



**BRIGHAM YOUNG UNIVERSITY – IDAHO**

**ENVIRONMENTAL, HEALTH & SAFETY**

**SAFETY DEPARTMENT**

**COMPREHENSIVE MANAGED  
FALL PROTECTION PROGRAM**

**EH-015-R02**



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Brigham Young University-Idaho

Compliance Area: Environmental Health & Safety

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Program Title: Comprehensive Managed Fall Protection Plan

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## **1.0 Overview**

Each year over 100,000 injuries and deaths are attributed to work-related falls. The Bureau of Labor Statistics show falls a one of the leading causes of occupational death. An OSHA study involving 99 fall-related fatalities suggests that all of the deaths could have been prevented by the use of fall protection. Fall protection can be in the form of guard rails, personal fall arrest systems, or under special conditions, warning line systems.

An employee must have protection from falling when working on a surface that has an unprotected drop-off, 6-feet or more above the adjacent level, or when working from a bucket truck, man-lift, or other personnel lifts and articulating booms.

This program has been created to help Departments understand what measures they must take to protect individuals and minimize the potential for a serious fall at BYU – Idaho.

## **2.0 Policy**

All employees, students, volunteers, and contractors working under the direction of BYU-Idaho supervision shall comply with all elements of this program. All Departments must protect individuals from falling. A permanent protective system (i.e. standard guardrail, fixed ladder, & hole cover) must be utilized to protect the general public and students from falling 4-feet or more.

All systems and equipment used to protect against falls must be used in accordance with manufacturer recommendations (see user manuals).

When buildings or other structures are being designed or refurbished, Departments must ensure that the design or refurbishing plans include permanent fall protection systems such as standard guardrail systems, fixed ladders, parapets, and proper hole covers where needed. Please involve the Safety Office in the planning process.

## **3.0 Requirements**

- 3.1 All fall protection equipment must meet or exceed ANSI Z259 – 2007 standard.
- 3.2 Ladders, walkways, work platforms, and open-sided floors shall comply with OSHA 1910 Subpart D regulations or fall protection must be used.
- 3.3 Powered platforms, man lifts, and vehicle mounted work platforms shall comply with OSHA 1910 Subpart F.
- 3.4 Construction fall protection shall comply with OSHA 1926 Subpart M.
- 3.5 Ladders used in construction shall comply with OSHA 1926 Subpart X.

## **4.0 Purpose**

The purpose of the Fall Protection Program is to ensure the safety and well being of persons working on and/or for BYU-I, including faculty, staff, students, and contractors, regardless of the type of work performed. The program covers the maintenance, repair, replacement, alteration, demolition, and new construction for all areas of campus, including the Livestock Center and remote locations.

## 5.0 Scope

In accordance with OSHA regulations, the American National Standards Institute, and other applicable regulatory requirements of the local, state, and federal governments, BYU-I has established this protection program to aid in the control of fall hazards.

## 6.0 Procedures

The procedures outlined in this section will help departments protect individuals from falling 4-feet or more. Temporary protective systems and/or personal fall arrest systems (i.e. lanyards and harnesses) must be used where installation of a permanent protective system is not feasible or is inadequate.

- 6.1 Assess the workplace to identify areas where individuals are exposed to a potential fall of 4-feet or more – Example: a walkway that is 4-feet or higher needs a standard guardrail;
- 6.2 Assess the work performed by employees to determine tasks where they are exposed to a potential fall of 4-feet or more.
- 6.3 Where feasible, install permanent protective systems to prevent individuals from falling – permanent protective systems include fixed ladders (with cages if longer than 20-feet), hole covers, standard guardrails and other barriers such as fencing.
- 6.4 If permanent protective systems are not feasible then install temporary protective systems (where feasible) to prevent individuals from falling – temporary protective systems include scaffolding, safety nets, hole covers, and temporary guardrails
- 6.5 Individuals must utilize a personal fall arrest system when permanent and/or temporary protective systems are not feasible or are inadequate – a personal fall arrest system includes a full body harness, lanyard, and lifeline (or equivalent gear). *Note: a safety belt cannot be utilized as part of a personal fall arrest system*

