Storage of Scaffolds
    a) Scaffolds should be disassembled prior to storage.
    b) Scaffolds should be stored where they can be inspected easily and can be reached without causing accidents.
    c) The storage area should be well ventilated and away from sources of heat and moisture.

G. Aerial Lifts

1. Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to job sites above ground:
    a) Articulating boom platforms are designed to reach up and over obstacles.
    b) Extensible or telescoping boom platforms may extend over one hundred feet.
    c) Vehicle mounted bucket lifts are used to repair utility lines.
    d) Scissor lifts extend into the air via a series of crisscross supports.
    e) Personal man lifts are lightweight and designed for one person to use indoors.

2. Specific Requirements
    a) Aerial ladders shall be secured in the lower traveling position before the truck is moved for highway travel;
    b) Lift controls shall be tested each day prior to use;
    c) Only personnel authorized by a fall protection competent person shall operate an aerial lift;
    d) Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;
    e) A full-body harness shall be worn and a lanyard attached to the boom or basket when working from an aerial lift (exception: a harness is not required in a scissor lift or personal man lift with surrounding guardrail system and closing gate or latch chain);
    f) Belting off to an adjacent pole structure, or equipment while working from an aerial lift shall not be permitted;
    g) Boom and basket load limits specified by the manufacturer shall not be exceeded;
    h) The brakes shall be set and when outriggers are used, they shall be positioned on pads or other solid surface. Wheel chocks shall be installed when using an aerial lift on an incline;
    i) An aerial lift truck shall not be moved when the boom is elevated in a working position, except for equipment which is specifically designed for this type of operation;
    j) Articulating and extensible boom platforms shall have both platform and ground controls;
    k) Before moving an aerial lift for travel, the boom shall be inspected to ensure that it is properly cradled and outriggers are in the stowed position; and
    l) All requirements of the Aerial Platform Program shall be followed.

3. Minimum Safe Approach Distances (M.S.A.D)

a) The minimum safe approach distances to energized power lines and parts must be maintained as listed in Table 1.

Table 1. Minimum Safe Approach Distances (MSAD). The table lists minimum safe approach distances to energized (exposed or insulated) power lines and parts for vehicles and personnel.

Voltage Range	Minimum Safe Approach Distance	
Phase to Phase	***Feet***	***Meters***
0 to 300V	**Avoid Contact**	
Over 300V to 50KV	**10**	**3.05**
Over 50KV to 200KV	**15**	**4.60**
Over 200KV to 350KV	**20**	**6.10**
Over 350KV to 500KV	**25**	**7.62**
Over 500KV to 750KV	**35**	**10.67**
Over 750KV to 1000KV	**45**	**13.72**

H. Portable Ladders

1. Use of Portable Ladders
   a) The proper ladder must be selected for the task. General rules include the following:
      i. The ladder chosen must be long enough to provide access to the work area without necessitating standing on the top two steps of a stepladder or the top three rungs of a straight ladder;
      ii. The ladder selected must be sufficient for the weight of the employee plus the weight of any tools and materials:
         1) TYPE 1A - Extra-heavy industrial ladder will support 300 lbs.
         2) TYPE 1 - Heavy-duty industrial ladder will support 250 lbs.
         3) TYPE 2 - Medium-duty commercial ladder will support 225 lbs.
         4) TYPE 3 - Light-duty household ladder will support 200 lbs.;
      iii. When a straight ladder is used to gain access to a roof, the side rails should extend at least three feet above the support point at the eave, gutter, or roof line;
      iv. Never splice together short ladders to form a longer ladder;
      v. Never place ladders on boxes, barrels, or other unstable bases for additional height;
      vi. Ladders must be placed on level surfaces. Although ladder feet or shoes provide an important measure of safety, they cannot compensate for uneven ground unless they are designed with adjustable feet;
      vii. Be alert to slippery surfaces. Nonslip bases are not a substitute for safety in placing, lashing, or holding a ladder on oily, metal, concrete, or other slippery surfaces;
      viii. Do not use ladders for unintended purposes;

