



## **Board Policy 6814 Fall Protection Program**

Reference: *California Code of Regulations, Title 8, Section 3209-3214; 3287; 3299*

Through the establishment of a Fall Protection Program, the West Hills Community College District has specified procedures and training for the safety of employees while working on elevated surfaces and ladders.

Board approval date: 6/23/09



# ***FALL PROTECTION PROGRAM***



Universal Harness

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### Attachment 1 – Ladder Safety

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# FALL PROTECTION PROGRAM

## 1.0 Purpose

The purpose of this Fall Protection Program is to meet the requirements pursuant to California Code of Regulations (CCR), Title 8, Sections 3209-3214, 3287 and 3299 and also to serve as a supplement to the West Hills Community College District's (WHCCD) Injury and Illness Prevention Program (IIPP). Additionally, it is to specify procedures and training for the safety of WHCCD employees while working on elevated surfaces and ladders.

## 2.0 Scope

This program applies to all WHCCD employees that perform any duties on an elevated work surface where there is a fall hazard of six (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 six (6) feet to an unprotected edge, platform, walkway, or utilize elevated equipment unless the employee is properly secured from falling.

Additionally, this program shall apply to all employees in order to minimize slips, trips and falls. 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 fall to the appropriate college maintenance department.

Contractors working on campus are required to comply with all applicable Cal/OSHA workplace safety regulations and shall have their own fall protection program.

## 3.0 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.

Body harness/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.

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.

Fixed ladder: Any ladder, including individual rung ladders, that are 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 two (2) inches or more in its least dimension in a floor, roof, or other walking/working surface.

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 hand 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.

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.

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.

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 (2) feet or less).

Toe board: A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling.

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.

## **4.0 Responsibilities**

### **4.1 WHCCD Maintenance & Operations Department**

Responsible for conducting periodic visits to elevated work locations. The purpose of these visits is to inspect equipment and to observe employee's procedures while working at elevated level.

Responsible for arrange required training of college employees in fall protection and in the safe use of elevating personal platforms.

#### 4.2 WHCCD Managers and Supervisors

Responsible for ensuring that all requirements listed in the written program for fall protection are met.

With the assistance of Environmental Health and Safety, are responsible for identifying elevated work areas.

#### 4.3 WHCCD Employees

Employees who work at heights of six (6) feet or greater are required to attend training for fall protection. Additionally, those employees working on aerial platforms, scissor lifts or other elevated platform equipment must receive training on the use of such equipment.

#### 4.4 Other Departments

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 campus(es).

Theater Program – lighting and stage personal for performances.

### **5.0 Program Components**

The following work situations are covered by this Fall Protection Program:

- Ladders – fixed, free standing, temporary, or roll away type
- Elevating Personal Platforms – scaffolds, aerial platforms, scissor lifts, etc.
- Elevated Surfaces – roofs, catwalks, skylights, boilers, chillers, etc.
- Vertical Opening – ground level entry into trenches, and other confined spaces

#### 5.1 Protection Systems

Fall protection can generally be provided through use of various 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 5,000 pounds.
- Warning Line Systems – Warning line systems are made up of lines of ropes installed around a work area on a roof. These act as a barrier to prevent those working on the roof from approaching its edges.

- Covers – Covers are fastened over holes in the working surface to prevent falls.

## 5.2 Personal Protective Equipment

Employees who use personal fall protection to control 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 Methods of use, inspection, and storage of equipment

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.

Fall arrest systems including harnesses shall be inspected at least twice each year or according to manufacturer's 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 entire harness assembly was inspected and by whom.

## 5.3 Ladders

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

## 5.4 Aerial Lifts

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

- The manufacturer's operating instructions
- 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 and/or personal protective equipment
- Minimum safe approach distances to energized power lines

## 5.5 Scaffolds

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.

## 5.6 Slips, Trips and Falls

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 are provided where employees are working.

## 6.0 Reporting Requirements

Awareness of and respect for fall protection procedures and compliance with all applicable safety rules is mandatory.

The College Maintenance & Operations Director is authorized to issue warnings to employees and stop unsafe work from continuing.

Supervisors may issue warnings and implement disciplinary actions up to and including termination for failure to follow the guidelines of this program.

Employees shall report any safety concerns to their Supervisor or the Director of Maintenance & Operations.

## 7.0 Training Requirements

Under no circumstances will any employee work in areas of high fall hazards, 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.