*Note: occasionally there is an area where a guardrail or other permanent fall protection system cannot be installed and a personal fall arrest system is not feasible (i.e. the leading edge of a theatrical stage). For such situations a Fall Protection Plan must be developed by the Department responsible for the area/work. If you have any questions regarding what type of fall protection to utilize please contact The Safety Office (496-2457) for an assessment and recommendation.*

- 6.6 See that individuals receive the proper training prior to engaging in work where they will be exposed to a fall of 4-feet or more
- 6.7 Maintain fall protection in accordance with manufacturer recommendations

Please refer to Appendix C of this program for further information regarding use of the various protective systems and equipment.

A fall protection plan, which involves controlled access zones, can be created and utilized only when workers are engaged in leading edge work, pre-cast concrete erection work, residential construction work, or where it can be demonstrated that it is not feasible, or creates a greater hazard, to use a conventional fall protection system. If a fall protection plan is needed then departments are responsible for creating the document, by following the guidance found in OSHA's Fall Protection standard 29 CFR 1926.502(k), which is available online at [www.osha.gov](http://www.osha.gov), and submitting it to the Safety Office for review, acceptance, and inclusion in the BYU-Idaho Fall Protection Program (Appendix A).

## **7.0 Responsibilities**

### **7.1 Departments:**

- 7.1.1 Identify work areas and tasks in need of systems and equipment for protecting individuals from falling 4-feet or more;
- 7.1.2 Provide necessary funding for purchase and installation of systems and equipment utilized for fall protection;
- 7.1.3 Investigate incidents involving falls or near falls and take corrective actions (including equipment purchases and work orders) to prevent future falls from occurring;
- 7.1.4 Select a competent person, or persons, who will provide requisite fall protection training, and who:
  - 7.1.4.1 Are capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to individuals, and who has authorization to take prompt corrective measures to eliminate them.
- 7.1.5 Initiate and maintain a progressive disciplinary program that includes up to termination of employees who choose not to utilize fall protection when required and trained to do so; and
- 7.1.6 Develop Fall Protection Plans if necessary and submittal of the plan to Risk Management and Safety as described in this program.

### **7.2 Supervisors:**

- 7.2.1 Ensure that fall protection is installed/put-on and used in accordance with manufacturer recommendations (see user manual for details) and Appendix C mandatory requirements;
- 7.2.2 Ensure new and existing employees receive fall protection training as outlined in section 8.0 of this program;
- 7.2.3 Do not knowingly assign work that exposes individuals to a fall of 4 or more feet unless fall protection is available and will be utilized;
- 7.2.4 Ensure personal fall arrest systems are maintained according to manufacturer recommendations; and
- 7.2.5 Annually complete a Supervisors checklist and maintain it for five years.

### **7.3 Safety Office:**

- 7.3.1 When requested, help managers and supervisors select proper fall protection;
- 7.3.2 Monitor implementation of this program and collect information regarding campus fall protection needs; and
- 7.3.3 Revise this program, as needed.

### **7.4 University Employees:**

- 7.4.1 Do not remove or damage systems or equipment utilized for fall protection;

- 7.4.2 Don't use damaged systems or equipment utilized for fall protection, and report any damaged systems or equipment to your supervisor;
- 7.4.3 Unless using fall protection, do not perform work where there is a potential fall of 4-feet or more – instead report the hazard to your Supervisor; and
- 7.4.4 Do not use, set-up, or install equipment or systems utilized for fall protection until you have received the proper training as outlined in this program.

