

Duquesne University

FALL PROTECTION PROGRAM

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Prepared by: Environmental Health and Safety Department

Purpose

The National Safety Council states that falls are one of the leading causes of death in the workplace. In addition, each year 300,000 workers are disabled due to work-related falls. These, and other hazards, can be reduced through the implementation of effective controls as outlined in this Program.

Scope

This program applies to all employees and contracted/sub-contracted personnel who perform or are authorized to perform any work in excess of six feet in height at the University. This program does not apply when individuals are performing an inspection, investigation or assessment of conditions prior to the commencement of work.

The following hazards are not covered by this program as well:

- Stairways, portable ladders, and fixed ladders less than 20 feet in height.
- Construction of electric transmission and distribution lines and equipment.
- Steel erection.
- Cranes and derricks as described in 29 CFR 1926 Subpart N.
- Scaffolding.

Responsibilities:

Administration - Duquesne University has the overall responsibility for providing a place of employment free of recognized hazards and unsafe conditions, as well as complying with federal, state, and local standards and regulations.

The Deans, Directors or Department Heads - Have the overall responsibility of ensuring that all pertinent personnel are provided with the required equipment and resources to conduct safe work operations. They must also ensure that proper safety equipment and training are made available to each worker involved in elevated work operations.

Environmental, Health and Safety - Has the responsibility of ensuring local, state, federal and insurance company compliance and the responsibility for guidance and technical expertise needed to oversee the program. Responsibilities also include providing training for affected personnel.

Department Supervisor (whose employee(s) engage in elevated work) - Ensure that all aspects of this Program are implemented and hazards are controlled so not to present a hazardous exposure to University employees, students and visitors. It is also the responsibility of Department Supervisors to insure the employee(s) designated to perform elevated work utilizes the necessary procedures and

equipment to minimize that employee's own exposure to the hazards generated. Responsibility also includes ensuring that all equipment is maintained in a safe operational manner.

University Employee(s) (engaged in elevated work) -Are responsible for following this Program and implementing controls that will eliminate or greatly reduce the hazards generated by their work for the protection of themselves, University employees, students and visitors. Personnel using tools or equipment for elevated work are also responsible for ensuring that equipment is in proper working order.

Project Supervisor(s) for Outside Contractor(s) - Are responsible for ensuring outside contractors and sub-contractors involved in elevated work have and follow a Fall Protection Program or comply with the provisions of this Program.

FALL PROTECTION SELECTION

Prior to the selection of any fall protection method the strength of the walking/working surface shall be determined by a competent person or supervisor. The walking/working surface shall be capable of supporting the expected loads, including a safety factor. OSHA generally encourages the employer to select engineering controls first when attempting to control a hazard. Examples of engineering controls include guardrails, barriers, and covers.

SITE SPECIFIC FALL PROTECTION PLAN

Where fall protection can not be provided for leading edge work due to infeasibility or because it creates a greater hazard, a Site Specific Fall Protection Program shall be provided. This option is available only in situations involving leading edge work, precast concrete erection, and residential construction where it is infeasible to use other fall protection measures. Residential construction generally implies wood frame construction, including brick veneer, up to four stories in height. A Fall Protection Program shall be developed by a competent person for each site and must be kept up to date. Changes to this program must be approved by a competent person and a copy of the plan must be kept on site.

SAFETY NETS

See section 1926.502 (c) in Appendix A for details regarding proper net specifications, installation and testing. Note the requirement for a drop test after installation. It is anticipated that the use of safety nets for fall protection will be limited on campus.

POSITIONING DEVICES

Positioning devices, such as belts, are not recognized as fall protection equipment and should not be used for such.

WARNING LINE SYSTEM

Warning lines may be used on low-slope roofs in combination with other controls such as safety monitors, guardrails and personal fall arresting equipment. Warning lines shall be made of rope, wire or chains and flagged every six feet with highly visible material. The line shall be supported by

stanchions and the line shall be between 34 and 39 inches above the walking/working surface. The stanchions shall be capable of withstanding a horizontal force of 18 lbs. without tipping over. The warning line shall have a minimum tensile strength of 500 lbs.

CONTROLLED ACCESS ZONES

A controlled access zone may be used as an option for overhand bricklaying and related activities or as part of a Site Specific Fall Protection Program. Only authorized employees may enter this zone. Controlled access zones shall be provided between six and twenty-five feet from an unprotected or leading edge, except for precast concrete work. The controlled access zones will be marked by a line that consists of rope, wire, tape or equivalent materials, supported by stanchions and flagged every six feet. The line must have a minimum breaking strength of 200 lbs. and be located between 39 and 45 inches above the walking/working surface. The line must be approximately parallel to the leading edge or exposed edge, and should be fastened to a secure surface such as a guardrail.

SAFETY MONITORING

For this section the term "at-risk" individual shall be an individual potentially exposed to a fall hazards.

A safety monitor is a competent individual (able to recognize fall hazards), located on the same working/walking surface as other at-risk individuals, who shall warn the individuals if they are acting in an unsafe manner that could result in a fall or are unaware of a fall hazard. The monitor shall be able to see the employees, not have other immediate work responsibilities, and orally communicate with the at-risk individuals. Safety monitors may be used only for low-slope roof work in combination with other controls or in Site Specific Fall Protection Programs.