## Ladder Safety

The OSHA Standard for portable ladders contains specific requirements designed to ensure worker safety:

### Loads

- Self-supporting (foldout) and non-self-supporting (leaning) portable ladders must be able to support at least four times the maximum intended load, except extra-heavy-duty metal or plastic ladders, which must be able to sustain 3.3 times the maximum intended load. (Figure 1)



Figure 1

### Angle

- Non-self-supporting ladders, which must lean against a wall or other support, are to be positioned at such an angle that the horizontal distance from the top support to the foot of the ladder is about 1/4 the working length of the ladder. (Figure 2)
- In the case of job-made wooden ladders, that angle should equal about 1/8 the working length. This minimizes the strain of the load on ladder joints that may not be as strong as on commercially manufactured ladders.



Figure 2

### Rungs

- Ladder rungs, cleats, or steps must be parallel, level, and uniformly spaced when the ladder is in position for use. Rungs must be spaced between 10 and 14 inches apart.
- For extension trestle ladders, the spacing must be 8-18 inches for the base, and 6-12 inches on the extension section.
- Rungs must be so shaped that an employee's foot cannot slide off, and must be skid-resistant. (Figure 3)



Figure 3

### Slipping

- Ladders are to be kept free of oil, grease, wet paint, and other slipping hazards.
- Wood ladders must not be coated with any opaque covering, except identification or warning labels on one face only of a side rail.

### Other Requirements

- Foldout or stepladders must have a metal spreader or locking device to hold the front and back sections in an open position when in use. (Figure 4)
- When two or more ladders are used to reach a work area, they must be offset with a landing or platform between the ladders.
- The area around the top and bottom of ladder must be kept clear.
- Ladders must not be tied or fastened together to provide longer sections, unless they are specifically designed for such use. (Figure 5)
- Never use a ladder for any purpose other than the one for which it was designed.



Figure 4



Figure 5



Improper use of the top rung of a ladder

**§3209. Standard Guardrails.**

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Wherever guardrail protection is required, the following standards shall be adhered to except that other types and arrangements of guardrail construction will be acceptable where the height, surface and end projection of the top rail complies with the standard specifications and the closure of the vertical area between the top rail and floor, platform, runway, Of f8-111p provides protection at least equivalent to that afforded by a mid- rail.

(a) A standard guardrail shall consist of top rail, midrail or equivalent protection, and posts, and shall have a vertical height within the range of 42 inches to 45 inches from the upper surface of the top rail to the floor, platform, runway, or ramp level. (Note: the permissible tolerance on height dimensions is one inch). The top rail shall be smooth-surfaced throughout the length of the railing. The midrail shall be approximately halfway between the top rail and the floor, platform, runway, or ramp. The ends of the rails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard. (Title 24, Part 2, Section 2-1716(a).)

NOTE: Local building regulations may require 9-inch spacing of midrails.

(b) All guardrails and other permissible types, including their connections and anchorage, shall be designed for a live load of 20 pounds per linear foot applied either horizontally or vertically downward at the top rail. Dimensional details of railing members of a few types of construction which comply with this strength requirement are given hereinafter in subsection (c).

NOTE: It is recognized that the minimum value of railing strength here specified is inadequate for safety under operating conditions where railings are liable to receive heavy stresses from crowds, trucking, handling materials, etc. For such conditions, additional strength shall be provided by use of heavier stock, closer spacing of posts, bracing, or otherwise.

Railing members shall be framed in such a position that they will afford the greatest support and protection, for example, top rails of structural steel angles shall have the outside face of vertical leg located on the side adjacent to the side of normal contact by the employee. (Title 24, Part 2, Section 2-1716(b).)

(c) The following are some acceptable guardrail specifications: other combinations will be accepted as long as equivalent strength and protection are maintained.

(1) In wooden construction, the posts to be of at least 2-inch by 4-inch nominal material spaced not to exceed 6 feet, the top rails to be smooth with comers rounded and not less than 2-inch by 4-inch nominal material. The posts may be spaced on 8-foot centers if the top rails consist of double 1-inch by 4-inch nominal boards, provided that 1 board is fastened in a flat position on top of the posts and the other is fastened in an edge-up position to the inside of the posts and the side of the top board. Single midrails, where permitted, shall be not less than 2-inch by 4-inch nominal material and installed on the contact side of the guardrail.