## **8.0 Training**

- 8.1 Each employee who may be exposed to fall hazards will be trained to recognize the hazards and the procedures to follow to minimize the hazards.
- 8.2 Training will be directed through the Safety Office.
- 8.3 A competent person will conduct the training and must train the employees in the following areas:
  - 8.3.1 Fall hazards in the work area
  - 8.3.2 Correct procedures for erecting, maintaining , dismantling, and inspecting the fall protection systems used.
  - 8.3.3 Use and operation of the fall protection systems used
  - 8.3.4 Role of employees in fall protection plans
  - 8.3.5 What rescue procedures to follow in the event of a fall
  - 8.3.6 Overview of the OSHA fall protection regulations
  - 8.3.7 If an employee has not received the appropriate training for the task being performed, that employee shall not be permitted to perform said task until after the training is complete.
  - 8.3.8 If, in the opinion of the “competent person”, supervisor, project manager, or safety inspector an employee does not demonstrate proper knowledge or understanding of the Fall Protection Policies and Procedures, or is working in an unsafe manner, the supervisor / competent person responsible for that employee shall take the appropriate action by:
    - 8.3.8.1 Immediately removing that employee from the hazard, and providing the necessary refresher or initial training, before being permitted to return to that specific task.
- 8.4 A training record will be maintained for each employee in the Safety Office and in the Physical Facility Office. This record will contain the following:
  - 8.4.1 The name of the employee trained
  - 8.4.2 The date of the training
  - 8.4.3 Who conducted the training
  - 8.4.4 A brief outline of the training conducted including a means of measuring understanding
  - 8.4.5 The signature of the employee
- 8.5 Retraining shall be done if there is a change in the fall protection program, if there is new equipment being put into use, if the employee's actions demonstrate the need for additional training, and shall be reviewed by all at least every three years from the initial training.

## **9.0 Monitoring**

- 9.1 Departments must utilize the supervisors checklist found in Appendix B of this program prior to working at a site that requires fall protection. Completed checklists must be maintained by the department responsible for the evaluation for at least five years, and be provided to Risk Management & Safety upon request.
- 9.2 The Fall Protection Program shall be reviewed on an annual basis to ensure that it is current with regulations and operating procedures.
- 9.3 The annual review will be under the direction of the BYU-I Safety Office.

## **10.0 Appendices**

Appendix A - Definitions

Appendix B – Supervisors Checklist

Appendix C – Various Protective Systems and Equipment

## APPENDIX A

### DEFINITIONS

**Anchorage:** 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.

**Body Harness:** straps which may be secured about 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 fall arrest system.

**Buckle:** any device for holding the body belt or body harness around the employee's body.

**Competent Person:** A person, who has the appropriate knowledge and training for the type of work being performed, is capable of identifying and correcting hazardous conditions, and who has the authority to take prompt corrective action. A competent person may be appropriately defined in specific OSHA regulations 29 CFR 1910 and 29 CFR 1926.

**Connector:** a device which is used to couple (connect) parts of the personal fall arrest system and positioning system device together. It may be an independent component of part of the system, such as a carabiner, or it may be an integral 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. overland bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems. 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 rope grab, rip stitch lanyard, specially woven lanyard, tearing or deforming lanyards, automatic self-retracting lanyards/lifelines, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

**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 measure 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.

**Employer:** person(s) responsible for a business, company, or other employment category that utilizes workers for the purpose of providing a service, specialized function, or type of work. The employer

shall be responsible for providing the necessary applicable training to each employee in accordance with local, state, and federal regulatory requirements, including the General Duty Clause, OSHA section 5A1. For purposes of this and other Amherst College Standard Operating Guidelines, the employer would be either Amherst College or an outside contractor employed by the College.

**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.

**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 the 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. Guardrail systems shall comply with the following provisions;

- Top edge of the guardrail system shall be 42" in height, plus or minus 3" above the walking or working surface
- Mid rails, screens, mesh and intermediate vertical members or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no parapet at least 21" in height.
- Mid rails, when used, shall be installed at a height midway between the top edge of the guardrail system and the walking/working surface
- Screens and mesh, when used, shall extend from the top rail to the walking/working surface and along the entire opening between the rail supports and shall not be secured to the rails with connectors that may cause personal injury, such as metal banding or protruding nails/screws.
- Guardrails must be able to support a force of 200 lbs applied down and out, at any point along the top edge of the guardrail.
- When material, equipment and supplies (including block, brick, slate, tools and debris) are placed on the walking/working surface, above the level of the toe board, then a fence, mesh or screening shall be installed.
- When using a suitable fence, mesh or plywood system, the mid rail can be eliminated.

