

SOUTHERN METHODIST UNIVERSITY  
RISK MANAGEMENT AND ENVIRONMENTAL HEALTH AND SAFETY  
PROCEDURE

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**FALL PROTECTION**

**I. Purpose**

This is a Risk Management and Environmental Health&Safety (RMEHS) procedure to establish a means to analyze elevated work tasks and determine appropriate personal protection against falls in accordance with Occupational Safety and Health Administration (OSHA) regulations:

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**II Scope**

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.

The SMU Fall Protection procedure shall apply to all employees who are exposed to unprotected sides or edges of surfaces that present a falling hazard of four 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 entertainment stages. Employees may use portable ladders without fall protection equipment up to sixty 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, the Fall Protection 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.

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**IV Duties and Responsibilities**

**A. Department Managers**

1. Designate and empower individuals who will act as competent and/or qualified persons who will be responsible for the preparation and implementation of the Fall Protection Program.

2. Ensure that employees who will act as competent and/or qualified persons are adequately trained and/or qualified;
3. Provide administrative and financial support for this program within individual departments; and
4. Ensure the Fall Protection Program is implemented and maintained within the department.

**B. Designated Competent Persons**

1. Implement all aspects of the program for work areas under their control;
2. Receive training for "competent person" as defined by OSHA for fall protection;
3. Act as the "competent person" for job sites under their control that contain fall hazards;
4. Evaluate fall hazards in work areas under their control; and
5. 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.

**C. Designated Qualified Persons**

1. Maintain professional certification or other requirements in their subject field;
2. Provide design, analysis, evaluation and specification in their subject field;
3. Maintain records of their designs, analyses, evaluations, and specifications according to the requirements of the *Fall Protection Program*.

**D. Supervisors**

1. 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; and
2. Coordinate the correction of fall hazards brought to their attention by employees; and
3. Complete a "First Report of Injury" report and produce any additional documentation needed to investigate work related injuries and illnesses.

**E. Employees**

1. Comply with the Fall Protection Program and any further safety recommendation provided by the supervisor
2. Conduct assigned tasks in a safe manner and wear all assigned personal protection equipment; and

3. Report any unsafe or unhealthy work conditions and job related injuries or illnesses to the supervisor immediately.

#### F. **Department of RMEH&S**

1. Investigate and document all reported accidents that are related to fall hazards, recommending corrective actions; and
  2. Review and revise the Fall Protection Program, as needed for compliance with applicable regulations.
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#### V. **Fall Protection Personal Protective Equipment**

Personal protective equipment shall be used to minimize fall hazards where engineering controls do not eliminate the hazard or in conjunction with engineering controls.

Fall protection equipment is divided into five functional categories:

1. Fall Arrest, 2. Positioning 3. Suspension 4. Retrieval 5. Restraint.

##### I. **Fall Arrest**

The use of a personal fall arrest system is the required personal protective equipment for fall hazards at SMU. 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. All fall protection equipment shall meet or exceed appropriate American National Standards Institute (ANSI) standards. SMU 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. Requirements for a personal fall arrest system include but are not limited to the following:

- A. **Body Harness** - Only full-body harnesses shall be used. The use of a body belt is prohibited.
- B. **Connecting Device** - Shock-absorbing lanyards and lifelines
  1. Lanyards and lifelines shall have a minimum breaking strength of 5000 pounds;
  2. Lanyards shall not exceed six feet in length. Lanyards used on aerial lift devices should not exceed 4 feet in length to reduce slack;
  3. Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body harnesses shall be made from synthetic fibers;
  4. Connecting assemblies shall have a minimum tensile strength of 5,000 pounds;
  5. 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 ripstich lanyards, and tearing and deforming lanyards);

6. Personal fall arrest systems shall limit the maximum arresting forces to 1800 pounds with a full body harness;
7. The maximum free fall distance is six feet for all systems;
8. The maximum deceleration distance is 3.5 feet;
9. Personal fall arrest systems shall have sufficient strength to withstand twice the potential impact energy of the falling employee;
10. Lifelines shall be protected against cutting and abrasions;
11. 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
12. 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.

**C. Anchorage** - Anchorage point and anchorage connector

1. Anchorages used 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 5000 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;
2. A qualified person shall determine all anchor points, both temporary and permanent. Permanent anchor points shall be properly marked;
3. Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists except as specified in other regulations; and

**II. Positioning**

A positioning device is not a substitute for a personal arrest system and is limited to use as a 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.

Where positioning device is used, it shall comply with the following:

- A. Only a full-body harness shall be worn as part of a positioning device system. Body belts are not acceptable;
- B. Positioning devices shall be rigged such that a free fall cannot be more than 2 feet; and

- C. 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.

### III. Suspension

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:

- A. Full-Body Harness;
- B. Work line;
- C. Anchorage; and
- D. Positioning device such as a boatwain's chair.

A boatwain'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.

### IV. Restraint

A restraint line is a device, which 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.

**Prompt rescue shall be provided for personnel who have fallen by contacting 9-1-1 for help. No work shall be performed where an emergency cannot be immediately observed and prompt rescue assistance summoned.**

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#### **Glossary of Terms:**

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

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

**Body belt:** A strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration (grabbing) device.

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

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

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

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

**Deceleration distance:** The additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate.

**Designated area:** a space which has a perimeter barrier erected to warn employees when they approach an unprotected side or edge, and serves also to designate an area where work may be performed without additional fall protection.

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

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

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

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

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

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

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

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

**Low-slope roof:** means a roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

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

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

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

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

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

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

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

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

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

**Rope grab (grabbing device):** A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.

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

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

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

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

**Snap hook:** A connector consisting of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released automatically closes to retain the object.

**Toe board:** A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling.

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

**Unprotected sides and edges:** means any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 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:** means any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, form work and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

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

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