(2) If constructed of standard metal pipe, the top rails and single midrail, where permitted, to be 1 1/2-inch outside diameter or larger. The posts to be 1 1/2-inch outside diameter or larger, the spacing not to exceed 8 feet.

(3) If constructed of structural metal, the top rails to be angle iron of at least 2-inch by 2-inch by 1/4-inch angles or other metal shapes of equivalent bending strength; and the single midrail, where permitted, to be iron or steel of at least 2-inch by 2-inch by 1/4-inch angles or other metal shapes of equivalent strength. The posts to be angle iron of at least 2-inch by 2-inch by 1/4-inch stock, the spacing not to exceed 8 feet. (Title 24, Part 2, Section 2-1716(c).)

(d) Where toeboards are required, they shall be constructed of wood, concrete, metal, or other suitable material. Where constructed of metal grille, mesh shall not exceed 1-inch. The top of the toeboard shall be not less than 3 1/2 inches above the platform, walkway, or other working level and the bottom clearance shall not exceed 1/4-inch.

NOTE: Where materials are piled, higher toeboards, or paneling from floor to intermediate rails or top rail shall be provided where necessary for safety. (Title 24, Part 2, Section 2-1753.)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 18943(c), Health and Safety Code.

#### HISTORY

1. Amendment of subsection (c)(1) filed 1-18-78; effective thirtieth day thereafter (Register 78, No.3). For prior history, see Register 77, No. 41.

2. Repealer of NOTE in subsection (c) (4) filed 1-23-81; effective thirtieth day thereafter (Register 81, No.4).

3. Amendment filed 5-25-83; effective thirtieth day thereafter (Register 83, No. 22). Approved by State Building Standards Commission 1-24-83.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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#### **§3210. Guardrails at Elevated Locations.**

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(a) Buildings. Guardrails shall be provided on all open sides of unenclosed elevated work locations, such as: roof openings, open and glazed sides of landings, balconies or porches, platforms, runways, ramps, or working levels more than 30 inches above the floor, ground, or other working areas of a building as defined in Section 3207 of the General Industry Safety Orders. Where overhead clearance prohibits installation of a 42-inch guardrail, a lower rail or rails shall be installed. The railing shall be provided with a toeboard where the platform, runway, or ramp is 6 feet or more above places where employees normally work or pass and the lack of a toeboard could create a hazard from falling tools, material, or equipment.

Exceptions:

1. Runways used exclusively for oiling, adjusting or otherwise maintaining shafting or other machinery may have the guardrail on the side adjacent to the machinery omitted provided that additional guarding as required by Group 6 Power Transmission Equipment, Prime Movers, Machines and Machine Parts is complied with.
2. Stationary elevated platforms secured to buildings or structures used exclusively for the service and maintenance of overhead bridge cranes and similar mobile equipment may be equipped with removable railings in lieu of guardrails on the side adjacent to the machinery provided such railings are secured against falling when they are not serving as a protective railing. In existing installations where clearance prohibits railings on the outside of the platform, railings will be permitted on the building side to serve as handholds.
3. Portions of loading or storage platforms which are used primarily for loading or unloading railroad cars or trucks, or at waterside edges used for cargo handling.
4. Open-sided platforms or floors used for storage of lumber or other materials may be guarded with movable single rails, sliding panels, gates or other barriers provided they are of strength and design equivalent to guardrails.
5. Open sides of storage platforms less than four feet wide, or portions thereof which are loaded and unloaded exclusively by means of stackers or lift trucks handling pallet supported loads.
6. Glazed sides that are in compliance with Section 3242.
7. Open hearth and hot metal pouring platforms.
8. Platforms, runways, ramps, or other working levels less than 4 feet above floor, ground, or other working level constructed prior to January 1, 1967.
9. Theatre galleries, balconies, or other such elevated seating locations, where a 42-inch railing would obstruct the sight lines, may be protected by a guardrail or other barrier of not less than 34 inches in height provided that a horizontal concave safety ledge not less than 6 inches in depth and not less than 36 inches in effective width is installed beyond the railing at the balcony floor level. The safety ledge shall be designed to carry a live load of 100 pounds per square foot.
10. On outside plaza, patio, and garden areas, alternate means of protection are acceptable if the same degree of safety is provided
11. Elevated locations used infrequently by employees if the employees using them are protected by a fall restraint/fall arrest system used in accordance with the requirements in Article 24 of the Construction Safety Orders.
12. On fire hose drying towers, the top rail may be omitted on the inboard or working side of the platform if the hose drying fingers or hangers are spaced not more than 6 inches apart and extend the full length of the platform along the open or working side to within 6 inches of the end rails. The ends of the fingers or hangers shall be positioned at the same height as prescribed for the top rail and within 5 inches from the vertical projection of the platform edge.

