



Fall Protection Program

I. Policy

It is the policy of California State University, Fullerton to maintain, insofar as is reasonably possible, an environment that will not adversely affect the health, safety and well-being of students, employees, visitors and the surrounding community.

Administrators, faculty, staff and students all share a responsibility to reduce the hazards associated with falls. Fall hazards must be controlled through conventional fall protection systems (guardrails, personal fall arrest systems, or safety nets) unless these controls are infeasible and doing so would create a greater safety hazard. When engineering controls such as guardrails and safety nets are not feasible, personal fall arrest systems, administrative controls and training must be instituted.

II. Authority

California Code of Regulations Title 8 1670. Personal Fall Arrest Systems, Personal Fall Restraint Systems and Positioning Devices.

California Code of Regulations Title 8 1671.1. Fall Protection Plan.

California Code of Regulations Title 8 3209-3212. Guardrails, Elevated Locations, Floor Openings, Floor Holes and Roofs

III. Scope

This Fall Protection Program shall apply to all employees or students 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 or allowed to perform any duties which require the employee to get closer than six feet to an unprotected edge, platform, walk way 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
- exposed perimeters of entertainment stages
- use of portable ladders without fall protection equipment up to six feet
- scaffolds and aerial lifts up to 6 feet in height

- edge of an excavation up to 6 feet in depth without fall protection

IV. Definitions

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. **See Attachment 2**

Anchor point: A secure point of attachment for lifelines, lanyards or deceleration 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 belts are prohibited by Cal/OSHA and the University**

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.

Competent person: A competent person is a person who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees. The competent person has the authority to impose prompt corrective measures to eliminate these hazards.

Deceleration device: Any mechanism, such as a rope, that dissipates a substantial amount of energy during a fall arrest, or otherwise limits the energy on an employee during fall arrest.

Elevated Work Surfaces: roof surfaces within six feet of edge and work platforms more than six feet above a lower level for construction; four feet for general industry.

Fall Arrest System: system used to arrest a person in a fall from a working level. It consists of an anchorage, connectors, and a body harness and may include a lanyard, deceleration device, or lifeline.

Fixed ladder: A ladder permanently attached to a structure, building, or equipment. It does not include manhole steps. **See Attachment 3**

Guard rail: A barrier erected to prevent personnel from falling to lower levels.

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

Horizontal Lifeline: These are linear anchoring devices, which allow workers to move along the whole length of the anchor, usually without needing to disconnect and fixing points of the anchorage

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.

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

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.

Portable Ladder. See Attachment 3

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.

Qualified or authorized person: a person designated by the employer; and by reason of training, experience, or instruction who has demonstrated the ability to perform safely all fall protection duties.

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.

Scaffold: means any temporary elevated or suspended platform, at its supporting structures, used for supporting employees or materials or both. **See Attachment 1.**

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).

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. Only locking snap hooks are permitted in fall protection systems.

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.

V. Accountability

A. Directors and Department Heads

1. Evaluate Departmental activities to determine if and which activities are covered by the Fall Protection Program
2. Designate individuals who will act as competent and/or qualified persons responsible for the implementation of the Fall Protection Program
3. When Department employees engage in activities covered by the Fall Protection Program
 - a. Ensure that competent and/or qualified persons are adequately trained and/or qualified
 - b. Provide administrative and financial support for this program within individual departments
 - c. Ensure the Fall Protection Program is implemented and maintained within the department

B. Competent Persons

1. Implement all aspects of the program for work areas under their control
2. Receive training for "competent person" and maintain status
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
5. Ensure that employees are informed, trained, and provided with the appropriate fall protection systems and equipment to be protected from potential fall hazards

C. 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
2. Coordinate the correction of fall hazards brought to their attention by employees
3. Complete a Report of Employee Injury form and any additional documentation needed to investigate work related injuries and illnesses

D. Qualified/Authorized Employees

1. Comply with the Fall Protection Program and any further safety recommendations provided by the supervisor and EHS regarding fall protection
2. Complete fall protection training requirements and request further instruction if unclear

3. Conduct assigned tasks in a safe manner and properly wear fall arrest or wear all assigned personal protective equipment
4. Report to Facilities Management any frequently accessed work platforms, including roofs that are not protected by guardrails or some other fall protection system

E. Environmental Health and Safety (EHS)

1. Provide technical information and assist departments in implementing an effective fall protection program
2. Provide technical information and assist Facilities Management and academic department, such as Theatre, in designing controls for fall protection
3. Provide and/or coordinate fall protection training as needed
4. Provide assistance to departments on purchasing of fall protection equipment
5. Investigate and document all reported accidents that are related to fall hazards, recommending corrective actions
6. Review and revise the Fall Protection Program, as needed for compliance with applicable regulations

F. Facilities Management

1. Maintain and update Design Guidelines requiring that projects be designed according to current OSHA standards and that engineering controls for fall protection such as guardrails and anchorage points for occupant use and maintenance work be designed into projects wherever feasible.
2. Monitor contractor compliance with Cal/OSHA required fall protection regulations.

