

California State University, Long Beach

# **Fall Protection Program**

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Safety and Risk Management  
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## **1. Program Description**

The purpose of this program is to specify procedures and training for the safety of CSULB employees while working on elevated surfaces and ladders. University employees who work at heights of six (6) feet or greater are required to attend training on fall protection. Additionally, those employees working on aerial platforms, scissors lifts or other elevated platform equipment must receive training on the use of such equipment.

## 2. Program Scope

This program applies to all University employees that perform any duties on an elevated work surface where there is a fall hazard of 6 feet or more to a lower level. Employees will not be allowed to perform any duties which require the employee to get closer than 6 feet to an unprotected edge, platform, walkway, or utilize elevated equipment unless the employee is properly secured from falling.

Exceptions: Employees may work without fall protection, but using a university approved alternate measure:

- At the working sides of loading docks
- At the exposed perimeters of theater stages
- In engineered anteproscaenium lighting bridges and box boom vertical positions.
- When using portable ladders up to 60 feet in length
- At the unprotected entry point to subgrade confined spaces where the total depth (starting elevation to interior walking/working surface) is  $\leq 6$  feet.
- When working on scaffolds and aerial lifts up to 6 feet in height
- When working on the edge of an excavation up to 6 feet in depth
- If an employee is on a low slope roof ( $\leq 4:12$  rise) for inspection or observation purposes only.

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 maintenance unit. In addition, and every time a University employee is working at a height greater than their own height, the cardinal safety rule applies - **Do Not Back Up, Turn To Face The Direction Of Travel.**

Contractors working on campus are required to comply with all applicable Cal/OSHA workplace safety regulations and shall have their own fall protection program. Contractor safety programs shall be available for review upon request by CSULB Safety and Risk Management.

### 3. Policy Statement

Employers in California are required to institute a fall protection plan when their employees are assigned to perform work at elevated locations. At California State University Long Beach, this plan is written, and has specific requirements for managers, supervisors, and employees. The CSULB Fall Protection Plan operates in concert with and under the University Injury and Illness Prevention Program. As such, training in fall protection, recognition of work locations where fall protection is required, and recognition of those work locations where fall protection is provided by alternate means of protection are **not voluntary, but mandatory** for all employees.

Contractors who will be working on university buildings in locations where employee fall protection is required shall have a fall protection program that is in compliance with Cal/OSHA requirements, and documentation of that program including employee training and implementation shall be submitted to the appropriate university department for review.

Copies of this Plan can be viewed on the Safety and Risk Management url: [http://daf.csulb.edu/forms/univ\\_svcs/safetyrisk/index.html](http://daf.csulb.edu/forms/univ_svcs/safetyrisk/index.html).

## 4. 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.

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

**Anteproscaenium Lighting Bridge:** A feature of a public assembly building (theatre) where the architect, engineer, and builder have provided a position where employees can access through engineered fixed ladders, ships ladders or stairways, and where a physical building component is permanently attached to building structural components for the purpose of providing a place to mount theatrical lighting instruments and effects, and does not expose the employee to an unencumbered fall hazard from the position.

**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.

**Box boom:** A feature of a public assembly building (theatre) where the architect, engineer, and builder have provided a position where employees can access vertically mounted lighting instruments or effects using an engineered fixed ladder and work landing.

**Competent Person -** One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

**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 an individual rung ladder, which is permanently attached to a structure, building, or equipment.

**Guardrail:** A barrier at least 42 inches high erected to prevent personnel from falling from working levels more than 30 inches above the floor, ground, or other working areas of a building.

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

**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. Only Type I (Heavy duty industrial) or Type II (Commercial grade) ladders shall be used by university employees.

**Ladder Safety Zone:** An exclusion or warning zone established at the base of the ladder by deploying high visibility traffic cones. This process is used to ensure that pedestrians or other workers are made aware of work occurring overhead. A ladder safety zone must be established when using any type of portable ladder.

**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.

**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). This 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 of less than or equal to 4 in 12 (vertical to horizontal). A roof with approximately a 19.5 degree slope or less.

**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.

**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.

**Operating Procedures Outline Sheet (OPOS):** A set of operating procedures to be written by employers and used by employees assigned to window cleaning and maintenance operations in buildings greater than 36 feet in elevation, and without established and engineered window cleaning systems, fittings, equipment, and procedures.