13. On the auditorium side of a stage, raised platforms and other raised floor areas such as runways, ramps and side stages used for entertainment or presentation. At vertical openings in the performance area of stages.

(b) Other Elevated Locations. The unprotected sides of elevated work locations that are not buildings or building structures where an employee is exposed to a fall of 4 feet or more shall be provided with guardrails. Where overhead clearance prohibits installation of a 42-inch guardrail, a lower rail or rails shall be installed. The railing shall be provided with a toeboard where the platform, runway, or ramp is 6 feet or more above places where employees normally work or pass and the lack of a toeboard could create a hazard from falling tools, material, or equipment.

Exceptions:

1. Runways used exclusively for oiling, adjusting or otherwise maintaining shafting or other machinery may have the guardrail on the side adjacent to the machinery omitted provided that additional guarding as required by Group 6-Power Transmission Equipment, Prime Movers, Machines and Machine Parts is complied with.
2. Portions of loading or storage platforms which are placed or located next to railroad cars or trucks and used primarily for loading or unloading railroad cars or trucks, or at waterside edges used for cargo handling.
3. Open sides of storage platforms less than four feet wide, or portions thereof which are loaded and unloaded exclusively by means of stackers or lift trucks handling pallet supported loads.
4. Portable platforms, portable or fixed work stands, where used in close quarters which would make the installation of guardrails impracticable, may be provided with removable or hinged railings which can be either removed or swung out of the way during such work. Toeboards may not be required on portable or fixed platforms where the nature of the work requires the employees to sit on the edge of the platform.
5. Elevated locations used infrequently by employees if the employees using them are protected by a fall restraint/fall arrest system used in accordance with the requirements in Article 24 of the Construction Safety Orders.
6. Flumes when they are accessed by an employee for the purpose of conducting a flume patrol (as defined in Section 3207), and provided the employer implements either written administrative procedures or provides alternative means which will control the hazard of an employee fall off the flume.
7. Belt loaders or conveyors designed and used for access/egress to aircraft shall be equipped with at least one handrail that will furnish a handhold for anyone grasping it to avoid falling.
8. Working on or in aircraft wheel wells when the wheel well design does not permit the use of guardrails or other fall protection equipment/devices.
9. On mobile vehicles/equipment, where the design or work processes make guardrails impracticable, the use of sufficient steps and attached handholds or structural members which allow the user to have a secure hand grasp shall be permitted. Work from the decks, permanent/stationary platforms, runways, or walkways of mobile vehicles/equipment shall be excluded from the requirements of subsection (b) where it can be shown that guardrails or handholds are impracticable by the design or work processes.

(c) Where the guardrail requirements of subsections (a) and (b) are impracticable due to machinery requirements or work processes, an alternate means of protecting employees from falling, such as personal fall protection systems, shall be used.

(d) Openings in guardrails for ladderway access shall be protected as required by Section 32 I 2(a) (2) of the General Industry Safety Orders.

NOTE

Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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**§3211. Wall Openings.**

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An opening in a wall or partition not provided with a glazed sash, having a height of at least 30 inches and a width of at least 18 inches, through which a person might fall to a level 30 inches or more below, shall be guarded by a guardrail or other barrier of such construction and mounting that the guardrail or barrier is capable of withstanding a force of at least 200 pounds applied horizontally at any point on the near side of the guardrail or barrier. Barriers may be of solid construction, grillwork with openings not more than 8 inches long, or of slatwork with openings not more than 4 inches wide with unrestricted length. (Title 24, Part 2, Section 2-1716.)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section I 8943(c), Health and Safety Code.

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**§3212. Floor Openings, Floor Holes and Roofs.**

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(a)(1) Every floor and roof opening shall be guarded by a cover, a guardrail, or equivalent on all open sides. While the cover is not in place, the openings shall be constantly attended by someone or shall be protected by guardrails. Toeboards shall be installed around the edges at openings where persons may pass below the opening.

