



UNIVERSITY *of* NEW HAMPSHIRE

Fall Protection Program

Revised:
April 18, 2005

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FALL PROTECTION PROGRAM

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I. INTRODUCTION

Individuals at the University of New Hampshire (UNH) are entitled to a working and learning environment free of unsafe and unhealthy conditions. Fall protection is best attained through engineering controls - modifying the work environment in order to reduce the risk of falling. Where possible, floor openings shall be guarded, railings installed or areas fenced off prior to working. When these types of controls are neither sufficient nor feasible, a fall arrest or protection system will be required in accordance with the State of New Hampshire Occupational Health & Safety Standards.

It is the intention of UNH to provide maximum protection for its personnel, students and visitors. Therefore, UNH has used the OSHA construction standard for the regulation of ladder and scaffold use as a guideline when personnel are involved in construction activities. Strict compliance with OSHA 1926.453 Subpart L (Scaffolds) and 1926.1053 Subpart X (Ladder safety) is mandatory during construction at the UNH. General OSHA standards for ladder or scaffold use (29 CFR 1910.25 and 1910.26) are required during non-construction activities. Adhering to these regulations will prevent a fall, one the leading cause of occupational injuries.

II. PURPOSE

The purpose of the University of New Hampshire's Fall Protection Program is to protect faculty, staff and students from the risks of injuries due to falls when working at elevated heights of six (6) feet or greater.

III. REQUIREMENTS

A. Responsibilities

Occupational Safety Coordinator

- Provide necessary training to department employees
- Assist in the evaluation of fall hazards

Departments

- Identify employees who may be exposed to fall hazards including but not limited to:
 - Maintenance personnel
 - Telecommunications personnel
 - Any full time, part time, or volunteer working six (6) feet off from working level
- Make responsible use of primary fall protection systems such as scaffolds, aerial lifts, personnel hoists, etc.
- Ensure above systems are equipped with walking/working surfaces free of floor openings, standard guardrails, and a safe means of access and ensuring their
- Support and enforce this policy to ensure compliance by all employees

Supervisors

- Analyze all elevated tasks as to fall protection needs
- Ensure adequate fall protection systems are provided
- Instruct employees to the specific fall protection measures to be used and the proper use of fall arrest systems

Employees

- Attend required fall protection training
- Visually inspect fall arrest devices prior to every use and record the date on a permanently attached inspection tag
- Report any unsafe condition to supervisor

B. Procedures

Fall Arrest Systems

1. Employees shall use a fall arrest system with continuous attachment when there is a fall hazard of six (6) feet or greater.

➤ **Exceptions:** Areas that are protected by properly installed guard rail systems do not fall into this category.

Ladders that are less than twenty (20) feet are exempt from this requirement.

2. The primary fall arrest device shall be a Class III body harness. The lanyard anchorage point must be such that the maximum fall distance is four (4) feet or six (6) feet if the lanyard is used in conjunction with an ANSI approved shock absorber. Shock-absorbing lanyards together with a Class III body harness shall meet a force limit of 1800 pounds.
3. Body belts are not to be considered a means of fall arrest protection and are prohibited for use at UNH for that purpose. (Refer to Aerial Lifts section for additional information on body belt use)
4. Personnel must work in teams of two or more where a potential fall hazard exists.

Lanyards

1. Approved safety lanyards shall be a minimum of ½ inch thick nylon or equivalent, with a maximum length to provide for a fall of no greater than six (6) feet. Lanyards will have double locking snap hooks. Minimum breaking strength requirement for lanyards is 5,400 pounds.
2. If a lanyard made of synthetic fibers is subjected to hot surfaces, an insulated cover must be used for protection. Lanyards must be protected against sharp surfaces.
3. Fall arrest devices subjected to impact loading shall be removed from service and destroyed.

Ladders

When employees are working off portable ladders and the task requires work "outside the confines of the ladder", a fall arrest system must be used.

Roof Work

Low Pitched Roofs

1. Employees engaged in roofing work on low-pitched roofs shall be protected from falling by using one of the following systems:
 - a. A Motion-Stopping Safety system (MSS)
 - b. A Warning Line System erected not less than six (6) feet from roof edges that are not protected by other means of fall protection. If employees are working outside the warning line system, an MSS system or safety monitoring system must be used in its place.
 - c. A Safety Monitoring System on roofs fifty (50) feet or less in width where mechanical equipment is not being used or stored.
2. Employees engaged in roof work must be trained in the erection and use of the MSS system, the Warning Line and Safety Monitoring Systems as well as the job procedures required for roof work.
 - **Exception:** When employees are on roofs only to inspect, investigate, or estimate roof level conditions; they are exempt from requirement #1 above.
3. Employees engaged in work on low-pitched roofs, other than roofing and more than ten (10) feet from the edge, do not need to use a fall arrest system.

Steep Roofs

Employees engaged in work on steep roofs may use either scaffolding or a crawling board (chicken ladder).

