

**STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

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TITLE 8, DIVISION 1, CHAPTER 4

Subchapter 5. Electrical Safety Orders
Group 2. High-Voltage Electrical Safety Orders
Article 36. Work Procedures and Operating Procedures

Amend Section 2940.6 as follows:

§2940.6. Tools and Protective Equipment.

(b) Fall Protection. When work is performed at elevated locations more than 4 feet (1.2 meters) above the ground on poles, towers or similar structures, the employer shall require the employees to use either fall arrest equipment, fall restriction equipment, work positioning equipment, or travel restricting equipment, if other fall protection methods have not been provided (e.g., guardrails, safety nets, etc.). The use of body belts for fall arrest systems is prohibited.

(1) Personal fall arrest systems shall meet the requirements of Section 1670(b) of the Construction Safety Orders. 3210.1 of the General Industry Safety Orders. [§1910.28(a)(vii) with cross reference to §1910.269(g)(2)(i)]

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

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Subchapter 7. General Industry Safety Orders
Group 1. General Physical Conditions and Structures
Article 1. Definitions

Amend Section 3207 to add the following definitions within the existing definitions in alphabetical order:

§3207. Definitions.

(a) The following terms are defined for general use in these regulations; specialized definitions appear in individual articles. (See Definitions in the Index)

Agricultural Building. *[No change in text]*

~~Alternating Tread Stairs. A stair on which the treads are approximately one half the width of the stair and alternate from right to left, consecutively, for the length of the stair.~~

Alternating Tread-Type Stair. A type of fixed industrial stairs that has a series of steps between 50 to 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time. *[Definition from building code. Term used in §3234]*

[§1910.21(b)]

Alternating Tread-Type Stair. A type of stairway consisting of a series of treads that usually are attached to a center support in an alternating manner such that an employee typically does not have both feet on the same level while using the stairway]

[2022, Title 24, Part 2, Chapter 2]

Alternating tread device. A device that has a series of steps between 50 to 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time]

ANSI. *[No change in text]*

Certified Safety Professional or CSP. *[No change in text]*

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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.

Note: Competent person in fall protection, see Section 3210.1

Court. *[No change in text]*

Emergency Escape Route. *[No change in text]*

Equivalent. ~~An alternate design, feature, device, or protective action which provides an equal degree of safety.~~ Alternative designs, equipment, materials, or methods, that the employer can demonstrate will provide an equal or greater degree of safety for employees compared to the designs, equipment, materials, or methods specified in these Orders. [§1910.21(b), Used in §3209]

Exit. *[No change in text]*

Exit Passageway. *[No change in text]*

Failure. A load refusal, breakage, or separation of component parts. A load refusal is the point at which the ultimate strength of a component or object is exceeded. [§1910.21(b), Used in §3209(c), (k), §3210.1(f)(1), Appendix A to §3210.1(c)(7), §3277(j)(6), §3283(e)(2), §3283(e)(3) (e)(B) §3295(e)(2)(M) and (N)]

Fall Hazard. Any condition on a walking-working surface that exposes an employee to a risk of harm from a fall on the same level or to a lower level. [§1910.21(b)]

Fall Protection. Any equipment, device, or system that prevents an employee from falling from an elevation or mitigates the effect of such a fall. [§1910.21(b)]

Fire Wall. *[No change in text]*

Floor Area. *[No change in text]*

~~Floor Hole. Any opening in a floor or platform which is smaller than a floor opening.~~

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Floor Opening. An opening in any floor or platform, ~~12~~ 2 inches or more in the least horizontal dimension. It includes stairway floor openings, ladderway floor openings, hatchways, and chute floor openings. [*§1910.21(b), Used in §3212*]

Flume. [*No change in text*]

Guardrail. [*No change in text*]

Handrail. A ~~device~~ rail to be used as a handhold for support. [*§1910.21(b), Used in §3214*]

Hazard, Extra. [*No change in text*]

Hazardous Substance. [*No change in text*]

Hoist Area. Any elevated access opening to a walking-working surface through which equipment or materials are loaded or received. [*§1910.21(b), Used in 3212(f)*]

Horizontal Exit. [*No change in text*]

Inaccessible Location. [*No change in text*]

Industrial Stairs. A series of steps leading from one level or floor to another, or leading to platforms, pits, boiler rooms, crossovers, or around machinery, tanks, and other equipment. A series of steps and landings having ~~three~~ two or more risers constitutes an industrial stair or stairway. Ship, spiral, alternating type tread stairs are considered industrial stairs. [*§1910.21(b)*]

Installation. [*No change in text*]

Live Load. [*No change in text*]

Loading/Unloading Rack. A fixed structure (such as a platform, gangway) necessary for loading or unloading tank truck or tank car. A loading/unloading rack includes a loading or unloading arm, and may include any combination of the following: piping assemblages, valves, pumps,