- Toe boards are required for every elevated work surface > 6' above the lower level.
- Toe boards shall not be < 3 ½" above the walking / working surface

**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.

**Infeasible:** 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 of these systems to provide fall protection.

**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 a 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.

**Life Line:** 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 that serves as a means for connecting other components of a personal fall arrest system to the anchorage.

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

**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 there-of.

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

**Opening:** a gap or void 30 inches (76 cm) or more 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 harness, and may include a lanyard, deceleration device, lifeline, or suitable combination 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.

**Rope Grab:** a deceleration device which travels on a lifeline and automatically, by friction, engages a 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.

**Roof:** the exterior surface on top of a building. This does not include floors or formwork which temporarily becomes the top surface of a building due to the fact that a building has not been completed.

**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.

**Safety-Monitoring System:** a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

**Safety Net System(s)** if used as a fall protection system, shall comply with the special provisions of 29 CFR 1926.502 and the Fall Protection Alternatives listed in the Appendix F section of the Amherst College Contractor Health and Safety Guidelines.

- Safety Nets, if used on the Amherst College Campus must be approved by a “Qualified” Fall Protection Engineer or Specialist.

**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 will automatically lock the drum and arrest the fall.

**Snap Hook:** a connector comprised of a hook-shaped member with a normally closed keeper or similar arrangement that may be opened to permit the hook to receive an object, and when released closes to retain the object. Snap hooks are generally one of two types:

- 1926.500(b)(1)
  - The locking type with a self-locking keeper 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 snap hook as part of personal fall arrest systems and positioning devices is prohibited.

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

**Toe board:** a low protective barrier that will prevent the fall of materials and equipment to lower levels and provides protection from falls for personnel.

**Unprotected Sides and Edges:** any side or edge (except 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.

**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 excluding ladders, vehicles, or trailers on which employees must be located in order to perform their duties.

**Warning Line System:** a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and that designates an area in which roofing work may take place without the use of a guardrail, body belt, or safety net systems to protect employees in the area.

**Work Area:** the portion of a walking/working surface where job duties are being performed.

**APPENDIX B**  
**SUPERVISOR'S CHECKLIST**

Name of Assessor: \_\_\_\_\_ Date of Assessment: \_\_\_\_\_

*Note: "No" answers are undesirable.*

**Yes No Questions**

- Y / N 1 Have work tasks been evaluated to determine those that require the use of fall protection?
- Y / N 2 Are fall protection needs relayed from employees to supervisors then to department managers?
- Y / N 3 Are fall protection needs addressed before allowing individuals to engage in work where they are exposed to a fall potential of 4-feet or more?
- Y / N 4 Do all individuals utilize fall protection when needed?
- Y / N 5 Are employees trained in accordance with manufacturer recommendations prior to using or installing fall protection devices?
- Y / N 6 Are fall protection devices inspected and maintained in accordance with manufacturer recommendations?
- Y / N 7 Are ladders 20-feet (or longer) equipped with a cage, or do individuals who ascend/descend cage-less ladders (20-feet or longer) use a drop rope, rope grab, and full body harness?
- Y / N 8 If used, are ladders and scaffolds secured in place prior to use?
- Y / N 9 If using a personal fall arrest system, is the lanyard anchor point rated to 5000 lbs or more?

**Note:** This checklist is not intended to be a comprehensive checklist, but has been provided as a tool for Supervisors/Departments to measure how much improvement is needed, if any.

**Comments:** \_\_\_\_\_  
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## **APPENDIX C**