G. Contractors

Contractors are required to comply with all applicable Cal/OSHA regulations and must have and enforce their own fall protection program.

VI. Program

A. Identification of Fall Hazards.

Fall hazards from elevations include, but are not limited to, unprotected sides and edges of roofs, excavations, skylights, floor holes, wall openings, and all other walking or working surfaces where personnel can possibly fall four feet or more to a lower level. Each department shall be responsible to inspect for

potential fall hazards and to have each potential fall hazard evaluated by a competent person.

Personnel should alert their supervisors to potential fall hazards not already identified and controlled. The following are examples of fall hazards which require protection.

1. Open sided floors, platforms, and runways four feet or more in height
2. Open sided floors, ramps, walkways etc. that are adjacent to or above dangerous operations must be guarded regardless of height
3. Wall openings from where there is a drop of more than 4 feet
4. Open windows from which there is a drop of more than 4 feet and the bottom of the window is less than 3 feet above the floor or platform
5. Hatchway and chute floor openings
6. Any opening more than 4 feet in elevation where a significant portion of the body is leaning over or through to perform work
7. Skylights that are even with the roof surface, that represent fall hazards or that may otherwise serve as a walking/working surface
8. Scaffolds over 6 feet
9. Aerial lift devices

The following fall hazards must also be addressed when identifying fall protection hazards:

1. Placement of toe boards
2. Need for use of hard hats
3. Storage of equipment within four feet of an unprotected edge
4. Protection for high traffic areas from work above. The area to which objects could fall must be barricaded or a canopy must be built.

B. General Requirements

1. **Authorizations.** Work in unprotected elevated areas requires prior approval by competent persons.
2. **Preferred Controls.** Controls such as fall protection harnesses, lanyards, and anchorage points will be the last solution considered to protect people from falling from heights. The following engineered controls will be used to provide effective fall protection:
 - a. **Roofs.** Engineered guardrails designed in accordance with applicable standards or 42-inch high parapets are required at roof edges when frequent access is required (more than four times a year).

- b. **Other elevated work surfaces.** Engineered guardrails designed in accordance with applicable standards are required for elevated fixed platforms, mezzanines, catwalks, and balconies when frequent access is required. For infrequent access at these locations or if guardrails are infeasible, fall protection equipment may be used.
- c. **Construction Activities.** For construction related activities exposing employees to unprotected heights over six feet, acceptable means to reduce fall hazards include:
 - Bringing the work down to ground level
 - Scaffolding
 - Ladders
 - Elevating work platforms and aerial devices
 - Using fall restraint, work positioning, and fall arrest systems only if other methods are infeasible

C. Engineering Controls

A competent person must determine if engineering controls can eliminate or lessen the hazard of the work area or job site and eliminate the need for personal protective equipment. Engineering controls for fall hazards consist of the following:

1. Guardrails and Toeboards

The use of guardrails and toe boards apply to temporary controls on job sites as well as permanent fixtures in general work areas.

- a. The standard railing consists of a top rail, mid rail, and posts and is 42 – 45 inches high from the top of the rail to the floor, platform, runway or ramp. Nominal height of the mid rail is 21 inches
- b. Standard toe boards must be a minimum of 3.5 inches high, no more than 1/4 inch clearance to the floor
- c. The anchoring of posts and framing of members for railings of all types must be of such construction that the completed structure is capable of withstanding a load of 200 pounds applied in any direction at any point on the top rail
- d. Guardrail systems have a surface that prevents injuries such as punctures and lacerations and prevents snagging of clothing
- e. When guardrail systems are in hoisting areas, a chain gate or removable guardrail section shall be in place when not being used