**Positioning device system:** 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:** 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 Person, Attendant or Operator:** A person designated by the employer who by reason of their training and experience has demonstrated their ability to safely perform their duties and, where required, is properly licensed in accordance with federal, state, or local laws and regulations.

**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:** Exterior surface on the top of a building.

**Rope Access:** The use of rope access equipment where ropes are used as the primary means of support, as a means of protection or positioning, and where an employee descends or ascends on a rope, or traverses along a rope. “Rope supported work shall be permitted only when other means of access are not feasible or would increase the risk of injury to the employee and/or the public. The requirements of this section (CCR, T8, 3270.1) include, but are not limited to, the inspection of dams and spillways, access to interior or exterior structural and architectural components of buildings, highway/bridge inspection and maintenance, and access to power plant penstocks.”

**Rope Access Equipment:** Specialized equipment approved for use with rope access techniques to suspend, support, position or protect an employee.

**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:** Any temporary elevated or suspended platform, and 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.

**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. Only locking snap hooks are permitted at CSULB.

**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:** 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 42 inches high.

**Vertical Lifeline:** A component consisting of a vertically hanging flexible line for connection to an anchor point at one end 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 and, runways.

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

## 5. CSULB Fall Protection Plan Responsibility

5.1 Departments affected by this program include, **but are not limited to:**

- **Facilities Management** - Maintenance activities throughout campus buildings and grounds.
- **Telecommunications/Network Repair** - Telecommunications and network installation and maintenance throughout the University.
- **University Student Union** - Preparation and coverage of events at the University Student Union.
- **Housing and Residential Life** - Maintenance activities throughout campus housing facilities and grounds.
- **College of the Arts** - Construction and striking of stage productions, concerts, public displays, permanent and semi-permanent art installations.
- **Pyramid Events Center** – Set up, installation and striking of materials requiring work at elevation, all uses of interior building structural components for permanent or temporary rigging, all maintenance work on interior or exterior building components.

### 5.1.1 Managers and Supervisors

- Responsible for ensuring that all requirements listed in the written program for fall protection are met.
- Responsible for ensuring new and existing employees receive fall protection training as applicable to their job duties.
- With the assistance of Safety and Risk Management, are responsible for identifying elevated work areas.

### 5.1.2 University Employees

- Employees whose duties involve work activities at elevated locations are required to comply with the rules of operations and accepted safety practices outlined within this written program.

### 5.1.3 Safety and Risk Management

- Responsible for conducting periodic visits to elevated work locations. The purpose of these visits is to inspect equipment and to observe employees' procedures while working at elevated levels.
- Responsible for arranging for required training of university employees in fall protection and in the safe use of elevating personal platforms.
- Evaluate other elevated work locations identified by managers and supervisors for fall protection requirements.
- Program oversight and compliance auditing.

## 6. Program Components

6.1 The following work situations are covered by the University's program for fall protection:

- **Ladders** - fixed, free standing, temporary, or roll away type.
- **Elevating Personal Platforms** – scaffolds, aerial platforms, scissors lifts, forklift-mounted platforms, cherry pickers, etc.
- **Elevated Surfaces** – roofs (closer than 6 feet to the edge), catwalks, skylights, boilers, chillers, etc.
- **Vertical Opening** - ground level entry into excavations, trenches, holes, pits, vessels, and other confined spaces.
- **Vertical Opening** – other than ground level access into vessels and other permit required and/or non-permit required confined spaces.

6.2 Fall protection is required whenever work is performed in an area 6 feet above its surroundings and can generally be provided through the use of fall protection systems including:

- **Guardrails** - Standard guardrails consist of a top rail, located 42 inches above the floor, and a mid-rail. Screens and mesh may be used to replace the mid-rail, so long as they extend from the top rail to the floor.
- **Personal Fall Arresting Systems** - Components of a personal fall arresting system include a body harness, lanyard, lifeline, connector, and an anchorage point capable of supporting at least 5000 pounds.
- **Positioning Device Systems** - Positioning device systems consist of a body belt or harness rigged to allow work on a vertical surface, such as a wall, with both hands free.
- **Warning Line Systems** - Warning line systems are made up of lines or ropes installed to structural vertical members around a work area on a roof. These act as a barrier to prevent those working on the roof from approaching it edges.
- **Covers** - Covers are fastened over holes in the working surface to prevent falls.