COVERS

Covers shall be capable of withstanding at least twice the expected maximum load. The load could be any of the following based on the project: axle load, weight of equipment, weight of a person. Consideration should be given to concentrated and impact loads. The covers shall be secured to prevent movement and either color coded or labeled "HOLE" or "COVER."

PERSONAL FALL ARRESTING EQUIPMENT

Personal fall arresting equipment shall be purchased from a single manufacturer. Be advised that the equipment is tested as a system, and substitution of equipment from another manufacturer could result in a component or system failure. It is important to realize that components from a single manufacturer may not be compatible for all types of fall protection equipment. Personal fall arresting equipment shall be used only for this purpose. Personal fall arresting equipment and associated system components are designed for a combined weight (employee plus tools, etc.) of 310 lbs. If the combined weight exceeds 310 lbs., system modifications may be necessary.

Free-fall distances shall be kept to a minimum. In no case shall the free-fall distance exceed six feet. Free falls in excess of this distance can result in system failure and/or injury. In most situations the anchor point should be located near or above shoulder level. In selecting fall protection equipment consideration shall be given to the possibility of injuries associated with "swinging" after the fall, retrieval and the location of where the individual will be after the fall.

Consideration shall be given to conditions that could affect the performance of the equipment selected. The following is a short list of conditions that could adversely affect the equipment being used: temperature extremes, use of corrosive substances (solids, liquids or gases), welding/torch cutting, abrasive blasting, high moisture, grease/oil, and chemicals. Wire rope should never be used where an electrical hazard exists, nor should it be used without a shock-absorbing lanyard.

Safety belts are not acceptable for personal fall arresting equipment, but may be used for positioning. Equipment designed for fall protection shall not be used for positioning.

Shock absorbing lanyards shall be used where possible. Lanyards, lifelines, full-body harnesses shall be protected against abrasion or cutting. Special beam wraps are available for anchor points that would cause a lanyard to abrade or be cut.

Non-locking snap hooks are prohibited. Self-closing, self-locking keepers shall be used.

ANCHOR POINTS

Anchor points must be capable of supporting 5000 lbs. per attached employee. The adequacy of an anchor point must be determined by a competent individual. Where there is doubt about the strength of an anchor point an engineer must be consulted. Permanently installed anchor points should be provided for fall hazards that are routinely encountered. Anchor points used for fall protection and exposed to corrosive conditions (acids, bases, moisture) shall be corrosion-resistant.

TRAINING AND INFORMATION

Each employee exposed to a fall hazard shall be trained to recognize the hazards and take action to prevent a fall. Training shall be provided by a competent individual and shall cover the following topics:

- a. The nature of the fall hazards in the work area,
- b. The correct procedures for erecting, maintaining and disassembling and inspecting the fall protection system to be used,
- c. The use and operation of guardrails, 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 of the use of mechanical equipment during the performance of roofing work on low-sloped roofs,
- f. The correct procedure for the handling and storage of equipment and materials and the erection of overhead protection,
- g. The role of employees in the fall protection plans, and

h. The OSHA Fall Protection standard.

A written record shall be kept for each employee who completes the training.

Retraining (refresher) training shall be provided when any one of the following exists:

1. Changes in the workplace or fall protection equipment that render previous training obsolete,
2. If the individual demonstrates a lack of knowledge regarding the basic components of the Fall Protection Plan, or
3. At intervals deemed acceptable by the supervision and Environmental Health & Safety.

EQUIPMENT INSPECTION

PERSONAL FALL ARRESTING EQUIPMENT (BODY HARNESS, LANYARD, CARBINGER) THAT HAS BEEN SUBJECTED TO A SIGNIFICANT FALL SHALL BE DISCARDED.

Equipment shall be maintained in accordance with the manufacturers' guidelines and inspected prior to each use.

The following should be checked:

D-rings - cracks, distortion, corrosion, pitting or excessive wear.

Buckles - distortion, sharp edges or cracks.

Body harnesses - burns, damaged due to chemicals, cuts, abrasion to the material. Broken stitches. One of the best ways to check the material is to hold sections of the material between the hands and bend the material into a U-shape to look for damage.

Keepers and snap locks - make sure they operate correctly. Do not rely on the sound of the latches, they must be connected.

Retractable lines - they should operate smoothly. The rope or cable should not be damaged. A quick pull of the line should cause the line to lock. The retractable lifeline assemblies shall be returned to the factory for recertification as specified by the manufacturer. In most cases, the manufacturer specifies an annual inspection. Check the date on the unit for the last certification.

Lanyard (rope, webbed or cable) - Look for cuts, frayed parts, damaged fibers, and the condition of connections. There should be no knots in the line. A knot can result in a substantial reduction in strength.

Shock Absorber - Check for ripped stitches, signs of impact loading and connections.

POSTING OF FALL HAZARDS

Fixed (non-transient) fall hazards that are routinely encountered should be posted with signs stating "Fall Protection Required." The sign(s) shall be posted at a location where the fall hazard is first encountered. If there are multiple entry points where the fall hazard is encountered, each location should be posted.

HEAD PROTECTION

The Fall Protection Program is based on individuals working at least six feet above a lower level. It is presumed that the potential for head injuries exists for any person(s) at the lower level. Hardhats should be donned by all individuals, including visitors, on a job where a fall hazard exists.