2. **Skylights**
 - a. Skylights that may be used as a walking or working surface must be protected by a standard railing, standard skylight screen, grill work with 4 by 4 inch openings or slat work with 2-inch openings
 - b. Standard skylight screens must be capable of withstanding minimum load of 200 pounds applied perpendicular to any point on the screen and will not deflect under ordinary loads and impacts and break glass

3. **Covers for Holes**
 - a. Covers for holes, including grates, shall be capable of supporting at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time
 - b. Covers located on roadways and vehicular aisles shall be capable of supporting at least twice the maximum axle load of the largest vehicle expected to cross over it
 - c. All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees
 - d. Covers shall be marked with the word "Hole" or "Cover" to provide warning of the hazard when it is not readily apparent
 - e. While a cover is not in place, the pit or trap opening shall be constantly attended by someone or shall be protected on all exposed sides by removable standard railings

D. Personal Protective Equipment

Personal protective equipment must be used to minimize fall hazards when engineering controls do not eliminate the hazard or in conjunction with engineering controls. Fall protection equipment is divided into the following functional categories: Fall Arrest, Positioning, Suspension, Retrieval, and Restraint.

1. Fall Arrest System

The use of a personal fall arrest system is used as personal protective equipment for fall hazards at the University. 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. University 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. When free fall is possible, body harness should include apparatus that will reduce the chance that an employee will go into shock due to restricted circulation due to being suspended in the harness (stirrups for example).
- b. **Connecting Device** - Shock-absorbing lanyards and lifelines
 - Lanyards and lifelines shall have a minimum breaking strength of 5000 pounds
 - Lanyards shall not exceed six feet in length. Lanyards used on aerial lift devices should not exceed 4 feet in length to reduce slack
 - Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body harnesses shall be made from synthetic fibers
 - Connecting assemblies shall have a minimum tensile strength of 5,000 pounds
 - Self-retracting lifelines and lanyards shall have a tensile strength of at least 3,000 pounds and limit free fall to two feet or less (5,000 pounds for ripstich lanyards, and tearing and deforming lanyards)
 - Personal fall arrest systems shall limit the maximum arresting forces to 1,800 pounds with a full body harness
 - The maximum free fall distance is six feet for all systems
 - The maximum deceleration distance is 3.5 feet
 - Personal fall arrest systems shall have sufficient strength to withstand twice the potential impact energy of the falling employee
 - Lifelines shall be protected against cutting and abrasions
 - 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

- 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
- Anchorages used for personal fall arrest systems must be independent of any anchorage being used to support or suspend platforms and be capable of supporting at least 5,000 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
 - A qualified person shall determine all anchor points, both temporary and permanent. Permanent anchor points shall be properly marked and approved by a Professional Engineer
 - Permanent anchorage points used for fall arrest or used for positioning devices shall be inspected annually or before use by a competent person or Professional Engineer.
 - Personal fall arrest systems shall not be attached to guardrail systems or hoists
2. **Positioning Device** A positioning device is not a substitute for a personal fall arrest system and is limited to use for employees 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
 - 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
3. **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
- d. Positioning device such as a boatswain's chair.

A boatswain'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.

- 4. **Retrieval** Personal retrieval systems are used for confined space entry and on-entry rescue. Refer to the University Confined Spaces Program for information on confined spaces entry. Personal retrieval systems consist of the following:
 - a. Full body harness
 - b. Retractable lifeline/rescue unit
 - c. Tripod
- 5. **Restraint Line** 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. Restraint lines are preferred to the use of fall arrest systems at the University due to their ability to prevent free fall and to reduce the need for a rescue team.
- 6. **Additional Personal Protective Equipment.** Any other PPE deemed necessary for the task must be worn. This includes, but is not limited, to hard hats, gloves, safety glasses, and hard toed boots. Hard hats shall be worn within an area beneath elevated work where objects could fall from a height and strike a worker.
- 7. **Equipment Inspections and Maintenance**
 - a. **Impact Loading.** Any fall arrest system or component that has been used to arrest a fall (impact loading) must be immediately removed from service until a competent person has inspected the equipment and found it to be undamaged.
 - b. **Inspection.** Visual equipment inspections must be conducted by personnel prior to each use. If, upon inspection, a piece of equipment shows any signs of wear it must immediately be removed from service and the supervisor notified. Departments

must perform and document inspections of fall protection equipment annually for any such equipment used by Department employees.