ix. *Do not use a metal ladder when working on or near electrical equipment;*
x. *The distance from the bottom of a straight ladder to its support wall shall be one-quarter the working length of the ladder;*
xi. *Where possible, straight ladders should be secured with a rope or wire at the top and blocked at the bottom;*
xii. *The top two steps and platform of a stepladder shall not be used, and the top three rungs of a straight ladder shall not be used;*
xiii. *Do not over-reach, jump or slide a ladder while on it. Ladders shall not be moved, shifted, or extended while occupied;*
xiv. *Always face the ladder and use both hands while ascending or descending.*
xv. *Tools or materials should be raised by means of a rope after the climber has reached the working position. Carrying heavy loads up or down ladders is prohibited;*
xvi. *Barricades and warning signs should be posted when ladders are placed near doors or other locations where they could be struck;*
xvii. *Two workers shall handle and set up all extension ladders;*
xviii. *Ladders should not be used by more than one person at a time unless they are designed for such use;*
xix. *The bracing on the back side rails of stepladders is designed only for increasing stability, not for climbing;*
xx. *Ladders shall not be used horizontally as platforms, runways, or scaffolds. Extension ladders must have proper overlap.*
    1) *Three-foot overlap for 32 foot ladder;*
    2) *Four-foot overlap for 32 to 36 foot ladder;*
    3) *Five-foot overlap for 36 to 48 foot ladder; and*
    4) *Six-foot overlap for 48 foot ladder;*
xxi. *Make certain that both automatic locks of the extension ladder are in proper position before ascending the ladder;*
xxii. *Straight ladders and stepladders that exceed 10 feet may be held by another person for steadying;*
xxiii. *The area around the top and bottom of the ladder shall be kept clear; and*
xxiv. *Hard hats must be worn within an area beneath elevated work where objects could fall from a height and strike a worker.*

2. <u>Inspection of Ladders</u>
    a) Prior to use of any ladder, an inspection must be performed:
        i. *Carefully examine the ladder for broken or missing rungs or cleats, broken side rails, and other damaged parts;*
        ii. *All cleats, rungs, and side rails must be free of grease, oil, paint, or other slippery substances;*
        iii. *The ladder should be equipped with feet that are secured in place;*
        iv. *The joint between steps and side rails must be tight, and all hardware and fittings should be attached firmly. Movable parts should operate freely without binding or undue play;*

v. *All wood parts must be free of sharp edges and splinters;*
vi. *Visually inspect the ladder to be free of shakes, warpage, decay or other irregularities;*
vii. *Metal ladders must be free of sharp edges, burrs and corrosion;*
viii. *Inspect for dents or bends in side rails, rungs or cleats;*
ix. *Check step to side rail connections, hardware connections and rivets; and*
x. *If a ladder tips over, inspect the ladder for damage before continuing work.*

3. Maintenance of Ladders
   a) Damaged ladders must be withdrawn from service and either repaired or destroyed. When a defect or unsafe condition is found, personnel should tag or mark the ladder so that it will not be used until the corrective action is taken. Defective or unsafe conditions must be reported to the supervisor. Field repairs and the fabrication of improvised ladders is prohibited. Never try to straighten a bent or bowed ladder. Remove it from service immediately. Do not paint wooden ladders with solid color paints. This may mask cracks in the wood and make them hard to see. Clear wood preservative can be used to protect bare wood.

   b) If exposed to greases, oils, or other slippery substances, the ladder must be cleaned of the substance with solvents or steam. If the slippery substance is not completely removed, the ladder must be removed from service.

4. Storage of Ladders
   a) Ladders should be stored where they can be inspected easily and can be reached without causing accidents.

I. Fixed Ladders and Stairs

1. Fixed Ladders
   a) Fixed ladders should be designed to withstand a single concentrated load of at least 200 lbs;
   b) Rungs of metal ladders must have minimal diameter of three-quarters inch. Rungs must be at least 16 inches wide, be spaced 12 inches apart;
   c) Fixed Ladders, when their location so demands, must be painted or treated with a preservative to resist deterioration;
   d) The preferred pitch for a safe descent is 75 to 90 degrees. Ladders with 90-degree pitch must have two and one half feet of clearance on the climbing side. There must be a three foot clearance on ladders with a 75 degree pitch;
   e) There must be at least a seven-inch clearance in back of the ladder to provide adequate toe space;
   f) There must be a clear width of 15 inches on each side of the center line of the ladder, unless the ladder is equipped with a cage or well;
   g) Fixed ladders must have cages if they are longer than 20 feet. Landing platforms must be provided on ladders greater than 20 feet long. A platform is required every 30 feet for caged ladders and every 20 feet for unprotected ladders; and

h) Side rails must extend at least 42 inches above the landing.