6.2.1 Where it can be clearly demonstrated that the use of these systems is infeasible or creates a greater hazard, **alternative fall protection measures** may be implemented. Such an alternative fall protection measure is as follows:

- **Edge Proximity Warning Systems** – Edge Proximity Warning systems are an alternate means of protection, and are made up of non-structural vertical elements and horizontal warning elements of light rope or warning tape installed around a work area on a roof, and offset from the edge at least 6 feet.. These act as a warning to prevent those working on the roof from approaching it edges. This alternate means may be used only when other forms of fall protection are not feasible, or by using those methods, would create a greater hazard. Use of this method must be approved by the manager or supervisor assigning work at the location.

6.3 Following are guidelines for University employees using specific equipment:

6.3.1 Employees who work on ladders with a working height of 6 feet or more shall be knowledgeable of the following:

- How to inspect ladders for visible defects
- How to use ladders properly

Additional information on ladder safety can be found in the **Ladder Safety Job Safety Analysis**. (Consult Safety and Risk Management.)

6.3.2 Employees who use personal fall arresting systems to control fall hazards in their work area shall be knowledgeable of the following:

- The application limits of the equipment.
- The proper hook-up, anchoring and tie-off techniques including determination of elongation and deceleration distance.
- Methods of use, inspection, and storage of equipment.

Additional Employee Requirements - Personal fall arrest components including harnesses and lanyards shall be inspected prior to each use for mildew, wear, damage and other deterioration. Defective components shall be removed from service. All rope used for rope access, confined space entry and rescue, or employee safety lines shall be certified for single rope technique (SRT) use by acceptable national consensus standards such as NFPA 1983 *Standard on Life Safety Rope and Equipment for Emergency Services ,2006 Edition*. All ropes shall be inspected per the manufacturers specifications prior to and following each use, and **shall be retired** from use as an employee safety rope, confined space entry or rescue rope, or rope access component **after five years of service, whether or not the rope has been used**. Ropes used for employee safety lines, confined space entry and rescue or rope access shall not be used for any other purpose.

Fall arrest systems including harnesses shall be inspected at least twice each year or according to manufacturers recommendations. The date of the most current semi-annual inspection shall be recorded on an inspection tag which shall

be attached to the harness. In addition, records shall be kept and maintained showing date of purchase, dates when attachments were renewed, and dates when the entire harness assembly was inspected and by whom.

6.3.3 Employees who use aerial lifts shall be knowledgeable of the following:

- The manufacturer's operating instructions.
- Received classroom training and functional operations training on the specific aerial lift they are assigned to use.
- Pre-start inspection of the lift
- Inspection of the work area for dangerous conditions such as uneven surfaces, overhead obstructions such as power lines, or other hazards
- Load capacities of the equipment
- How to safely move the equipment
- How to prevent falls and use appropriate fall protection personal protective equipment.
- Minimum safe approach distances to energized power lines

6.3.4 University employees who work on scaffolds shall be knowledgeable of the following:

- The nature of any electrical hazards, fall hazards, and falling object hazards in the work area
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used
- The proper use of the scaffold, and the proper handling of materials on the scaffold
- The maximum intended load and the load carrying capacities of the scaffolds

6.3.5 All University employees should be aware of guidelines to minimize slips, trips and falls on the same elevation of walking/working surfaces.

- To prevent slipping, tripping and falling, all work environments including passageways, storerooms, and service areas must be kept clean, orderly and in a sanitary condition
- The floor of every work area will be maintained in a clean and, so far as possible, dry condition
- Where wet processes are used, drainage will be maintained and false floors, platforms, mats, or other dry standing places shall be provided for assigned work

## **7. Program Compliance**

7. Employee compliance with the requirements of this Fall Protection Program are mandatory. Training is provided by the University to employees in the specific requirements of this program, and all exposed employees are required to complete the training prior to assignment of work requiring fall protection.

The University Injury and Illness Prevention Program (IIPP) requires training by managers and supervisors be provided to employees whose work assignments can include exposure to elevations greater than six feet. The University IIPP also requires discipline for employees who fail to properly use fall protection, or who disregard the requirements of this plan. The scope of disciplinary actions is regulated by the California Labor Code, and implemented by CSULB Staff Human Resources.