- c. **Maintenance.** When needed, fall protection devices should be washed in warm water using a mild detergent, rinsed thoroughly in clean warm water and allowed to dry at room temperature. Store equipment in a clean area away from strong sunlight and extreme temperatures. Check the manufacturer's recommendations for cleaning, maintenance and storage information.

E. Training

All employees that are exposed to fall hazards shall be trained in the recognition and minimization of such hazards. Training shall be arranged through Environmental Health and Safety. The employee shall be trained in the following areas:

1. Nature of fall hazards in the work area;
2. The correct procedures for erecting, maintaining, disassembling and inspecting fall protection systems;
3. The use and operation of controlled access zones and guardrails, personal fall arrest systems and warning lines;
4. The limitations on the use of mechanical equipment during the performance of roofing work on low-slope roofs;
5. The correct procedures for equipment and materials handling and storage and the erection of overhead protection; and
6. The employee's role in fall protection plans.

F. Rescue

When fall arrest systems are in use, a competent person will develop an effective rescue plan specific to the work location and job being performed. If a possible free-fall requires the use of a rescue team, then pre-job arrangements must be made for a standby, onsite rescue team. This will generally involve a contract company that specializes in fall rescue, development of internal expertise through specialized training or use of the Fire Department with a pre-job agreement that the Fire Department can act as a standby, onsite rescue team.

G. Specific Conditions

Roofs

The hazards associated with work on roofs includes falling through openings and falling off edges. Effective roof work fall protection techniques are intended to protect workers while providing the mobility and comfort

necessary to perform work tasks. Techniques, such as Controlled Access Zones area are available and described below.

- a. **Low-Sloped Roofs** - All employees working on low slope roofs with unprotected sides and edges six feet or more above the lower levels shall be protected from falling by guardrail systems or a combination warning line system and personal fall arrest system, or a combination warning line system and a safety monitoring system.
- b. **Steep Roofs** - All employees on a steep roof with unprotected sides and edges six feet or more above the lower levels shall be protected by either guardrail systems with toe boards or a personal fall arrest system. Contractors have used vertical, horizontal lifeline combination systems but these must be used under the direction of a competent person.
- c. **Controlled Access Zones** - Controlled access zones are areas where certain work may be done without the use of guardrails, personal fall arrest systems, or safety nets. However, unlike a warning line, which is barrier that cannot be crossed, a controlled access zone establishes a boundary that can be crossed, but only by a specifically designated employee.

General requirements for lines and stanchions are similar to warning lines, except that the minimum breaking strength for lines is only 200 pounds. Lines must be rigged and supported in such a way that the lowest and highest points are no more than 39 inches and 45 inches above the surface, except that 50 inches is allowed for overhand bricklaying.

On floors and roofs where guardrails are not in place, controlled access zones must include all points of access, material handling areas and storage areas. On floors and roofs where guardrails are in place, but need to be removed to allow bricklaying or leading edge work, only the portion of the railing that permits that day's work may be removed.

Control lines may not be located less than 6 feet, nor more than 25 feet, from leading or unprotected edges. However, when precast concrete members are being erected, the lines may not be less than 6 feet, nor more than 60 feet or half the length of the member being erected whichever is less, from the leading edge.

The control line must run approximately parallel to the entire length of the unprotected or leading edge. The controlled access zone must be defined by a control line erected not less than 10 feet nor more than 15 feet from the working edge.

The control line must extend for a distance sufficient to enclose all employees performing overhand bricklaying and related work at the working edge, and it must be approximately parallel to the working edge.

d. Safety Monitoring Systems

A safety-monitoring system is an administrative control that allows a competent person to watch employees and warn them if they get too close to an unprotected edge. The competent person must be specifically designated to serve as the safety monitor and must be on the same working level and within sight of the employees being monitored. Monitors must also be close enough to communicate with employees orally and may have no other responsibilities that could divert their attention from monitoring duties.

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Scaffolds

Fall protection is required for all scaffold use 6 feet above a lower level.