2. Fixed Industrial Stairs
   a) The following applies to all stairs around equipment, machinery, tanks etc. They do not apply to stairs used for fire exits:
      i. *Riser height and tread width of fixed industrial stairs should be uniform throughout any flight of stairs. All treads must be reasonably slip resistant;*
      ii. *The minimum permissible width of a stairway is 22 inches;*
      iii. *The angle to the horizontal made by the stairs must be between 30 and 50 degrees;*
      iv. *All stairs should be adequately lighted; and*
      v. *If the tread is less than 9 inches wide the risers should be open.*

3. Flights of Stairs Having Four or More Risers
   a) The ***State of Maryland Fire Prevention Code*** also carries requirements for stairs.
      i. *A stair railing is required on each opened side;*
      ii. *If the stairway is less than 44 inches wide and both sides are enclosed, at least one handrail is required, preferably on the right side descending;*
      iii. *If the stairway is greater than 44 inches wide a handrail is required on each enclosed side;*
      iv. *If the stairway is greater than 88 inches wide an intermediate stair railing located midway is required;*
      v. *The vertical height of a stair railing must be 30 to 34 inches, and it must be of construction similar to the standard guard railing; and*
      vi. *Spiral stairways are not permitted except for special limited usage and secondary access situations where it is not practical to provide a conventional stairway.*

4. Embedded Stairs
   a) Individual steps used for access or egress, embedded in the walls of risers or the conical top sections of manholes must be safe, well-constructed, and installed in accordance with good engineering practices;
   b) Individual rungs or steps must be uniformly spaced from 12 to 16.5 inches; and
   c) The use of steps in personal access holes should be designed to prevent the foot from sliding off the end.

5. Alternating Tread Stairs
   a) Alternating tread type stairs are permitted if they are installed, used, and maintained according to the manufacturer's recommendations:
      i. *The stair must be installed at an angle of 70 degrees or less; and*
      ii. *The stairs must be equipped with a handrail at each side to assist the workers in climbing or descending.*

J. Walking-Working Surfaces

1. In general, all areas of the workplace should be kept clean, orderly sanitary, and as dry as possible. These guidelines apply to work areas, passageways, storerooms, and service rooms:
   a) All spills should be cleaned promptly. Floors in work areas must be kept free of scraps, chips, oil spills, and other debris;
   b) Boxes, chairs, buckets, desks or any other device not specifically intended for use in extending reach shall not be used;
   c) Areas, which are constantly wet, should have non-slip surfaces or mats where workers may walk or work. Where wet processes are used good drainage must be maintained;
   d) Every floor, working place, and passageway must be maintained free from protruding nails, splinters, holes, and loose boards;
   e) Where mechanical handling equipment is used, such as lift trucks, sufficient safe clearance must be provided for foot and vehicular traffic;
   f) No obstructions that could create a hazard are permitted in aisles. All permanent aisles must be easily recognizable; and
   g) As a general condition, a standard toe board and guard rail are required wherever people walk near or beneath the open sides of a platform or similar structures; where things could fall from a structure; or where things could fall from a structure into machinery below.

K. Training

1. **University Employees who work on Ladders.** All University Employees who use ladders with a working height of six feet or more shall be knowledgeable of the following:
   a) How to inspect ladders for visible defects; and
   b) How to use ladders properly.
2. **University Employees who use Fall Protection Personal Protective Equipment to control fall hazards in their work area.** All University Employees who use fall protection shall be knowledgeable of the following:
   a) The application limits of the equipment;
   b) The proper hook-up, anchoring and tie-off techniques including determination of elongation and deceleration distance;
   c) Methods of use; and
   d) Inspection and storage of equipment.
3. **University Employees who use Aerial Lifts.** Employees should be knowledgeable of the following:
   a) The manufacturer's operating instructions;
   b) Pre-start inspection of the lift;
   c) Inspection of the work area for dangerous conditions such as uneven surfaces, overhead obstructions such as power lines, and severe weather;
   d) Load capacities of the equipment;
   e) How to safely move the equipment;

f) How to prevent falls and use appropriate fall protection personal protective equipment; and
g) Minimum safe approach distances to energized power lines.