Exception: Stairway entrances.

(2)(A) Every ladderway floor opening or platform with access provided by ladderway, including ship stairs (ship ladders), shall be protected by guardrails with toeboards meeting the requirements of General Industry Safety Orders, Section 3209, on all exposed sides except at entrance to the opening. The opening through the railing shall have either a swinging gate or equivalent protection, or the passageway to the opening shall be so offset that a person cannot walk directly into the opening.

Exception: Ladder openings for entrance/access at perimeter roof edges where guardrail protection is not required by subsection (d) of this section.

(B) I. The uppermost surface or railing member of the swinging gate or other equivalent protection required by subsection (a)(2)(A) shall have a vertical height from the platform or floor level of between 42 to 45 inches plus or minus one inch and;

2. The swinging gate or other equivalent protection shall be capable of withstanding a force of at least 200 pounds applied vertically downward to the uppermost surface or railing member and horizontally outward at any point on the exit side of the ladder opening.

(3) Hatchways and chute floor openings shall be guarded by guardrails or by hinged or removable covers or by removable railings provided such covers or railings will afford protection equivalent to that provided by a guardrail.

This does not apply to chute openings which are effectively covered or protected by machine or equipment during operation. However, such chute shall be covered during repair or maintenance or when otherwise exposing employees to the hazards of unguarded floor openings.

(4) Foundry pits and similar sunken locations in which employees are required to work may be left unprotected during such times as the necessary handling of materials or other work prohibits the use of guardrails or equivalent; but when such pits are not in use they shall be either covered, filled in, or protected with guardrails or equivalent.

(5) Floor holes through which materials or tools may fall and create a hazard or through which parts of a person's body may contact dangerous moving parts, shall be completely covered except when in use unless these floor holes are used to feed machines or receptacles containing hot, toxic or corrosive materials, then these openings shall be guarded by hoppers, guardrails, or grates having openings not exceeding 1-inch by 5 inches. Floor holes through which transmission equipment passes may be guarded by toeboards.

(b) Floor and roof opening covers shall be designed by a qualified person and be capable of safely supporting the greater of 400 pounds or twice the weight of the employees, equipment and materials that may be imposed on anyone square foot area of the cover at any time. Covers shall be secured in place to prevent accidental removal or displacement, and shall bear a pressure sensitized, painted, or stenciled sign with legible letters not less than one inch high, stating: "Opening--Do Not Remove." Markings of chalk or keel shall not be used.

(c) Covers shall not project more than one inch above the floor level and all edges shall be chamfered to an angle with the horizontal of not over 30 degrees. All hinges, handles, bolts, or other parts shall set flush with the floor or cover surface. (Title 24, part 2, section 2-1721(c).)

(d)(1) Guardrails as specified in section 3209 shall be required at locations where there is a routine need for any employee to approach within 6 feet of the edge of the roof. When intermittent work is being done safety belts and lanyards, or an approved fall protection system may be provided in lieu of guardrails.

For the purpose of this requirement, routine need means more than four times a year and intermittent work means work not exceeding four times a year.

(2) Guardrails required by subsection (d)(1) shall be provided along the roof edge extending at least 6 feet beyond the areas occupied by persons accessing, servicing or repairing permanently-mounted machinery and/or equipment.

(3) Where fall protection systems are used, safety lines and/or lanyards shall be attached to roof tie-backs meeting the requirements of section 3291 (t) or equivalent anchorage. A safe and unobstructed access shall be provided to all roof tie-back locations. (Title 24, part 2, section 1711(h).)

(e) Any employee approaching within 6 feet of any skylight shall be protected from falling through the skylight or skylight opening by anyone of the following methods:

(1) Skylight screens. The design, construction, and installation of skylight screens shall meet the strength requirements equivalent to that of covers specified in subsection (b) above. They shall also be of such design, construction and mounting that under design loads or impacts, they will not deflect downward sufficiently to break the glass below them. The construction shall be of grillwork, with openings not more than 4 inches by 4 inches or of slatwork with openings not more than 2 inches wide with length unrestricted, or of other material of equal strength and similar configuration, or

(2) Guardrails meeting the requirements of Section 3209, or

(3) The use of a personal fall protection system meeting the requirements of Section 1670 of the Construction Safety Orders, or

(4) Covers meeting the requirements of subsection (b) installed over the skylights, or

(5) A fall protection plan as prescribed in Section 1671.1 of the Construction Safety Orders when it can be demonstrated that the use of fall protection methods as contained in subsections (e) (I-4) of this Section is impractical or creates a greater hazard. Exception: When the work is of short duration and limited exposure such as measuring, roof inspection, electrical/mechanical equipment inspection, etc., and the time involved in rigging and installing the safety devices required in subsections (e)(I) through (e)(4) equal or exceed the performance of the designated tasks of measuring, roof inspection, electrical/mechanical equipment inspection, etc.; these provisions may be temporarily suspended provided that adequate risk control is recognized and maintained.