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shut-off devices, overfill sensors, or personnel safety devices. [From 40 CFR §112.2
<https://www.law.cornell.edu/cfr/text/40/112.2>

Used in §3210 and §3336 , but no federal definition of loading rack]

Loading Ramp. *[No change in text]*

[Lower Level – Board staff is leaning towards the definition proposed during the Fixed Ladders AC. Please provide comments if you disagree with the addition of “lesser elevation”]

Lower Level. A surface, or area, of a lesser elevation to which an employee could fall. Such surfaces or areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, equipment, and similar surfaces and structures, or portions thereof. [This definition was the outcome of the fixed ladder AC, §1910.21(b), Used in definition of fall hazard, toeboard, §3210.1(e)(2), §3210.2(b)(2) and (b)(3), 3277(i) and (k)(3), §3336(c)(2), §3656(e)]

Maximum Intended Load. The total load (weight and force) of all employees, equipment, vehicles, tools, materials, and other loads to be applied to a walking-working surface at any one time. [§1910.21(b), Used in §3209.1(a)(3) §3277(j)(4)(C), §6599(a)(1)]

Mercantile Occupancy. *[No change in text]*

Panic Hardware. *[No change in text]*

~~Personal Fall Arrest System. A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of the aforementioned components/devices. (See Section 3210.1).~~

~~Personal Fall Protection System. A personal fall protection system includes personal fall arrest systems, positioning device systems, fall restraint systems, safety nets and guardrails. (See Section 3210.1).~~

~~Personal Fall Restraint System. A system used to prevent an employee from falling. It consists of an anchorage, connectors, and body belt/harness. It may include, lanyards, lifelines, and rope grabs designed for that purpose. (See Section 3210.1).~~

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Platform. An elevated ~~working level~~ walking-working surface for persons. Storage platforms, balconies and open-sided floors are considered platforms for the purpose of these Orders. [§1910.21(b)]

Positioning Device System. ~~A body belt or body harness system rigged to allow an employee to be supported on an elevated surface, such as a wall, and work with both hands free while leaning.~~ (See Positioning System (Work-Positioning System) in Section 3210.1).

Private Stairway. [No change in text]

Qualified Person, Attendant or Operator. [No change in text]

Ramp. ~~Inclined passageway connecting two levels and usually used for pedestrian traffic; does not include catwalks or stairs.~~ An inclined walking-working surface used to access another level; does not include catwalks or stairs. [§1910.21(b), Used in §3210, §3270(a)]

Ramp, Industrial. [No change in text]

Rise. [No change in text]

Riser. The upright member of a step situated at the back of a lower tread and near the leading edge of the next higher tread, platform, or landing. [§1910.21(b), Used in §3214]

Rope Access. [No change in text]

Rope Access Equipment. [No change in text]

Runway. An elevated ~~passageway~~ walking-working surface. Runways are sometimes referred to as catwalks, foot walks, elevated walkways, oilers' platforms or maintenance runways. [§1910.21(b)]

Shall. [No change in text]

Shear Point. [No change in text]

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Ship Stair (Ship Ladder). ~~A fixed ladder within the pitch range of 50 to 75 degrees with the horizontal, equipped with treads and stair rails.~~ A type of fixed industrial stair that is equipped with treads, stair rails, and open risers, and has a slope that is between 50 and 70 degrees from the horizontal. [*§1910.21(b) definition was modified by adding "fixed industrial stairs"*]

Should. [*No change in text*]

Skirt Guard. [*No change in text*]

Spiral stairway (Circular Stairway.) ~~One with closed circular form, uniform sector shaped treads and a supporting column.~~

Spiral Stairs. A series of treads attached to a vertical pole in a winding fashion, usually within a cylindrical space. [*§1910.21(b), Used in §3234*]

Stair Railing. [*No change in text*]

Stairs. A series of two or more steps. [*From 2022, Title 24, Part 2, Chapter 2, §1910.21(b)*]

~~Stairway. Two or more risers shall constitute a stairway.~~ One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another. [*§1910.21(b), From 2022, T24, Part 2, Chapter 2, Used in §3214 and 3622(f)(8)*]

Storage Access Aisle. [*No change in text*]

Suitable. [*No change in text*]

~~Toeboard. A vertical barrier erected along the open edges of floor openings or floor holes, platforms, and runways.~~ A low protective barrier that is designed to prevent materials, tools, and equipment from falling to a lower level, and protect employees from falling. [*§1910.21(b), Used in §3209, § 3212(g), §3622(f)(6)*]

Toe Plate (deflector type). [*No change in text*]

Traffic Aisle. [*No change in text*]

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Tread Run. *[No change in text]*

Walking-Working Surface. Any surface on or through which an employee walks, works, or gains access to a work area or workplace location. Walking-working surfaces include, but are not limited to, floors, stairways, steps, roofs, ramps, runways, aisles, scaffolds, dock plates, and step bolts. Walking-working surfaces include horizontal, vertical, and inclined or angled surfaces, but do not include ladders. *[See AC on fixed ladders as to why ladder as a WWS was removed, §1910.21(b), Used in §3209(c)(1), §3212(f)]*