Crawling board must:

- Be at least ten (10) inches wide and one (1) inch thick
- Have cleats 1 x 1 ½ inches
- Cleat must be equal in length to the width of the board and spaced at equal intervals not to exceed 24 inches
- Nails must be driven through and clinched on the underside

Crawling board must extend from the ridgepole to the eaves. A firmly fastened lifeline of at least 3/4-inch diameter rope, or equivalent, must be strung beside each crawling board for a handhold. Lifelines must be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds.

NOTE: Roof work shall not be performed during lightning storms or icy conditions.

Aerial Lifts

Personnel working from or riding in any aerial device shall wear a fall arrest system with the lanyard attached to the boom or basket.

In select situations, body belts, although not preferred, may be used as fall prevention devices; meaning that, along with a non-expanding tethering rope/webbing, the belt may be worn to prevent employees from reaching a fall-hazard area.

For Example: A belt and 36” tether may be worn in a bucket lift truck that has a waist high railing and anchor point on the floor.

NOTE: Use of body belts must be approved by EHS.

Fall Protection General Guidelines

Every effort must be made to protect others from hazards associated with items falling from overhead work areas.

- Equipment and materials must not be stored within four (4) feet of an unprotected edge
- Toe boards (capable of withstanding a force of 50 lbs) will be used where possible
- Hard hats will be required when overhead work is being performed and there is a hazard associated with falling items.

C. Inspections

Fall arrest devices shall be visually inspected for defects prior to use.

Fall arrest devices shall be inspected when new and every six months thereafter for the following conditions:

- Cuts or abrasions
- Burns
- Excessive wear
- Loose splices
- Defective hardware
- Distorted thimbles

The date of each inspection shall be recorded on an inspection tag and permanently attached to the fall arrest device.

IV. DEFINITIONS

ANCHORAGE POINT: Must be capable of resisting twice the force created by the fall of a 250 lb. person a distance of six feet and stopped by a lanyard with a built-in shock absorbing device.

CLASS I BODY BELT: A device worn around the waist to which a lanyard or lifeline grabbing device is attached. Body belts are not allowed for use at UNH.

CLASS III BODY HARNESS: A harness system designed to spread shock load over the shoulders, thighs and seat area.

FIXED ANCHORAGE: Secured point of attachment and not part of the work surface.

LANYARD: Flexible line that secures the wearer of a harness to a vertical or horizontal lifeline of a fixed anchorage.

LIFELINE: A component consisting of a flexible line for connection to anchorages either vertically (vertical lifeline) or horizontally (horizontal lifeline).

LOW-PITCHED ROOF: A roof having a slope less than or equal to four in twelve (4:12).

MOTION-STOPPING-SAFETY (MSS) SYSTEM: System providing fall protection by using the following equipment singly or in combination: guardrail; scaffolds, or platforms with guardrail; safety nets; and body belt/harness systems.

SAFETY MONITORING SYSTEM: A system in which a competent person monitors the safety of all employees in a roofing crew and warns them when it appears to the monitor that they are unaware of the hazard or are acting in an unsafe manner. The competent person must be on the same roof and within visual sight and voice communication of the other employees.

WARNING LINE SYSTEM: A temporary rope, wire, or chain and supporting stanchion erected not less than six feet from the edge of a roof and flagged at no more than six foot intervals with high visibility material. Minimum tensile strength of the rope, wire or chain must be 500 pounds.

WORKING WITHIN CONFINES OF A LADDER: Defined as an employee maintaining their mid-body area within the ladder side rails.

V. TECHNICAL SPECIFICATIONS

Requirements (from 29 CFR 1926.502) of a personal fall arrest system (PFAS) include:

- Personal fall arrest systems are to limit the maximum arresting forces to 1800 pounds with a full body harness.
- Personal fall arrest systems are to have sufficient strength to withstand twice the potential impact energy of the falling employee.
- Personal fall arrest systems are to be inspected prior to each use.
- D-rings and snap hooks are to have a minimum tensile strength of 5000 pounds. A proof test of 3600 pounds is required.
- Lanyards and lifelines are to have a minimum breaking strength of 5000 pounds.
- Lanyards are not to exceed six feet in length.
- Lifelines subject to cutting or abrasion are to be a minimum of 7/8-inch wire core manila rope. All other lifeline applications are to use a minimum of 3/4 inch manila rope or its equivalent.
- Self-retracting lifelines and lanyards are to have a strength of at least 3000 pounds and limit free fall to two feet or less.
- Anchor points for fall arrest systems are to be capable of supporting at least 5000 pounds per employee when the system is designed, installed (temporarily or permanently), and used under the supervision of a qualified person.
- The maximum free fall distance is six feet for all systems.
- The maximum deceleration distance is 3.5 feet.
- Impacted components are to be removed from service.

VI. OTHER RESOURCES

Fall Protection in Construction - <http://www.osha.gov/SLTC/fallprotection/index.html>

Stairways and Ladders - <http://www.osha.gov/Publications/OSHA3124/osha3124.html>

Care of Safety Belts, Harnesses, and Lanyards -
<http://www.ccohs.ca/oshanswers/prevention/ppe/belts.html>