4. **University Employees who work on Scaffolds.** Specific training is required in the following:
   a) The nature of any electrical hazards, fall hazards and falling object hazards in the work area;
   b) The correct procedures for dealing with electrical hazards and for erecting, maintaining, and dissembling the fall protection systems and falling object protection systems being used;
   c) The proper use of the scaffold, and the proper handling of materials on the scaffold; and
   d) The maximum intended load and the load carrying capacities of the scaffolds.

5. **University Employees Assigned as Fall Protection Competent Persons.** Supervisors who act as the competent person for a work area or job site shall be trained and certified through a qualified fall protection training program (8 hours) to be qualified and knowledgeable of the following:
   a) The nature of falls in the work area;
   b) The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems used;
   c) The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;
   d) The role of each employee in the safety monitoring system when this system is used;
   e) The limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs;
   f) The correct procedures for the handling and storage of equipment and material, and the erection of overhead protection;
   g) The role of employees in fall protection plans; and
   h) The appropriate OSHA standards.

6. **University Employees Assigned as Scaffold Competent Persons.** Supervisors who act as the competent person in the use of scaffolding shall be additionally trained and certified through a scaffold competent person training program (4 hours) to be qualified and knowledgeable of the following:
   a) The proper selection of scaffold for the task based upon the type of work to be conducted and the working load to be supported;
   b) The correct procedures for the erection, dismantling, moving, and altering of scaffolds; and
   c) The OSHA standards.

7. **University Employees Assigned as Qualified Climbers.** Employees who routinely climb fixed ladders, step bolts or similar climbing devices on towers and poles where ladder safety devices are not provided shall meet the following requirements:
   a) Shall be physically capable;
   b) Shall have successfully completed a training or apprenticeship program that covers hands-on training for the safe climbing of ladders or step bolts; and
   c) Shall be protected by a fall protection system when reaching their work position.

8. **Retraining.** Employees will require retraining under any of the following conditions:
   a) Changes in the workplace render previous training obsolete;
   b) Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or
   c) Inadequacies in an employee's knowledge of use of fall protection systems or equipment or observed behavior indicate that the employee has not retained the required training.

9. **Training Records.** EHS shall maintain a written training certification record containing the name of the employee trained, the name of the person who conducted the training, and the date of the training for Competent Persons in Fall Protection and Scaffolds, and Qualified Climber. The written certification record shall contain the name of the employee trained, the date of training, and the signature of the person who conducted the training. Departments can call EHS at (410) 704-2949 for more information on training requirements.

Resources

A. OSHA

1. OSHA Fall Protection
2. OSHA Fall Protection Brochure
3. OSHA Fall Protection Fact Sheet

B. NIOSH

1. About Falls in the Workplace

C. Environmental Health & Safety

To request documents, reviews for procedures or equipment, or general inquiries, contact EHS by emailing safety@towson.edu or by calling the Environmental Health & Safety (EHS) office at 410-704-2949.

Appendix A: Emergency Contact Telephone Numbers

FIRE - RESCUE - EMERGENCY MEDICAL SERVICE : 911

At the emergency blue-light and yellow phones located around campus, press the emergency button to be connected to the University Police who can contact 911 for you, or dial 911 on the keypad to be connected directly to the 911 Center. Give the dispatcher all of the requested information.