## **8. Training and Competency Assurance**

8.1 Due the specialized knowledge and skills required to effectively assess and train employees to recognize fall protection situations, and to competently rig, inspect and use fall protection systems, CSULB Safety and Risk Management is responsible for developing the training curriculum, and delivering that curriculum to university managers, supervisors, and employees.

8.2 Under no circumstances will any university employee work in areas where fall protection is required, perform work requiring fall protection devices, or use fall protection devices until he/she has attended training in fall protection. This includes all new employees regardless of previous experience.

8.3 The training program provided by Safety and Risk Management includes classroom instruction and operational training on specific fall hazards on campus.

8.3.1 Employees will require retraining under any of the following conditions:

- Changes in the workplace render previous training obsolete.
- Changes in the types of fall protection systems or equipment to be used render previous training obsolete.
- 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. Additional Information**

### **Information and External References**

Title 8 California Code of Regulations, General Industry Safety Orders - §3209, §3210, §3211, §3212, §3213, §3214, §3270.1 §3299, and Subchapter 4 Construction Safety Orders, Article 24 et.seq.

American National Standards Institute (ANSI), Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components (ANSI Z359.1-1992)

NFPA 2007 – 1983 Standard on Life Safety Rope and Equipment for Emergency Services 2006 Edition

## **10.0 Program Maintenance**

CSULB Safety and Risk Management (SRM) has produced the initial Fall Protection Plan, and will draft and deliver the training required by the plan.

Managers, supervisors, and employees who have roles according to plan provisions will be provided with training in those specific roles and requirements.

Refresher training will be provided to employees, managers, and supervisors on an annual basis. The refresher training will be in the form of a “tailgate safety” meeting, unless observations by SRM or other reports to SRM regarding compliance with the Fall Protection Program have not been fully engaged.

SRM will conduct field audits of employees working at elevation, and using either fall protection components or an approved alternate means of protection. Results of those audits and observations will be communicated to the managers and supervisors of the specific departments.

## **11.0 Record Keeping**

Safety and Risk Management will maintain all records of initial Fall Protection Program training records for a period of 30 years. Refresher training records will be kept for a period of one year. Equipment maintenance records, including user inspections of all personal fall protection equipment will be maintained until the particular equipment item is retired.

## **Appendix A – Example Listing of Work Locations Requiring Fall Protection Training and Equipment**

The following list is not intended to be inclusive. It will serve as a comparison to assist university employees, supervisors and managers to correctly identify locations where fall protection procedures may be required.

In general, where an employee is assigned work on a roof, and that roof has an approved railing or architecturally included parapet that provides the required protection, fall protection requirements are not in force as long as assigned work is inside the protective railing or parapet.

When employees are given work assignments including repair of equipment, installation of equipment, or repair of building components, and will be required to work within 6 feet of the edge and exposed to a fall of 15 feet or more, fall protection training and protection is required.

**Fall protection is not required** where employees are assigned simple inspection duties on roofs greater than 15 feet in elevation and that inspection does not place them closer than 6 feet from the edge of the roof.

### General Assembly Buildings:

- University Theatre
- Studio Theatre
- University Union Small Auditorium
- Carpenter Performing Arts Center
- Knobdel Dance Theatre
- Pyramid Events Center

### University Instructional Buildings:

- University Library (all roofs where parapet protection is not provided)
- Liberal Arts 1 – 5 (when working within six feet of the roof edge)
- Peterson Hall 1-2 (when working within six feet of the roof edge)
- Molecular and Life Sciences (MLFS) (when working within six feet of the non-parapet roof edge)
- Psychology (when working within six feet of the roof edge)
- Social Science and Public Policy.
- McIntosh Humanities Building (MHB)
- Nursing
- Family and Consumer Science (FCS)
- Fine Arts 1-4
- Design
- Human Services Design (HSD)
- Engineering Technology (ET)

University Administrative and Support Buildings:

- Brotman Hall
- Student Health Services
- 49er Shops
- Facilities Management

Nothing in this Plan prohibits an employee, manager, or supervisor from using good fall protection methods at any work location where the use of that fall protection method does not create a greater hazard than using general awareness of fall hazards.

Where fall protection requirements cannot be met by active fall protection equipment and installations, an alternate means of fall protection may be instituted. Such alternate means must be reviewed and approved by the employing department, and CSULB Safety and Risk Management.