1. All scaffolds, where work is conducted in excess of 6 feet in height, shall have 4 inch toe boards
2. A scaffold shall not be moved while personnel are on it
3. Follow all manufacturer's guidelines and special warnings if the scaffold is commercially produced
4. The maximum work level height shall not exceed 4 times the least base dimension of the scaffold. Example: a four foot by six foot scaffold cannot exceed sixteen feet in height at the work platform level
5. The minimum working platform width is two feet
6. The supporting structure for the scaffold must be rigidly braced, using adequate cross bracing or diagonal bracing with rigid platforms at each work level
7. Working platforms should have a nonslip surface
8. Scaffolds should be used only on an even surface
9. The platform surface should be kept clear of extraneous tools and materials
10. The work level platform shall be wood, aluminum, plywood planking, steel or expanded metal for the full width of the scaffold, except for necessary protected openings
11. Work platforms shall be secured in position
12. All work platform planking shall be compliance grade lumber. Planks shall be overlapped a minimum of 12 inches and extended over supports 6 - 12 inches
13. Follow all manufacturer guidelines in the assembly of the scaffold. Do not use or assemble the scaffold, if unsure of the correct assembly procedure
14. Hard hats must be worn within an area beneath elevated work where objects could fall from a height and strike a worker
15. Mobile scaffolds shall not be moved unless the surface of travel is within 3 degrees of level and free of pits, holes and obstructions, and the employee on the scaffold has advanced knowledge of the movement

Inspection of Scaffolds

1. Prior to the use of any scaffold, an inspection must be conducted, and then daily during usage of the scaffold
2. Carefully examine the scaffold for broken or missing cross bracing, broken supporting structure, working platform, and other damaged parts. In addition, all walking and working surfaces must be free of grease, oil, paint, or other slippery substances
3. The scaffold should be equipped with positive wheel lock casters secured in place

4. The joint between working platform and supporting structure must be tight, and all hardware and fittings should be attached firmly. Movable parts should operate freely without binding or undue play
5. All wood parts must be free of sharp edges and splinters. Visually inspect the scaffold to be free of shakes, warpage, decay or other irregularities. Metal parts must be free of sharp edges, burrs and corrosion. Inspect for dents or bends in supporting structure, cross braces and walking/working surfaces
6. Check all working platform to support structure connections, hardware connections and rivets. If a scaffold tips over, inspect the scaffold for damage before continuing work
7. Damaged scaffolds must be withdrawn from service and either repaired or destroyed. When a defect or unsafe condition is found, personnel shall tag or mark the scaffold so that it will not be used until corrective action is taken. Defective or unsafe situations shall be reported to the supervisor. Field repairs and the fabrication of improvised scaffolds is prohibited

Aerial Lifts

Aerial lifts include the following types of vehicle mounted aerial devices used to elevate personnel to job sites above ground:

1. Articulating boom platforms designed to reach up and over obstacles.
2. Extensible or telescoping boom platforms may extend over one hundred feet.
3. Vehicle mounted bucket lifts used to repair utility lines.
4. Scissor lifts extend into the air via a series of crisscross supports.
5. Personal man lifts that are lightweight and designed for one person to use indoors.

Specific requirements

1. Aerial ladders shall be secured in the lower traveling position before the truck is moved for highway travel;
2. Lift controls shall be tested each day prior to use;
3. Only personnel authorized by a fall protection competent person shall operate an aerial lift:
4. Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position;
5. A full-body harness shall be worn and a lanyard attached to the boom or basket when working from an aerial lift (exception: a harness is not required in a scissor lift or personal man lift with surrounding guardrail system and closing gate or latch chain);
6. Belting off to an adjacent pole structure, or equipment while working from an aerial lift shall not be permitted;
7. Boom and basket load limits specified by the manufacturer shall not be exceeded;
8. The brakes shall be set and when outriggers are used, they shall be positioned on pads or other solid surface. Wheel chocks shall be installed when using an aerial lift on an incline;
9. An aerial lift truck shall not be moved when the boom is elevated in a working position, except for equipment which is specifically designed for this type of operation;
10. Articulating and extensible boom platforms shall have both platform and ground controls; and
11. Before moving an aerial lift for travel, the boom shall be inspected to ensure that it is properly cradled and outriggers are in the stowed position.

Ladders

Portable Ladders

Use of Portable Ladders - The proper ladder must be selected for the task. General rules include the following:

1. The ladder chosen must be long enough to provide access to the work area without necessitating standing on the top two steps of a stepladder or the top three rungs of a straight ladder;
2. The ladder selected must be sufficient for the weight of the employee plus the weight of any tools and materials;
3. Type 1A-Extra-heavy industrial ladder will support 300 lbs.
4. Type 1-Heavy-duty industrial ladder will support 250 lbs.
5. Type 2-Medium-duty commercial ladder will support 225 lbs.
6. Type 3-Light-duty household ladder will support 200 lbs.;
7. When a straight ladder is used to gain access to a roof, the side rails should extend at least three feet above the support point at the eave, gutter, or roof line;
8. Never splice together short ladders to form a longer ladder;
9. Never place ladders on boxes, barrels, or other unstable bases for additional height;
10. Ladders must be placed on level surfaces. Although ladder feet or shoes provide an important measure of safety, they cannot compensate for uneven ground unless they are designed with adjustable feet;
11. Be alert to slippery surfaces. Nonslip bases are not a substitute for safety in placing, lashing, or holding a ladder on oily, metal, concrete, or other slippery surfaces;
12. Do not use ladders for unintended purposes;
13. Do not use a metal ladder when working on or near electrical equipment;
14. The distance from the bottom of a straight ladder to its support wall shall be one-quarter the working length of the ladder;
15. Where possible, straight ladders should be secured with a rope or wire at the top and blocked at the bottom;
16. The top two steps and platform of a stepladder shall not be used, and the top three rungs of a straight ladder shall not be used;
17. Do not over-reach, jump or slide a ladder while on it. Ladders shall not be moved, shifted, or extended while occupied;
18. Always face the ladder and use both hands while ascending or descending.
19. Tools or materials should be raised by means of a rope after the climber has reached the working position. Carrying heavy loads up or down ladders is prohibited;
20. Barricades and warning signs should be posted when ladders are placed near doors or other locations where they could be struck;

21. Two workers shall handle and set up all extension ladders;
22. Ladders should not be used by more than one person at a time unless they are designed for such use;
23. The bracing on the back side rails of stepladders is designed only for increasing stability, not for climbing;
24. Ladders shall not be used horizontally as platforms, runways, or scaffolds.
Extension ladders must have proper overlap.
 - a. Three foot overlap for 32 foot ladder;
 - b. Four foot overlap for 32 to 36 foot ladder;
 - c. Five foot overlap for 36 to 48 foot ladder; and
 - d. Six foot overlap for 48 foot ladder.;
25. Make certain that both automatic locks of the extension ladder are in proper position before ascending the ladder;
26. Straight ladders and stepladders that exceed 10 feet may be held by another person for steadying;
27. The area around the top and bottom of the ladder shall be kept clear; and
28. Hard hats must be worn within an area beneath elevated work where objects could fall from a height and strike a worker.

Ladder Inspection

1. Prior to use of any ladder, an inspection must be performed:
2. Carefully examine the ladder for broken or missing rungs or cleats, broken side rails, and other damaged parts;
3. All cleats, rungs, and side rails must be free of grease, oil, paint, or other slippery substances;
4. The ladder should be equipped with feet that are secured in place;
5. The joint between steps and side rails must be tight, and all hardware and fittings should be attached firmly. Movable parts should operate freely without binding or undue play;
6. All wood parts must be free of sharp edges and splinters;
7. Visually inspect the ladder to be free of shakes, warpage, decay or other irregularities;
8. Metal ladders must be free of sharp edges, burrs and corrosion;
9. Inspect for dents or bends in side rails, rungs or cleats;
10. Check step to side rail connections, hardware connections and rivets; and
11. If a ladder tips over, inspect the ladder for damage before continuing work.

Fixed Ladders

1. Fixed ladders should be designed to withstand a single concentrated load of at least 200 lbs;

2. Rungs of metal ladders must have minimal diameter of three quarters inch. Rungs must be at least 16 inches wide, be spaced 12 inches apart;
3. Fixed Ladders, when their location so demands, must be painted or treated with a preservative to resist deterioration;
4. The preferred pitch for a safe descent is 75 to 90 degrees. Ladders with 90 degree pitch must have two and one half feet of clearance on the climbing side. There must be a three foot clearance on ladders with a 75 degree pitch;
5. There must be at least a seven inch clearance in back of the ladder to provide adequate toe space;
6. There must be a clear width of 15 inches on each side of the center line of the ladder, unless the ladder is equipped with a cage or well;
7. Fixed ladders must have cages if they are longer than 20 feet. Landing platforms must be provided on ladders greater than 20 feet long. A platform is required every 30 feet for caged ladders and every 20 feet for unprotected ladders; and
8. Side rails must extend at least 42 inches above the landing.
9. Any system (tracks or runways) attached to the fixed ladder for the purposes of attaching fall protection equipment such as lifelines, lanyards, positioning systems or personal fall arrest systems must be inspected annually by a competent person or a Professional Engineer.

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