Towson University Police Department [TUPD]: (410) 704-4444
For Other Emergencies

Department of Environmental Health and Safety: (410) 704-2949

Concentra Urgent Care [Timonium, MD]: (410) 252-4015
For Occupational Health, Medical Consultation and Evaluation

Facilities Management - Work Control Center: (410) 704-2481

Appendix B: Fall Protection Standards & Regulations

29 CFR 1910 Subpart D: Walking-Working Surfaces
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1910/subpart-D

29 CFR 1910 Subpart F: Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1910/subpart-F

29 CFR 1910.132: General Requirements
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132

29 CFR 1910.268: Telecommunications
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1910/subpart-R/section-1910.268

29 CFR 1926 Subpart L: Scaffolds
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1926/subpart-L

29 CFR 1926 Subpart M: Fall Protection
https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.500
https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.501
https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.502
https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.503

29 CFR 1926 Subpart M, Appendix A: Determining Roof Widths
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1926/subpart-M/appendix-Appendix%20A%20to%20Subpart%20M%20of%20Part%201926

29 CFR 1926 Subpart M, Appendix B: Guardrail Systems
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1926/subpart-M/appendix-Appendix%20B%20to%20Subpart%20M%20of%20Part%201926

29 CFR 1926 Subpart M, Appendix C: Personal Fall Arrest Systems
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1926/subpart-M/appendix-Appendix%20C%20to%20Subpart%20M%20of%20Part%201926

29 CFR 1926 Subpart M, Appendix D: Positioning Device Systems
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1926/subpart-M/appendix-Appendix%20D%20to%20Subpart%20M%20of%20Part%201926

29 CFR 1926 Subpart M, Appendix E: Sample Fall Protection Plan
https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1926/subpart-M/appendix-Appendix%20E%20to%20Subpart%20M%20of%20Part%201926

ANSI Z359.2: Minimum Requirements for a Comprehensive Managed Fall Protection Program

Appendix C: Duties Requiring a Competent Person

Subject	Standard	Activity
Scaffolds	1926.450	Competent person means a person who, because of training and experience, is capable of identifying hazardous or dangerous conditions, of training employees to identify such conditions, and who has authorization to take prompt corrective measures to eliminate them.
Walking-Working Surfaces	1910.28	Erect tube and coupler scaffolds
Walking-Working Surfaces	1910.28	Erect tubular welded frame scaffolds
Walking-Working Surfaces	1910.28	Mason's adjustable multiple-point suspension scaffolds shall be installed or relocated in accordance with instruction of a registered professional engineer and supervised by a competent person
Walking-Working Surfaces	1910.28	Stone setters' adjustable multiple point suspension scaffolds shall be installed or relocated in accordance with instruction of a registered professional engineer and supervised by a competent person
Fall Protection	1926.502	Certify safety net systems
Fall Protection	1926.502	Inspect personal fall arrest systems and components subjected to impact loading immediately after use to determine if they are undamaged and suitable for use.
Fall Protection	1926.502	Perform the duties of the Safety Monitor when a Safety Monitor System is used
Fall Protection	1926.502	Supervise the implementation of a fall protection plan prepared by a qualified person when conventional fall protection equipment is infeasible.
Fall Protection	1926.503	Provide training to employees who are exposed to fall hazards
Scaffolds	1926.451	Supervise the erection, movement, dismantling, or altering of all scaffolds. The competent person shall determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds.
Scaffolds	1926.451	Inspect scaffolds and scaffold components before each work shift and after any occurrence which could affect a scaffold's structural integrity
Scaffolds	1926.451	Supervise the installation and relocation of mason's adjustable multiple- point scaffold.
Telecommunications	1910.268	Inspect personal protective devices, tools, and equipment
Telecommunications	1910.268	Inspect and check ladders for adequate strength, good condition and that they are secured properly

Appendix D: Duties Requiring a Qualified Person

Subject	Standard	Activity
Scaffolds	1926.450	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.
Walking-Working Surfaces	1910.30	Only the manufacturer of a scaffold or his qualified designated agent shall be permitted to erect or supervise the erection of scaffolds exceeding 50 feet in height.
Scaffolds	1926.451	Scaffolds shall be designed by a qualified person and shall be constructed and loaded in accordance with that design.
Scaffolds	1926.454	Each employee who performs work while on a scaffold shall be trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control hazards.
Fall Protection	1926.503	A fall protection plan (used when conventional fall protection equipment is infeasible) shall be prepared by a qualified person and developed specifically for the site.
Fall Protection	1926.502	Anchorages used for personal fall arrest systems shall support at least 5000 pounds per employee or shall be designed, installed, and used under the supervision of a qualified person.