(f) Access shall not be permitted on glazed surfaces such as roofs, vaults, canopies, or skylights glazed with transparent or translucent materials unless an engineer currently registered in the State of California and experienced in the design of such glazed structures has certified that the surface will support all anticipated loads. Employees working on such surfaces shall be protected by a fall protection system meeting the requirements of Section 1670 of the Construction Safety Orders.

(g) When glazed surfaces cannot be safely accessed for maintenance in accordance with subsection (f), scaffolds, catwalks, rolling ladders, platforms or other methods of safe access shall be provided.

#### NOTE

Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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### **§3213. Service Pits and Yard Surface Openings.**

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(a) Unused portions of service pits and pits not in actual use shall be either covered or protected by guardrails, this may be accomplished by moveable posts or stanchions and chain rails or other guardrails which will provide equivalent protection.



EXCEPTION: Inspection, transfer and service pits used exclusively for maintenance of rolling railroad stock where impracticable to install guardrails or equivalent. (Title 24, Part 2, Section 2-1716(f).)

(b) Permanent yard surface openings such as pits or sumps shall be guarded as required by 3212, Floor Openings, Floor Holes and Roofs. (Title 24, Part 2, Section 2-1716(f).)

(c) Trench or conduit covers and their supports, when located in plant roadways, shall be designed to carry a truck rear-axle load of at least 20,000 pounds.

(d) Manhole covers and their supports, when located in plant roadways, shall comply with local standard highway requirements if any; otherwise, they shall be designed to carry a truck rear-axle load of at least 20,000 pounds.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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### **§3214. Stair Rails and Handrails.**

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(a) Stairways shall have handrails or stair railings on each side, and every stairway required to be more than 88 inches in width shall be provided with not less than one intermediate stair railing for each 88 inches of required width. Intermediate stair railings shall be spaced approximately equal within the entire width of the stairway.

Note: Intermediate stair railings may be of single rail construction.

Exceptions:

(1) Stairways less than 44 inches in width may have one handrail or stair railing except that such stairways open on one or both sides shall have stair railings provided on the open side or sides.

(2) Stairways having less than four risers need not have handrails or stair railings.

(3) Stairways giving access to portable work stands less than 30 inches high.

(4) Stairs that follow the contour of tanks or other cylindrical or spherical structures where the construction requires the inside clearance between the inside stair stringer and wall or tank side to be 8 inches or less, shall not be considered an "open side."

(5) Guardrails may be erected provided a handrail is attached.

(b) A stair railing shall be of construction similar to a guardrail (see Section 3209) but the vertical height shall be in compliance with Section 3214(c). Stair railings on open sides that are 30 inches or more above the surface below shall be equipped with midrails approximately one halfway between the steps and the top rail.

Note: Local building standards may require 4-inch spacing of intermediate vertical members.

(c) The top of stair railings, handrails and handrail extensions installed on or after April

3, 1997, shall be at a vertical height between 34 and 38 inches above the nosing of treads and landings. For stairs installed before April 3, 1997, this height shall be between 30 and 38 inches. Stair railings and handrails shall be continuous the full length of the stairs and, except for private stairways, at least one handrail or stair railing shall extend in the direction of the stair run not less than 12 inches beyond the top riser nor less than 12 inches beyond the bottom riser. Ends shall be returned or shall terminate in newel posts or safety terminals, or otherwise arranged so as not to constitute a projection hazard.

(d) A handrail shall consist of a lengthwise member mounted directly on a wall or partition by means of brackets attached to the lower side of the handrail so as to offer no obstruction to a smooth surface along the top and both sides of the handrail. The handrail shall be designed to provide a grasping surface to avoid the person using it from falling. The spacing of brackets shall not exceed 8 feet.

(e) Handrails projecting from a wall shall have a space of not less than 1 1/2 inches between the wall and the handrail.

(f) The mounting of handrails shall be such that the completed structure is capable of withstanding a load of at least 200 pounds applied in any direction at any point on the rail.

Exception: Handrails and stair rails on flights of stairs serving basements or cellars that are covered by a trap door, removable floor or grating when not in use, shall stop at the floor level or entrance level so as not to interfere with the cover in the closed position. (Title 24, Part 2, Section 1006.9.2.7a.)

Note: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 18943(b), Health and Safety Code.

**§3287. Ladders.**

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(a) Use and Application.

(1) Ladders shall be used for window cleaning only where the windows cannot otherwise be cleaned safely and practicably by means of approved anchors and window cleaning belts, but this method shall not be used to clean a window that requires the use of a fully extended extension ladder in excess of 40 feet.

(2) At all times when a cleaner is working on a ladder over 18 feet working length, a person shall stand at the foot of it, face it, and hold it with both hands.

(3) All ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is one-quarter the assembled length of the ladder (i.e., the length along the ladder between the foot and the top support).

Note: Nonslip bases are not intended as a substitute for care in safely placing, lashing or holding a ladder that is being used on oily, metal, concrete or slippery surfaces.

(4) Pointed ladders may be used for window cleaning. Rollers shall not be used at the point.

(5) Portable metal ladders shall not be used in the vicinity of electrical circuits in places where they may come in contact with them. Portable metal ladders shall be legibly marked with signs reading "CAUTION--Do Not Use Around Electrical Equipment," or equivalent wording.

(6) Each ladder shall be inspected daily and those which developed defects shall be withdrawn from service for repair or destruction and shall be tagged or marked "Danger, Do Not Use." Improvised repairs shall not be made.

(7) Ladders shall be stored in such a manner as to provide ease of access or inspection, and to prevent danger of accident when withdrawing a ladder for use. Ladders, when not in use, shall be stored at a location where they will not be exposed to the elements, but where there is good ventilation. Wood ladders shall not be stored near radiators, stoves, steam pipes, or other places subjected to excessive heat or dampness. Rungs shall be kept free of grease and oil.

(8) Sectional ladders shall not be used by more than one man at a time, or with ladder jacks and scaffold planks.

(9) The top rest for the ladder shall be rigid and shall have ample strength to support the applied load. Ladders shall not be placed in front of doors unless the door is blocked open, locked or guarded. They shall not be placed on boxes, barrels or other unstable bases to obtain additional height.

(10) When ascending, working upon or descending the ladder, the user shall face the ladder.

(11) The use of ladders with hooks attached, to be hung on or over a parapet wall or other projection, shall not be permitted in window cleaning.

(12)(A) No employee shall be permitted to stand on or work from the top 3 rungs of a ladder unless there are structural members that provide a firm handhold or the employee is protected from falling by a personal fall protection system (e.g., positioning device or fall restraint system) in accordance with the requirements of Section 1670 of the Construction Safety Orders.

(B) Stepladders. Employees shall not stand on the topcap or the step below the topcap of a stepladder.

Note: Tops of self supporting ladders shall not be considered as a rung.

(13) No ladder shall be used where the base of the ladder is above grade unless there is a safe means of access to the base and adequate fastenings to prevent the ladder from slipping or falling.

(14) Ladders shall not be used on scaffolds to gain additional height.

(b) Specifications.

(1) Wood ladders shall comply with Section 3278, Portable Wood Ladders of the General Industry Safety Orders and they shall not be painted with other than a transparent material.

Exception: Refer to Section 3287(a) ( 1) for maximum length.

(2) Metal ladders shall meet the requirements of Section 3279, Portable Metal Ladders of the General Industry Safety Order.

Exception: Refer to Section 3287(a) (I) for maximum length.

(3) Plastic reinforced ladders shall meet the requirements of Section 3280 of the General Industry Safety Orders.

(4) All ladders shall be equipped with nonslip bases suitable to the bearing surface. Middle and top sections shall not be used as bottom sections unless the user equips them with nonslip bases.

NOTE

Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

California Code of Regulations, Title 8, Sec 3299

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**§3299. Personal Fall Protection.**

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Employees on working platforms shall be protected by a personal fall arrest system meeting the requirements of Appendix C, Section I of this article, and as otherwise provided by these orders.

NOTE

Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.