Wall Opening. *[No change in text]*

Water Heater. *[No change in text]*

~~Working Level or Working Area. A platform, walkway, runway, floor or similar area fixed with reference to the hazard and used by employees in the course of their employment. This does not include ladders or portable or temporary means used for access, repair or maintenance, provided such means are removed immediately upon completion of the work. (See Walking-Working Surface).~~

Yard. *[No change in text]*

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

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Subchapter 7. General Industry Safety Orders
Group 1. General Physical Conditions and Structures Orders
Article 2. Standard Specifications, Fall Protection, and Falling Object Protection

Amend Section 3209 as follows:

§3209. Standard Guardrails and Toeboards.

(a) 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, or ramp~~ walking-working surface shall provides protection at least equivalent to that afforded by a mid-rail.

~~(a)~~ (b) 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~~ walking-working surface. (Note: the permissible tolerance on height dimensions is one inch). See Figure 3209-1 of this section. ~~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)). [Smoothness of the rail is addressed in (d), and midrail is moved to (b)(1)]~~

(1) Midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent intermediate members shall be installed approximately halfway (within 1 inch tolerance) between the top rail and the walking-working surface when there is not a wall or parapet that is at least 21 inches high: [§1910.29 (b)(2), From existing subsection (a)]

(A) The midrail shall be approximately halfway (within 1 inch tolerance) between the upper surface of the top rail and the walking-working surface; [§1910.29(b)(2)(i)]

(B) Screens and mesh shall extend from the walking-working surface to the top rail and along the entire opening between top rail supports; [§1910.29(b)(2)(ii)]

(C) Intermediate vertical members (such as balusters) shall be installed so that openings are not more than 19 inches wide. [§1910.29(b)(2)(iii)]

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(D) Other equivalent intermediate members (such as additional midrails and architectural panels) shall be installed so that the openings are not more than 19 inches wide. [§1910.29(b)(2)(iv)]

Note to subsection (b)(1)(C) and (D): Local building regulations may require spacing substantially less than 19 inches wide.

~~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). [Live load requirements is replaced by Subsection (c).]~~

(c) Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied in a downward or outward direction within two inches of the top edge, at any point along the top rail. [§1910.29(b)(3), Replaces (b)]

(1) When the 200-pound test load is applied in a downward direction, the top rail of the guardrail system shall not deflect to a height of less than 39 inches above the walking-working surface. [§1910.29(b)(4)]

(2) Midrails, screens, mesh, intermediate vertical members, solid panels, and other equivalent intermediate members shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the intermediate member without deflecting more than 2 inches. [§1910.29(b)(5)]

(3) Guardrails that rely on friction or ballasted weights shall be secured to the structure. [Rationale needed]

(4) Collapsible guardrails shall be prohibited. [Rationale needed]

(5) For operating conditions where railings are liable to receive heavy stresses from crowds, trucking, handling materials, etc., additional strength to the requirements of subsections (c)(1) and (c)(2) shall be provided by use of heavier stock, closer spacing of posts, bracing, or other means to ensure the guardrails will withstand the imposed load. [From Note]

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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.

(d) Guardrail systems shall be smooth surfaced to protect employees from injury, such as punctures or lacerations, and to prevent catching or snagging of clothing. [§1910.29(b)(6), replaces portion of 3209(a)]

(e) The ends of the rails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard. [§1910.29(b)(7), From 3209(a)]

(f) Steel banding and plastic banding shall not be used for top rails or midrails. [§1910.29(b)(8)]

(g) Top rails and midrails shall be at least 0.25 inches in diameter or in thickness. [§1910.29(b)(9)]

(h) 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. See Figure 3209-2 [The guardrail specifications speak for themselves and there is no need to provide an example]

(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 corners 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.

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~~(3) Guardrails installed on or before May 26, 2011. 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.~~

~~(4) Guardrails installed after May 26, 2011. If constructed of structural metal, the top rails to be angle iron of at least 2-inch by 2-inch by 3/8-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 3/8-inch angles or other metal shapes of equivalent strength. The posts to be angle iron of at least 2-inch by 2-inch by 3/8-inch stock, the spacing not to exceed 8 feet.~~

~~(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. [Items separated and re-ordered in subsection (k)]~~

~~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.)~~

(i) Toeboards.

(1) Toeboards shall be erected along the exposed edge of the overhead walking-working surface for a length that is sufficient to protect employees below. [§1910.29(k)(1)(i)]

(2) Toeboards used for falling object protection shall be constructed of wood, concrete, metal, or other suitable material. [From subsection (d)]

(3) Where constructed of metal grille, mesh shall not exceed 1 inch. [From subsection (e)]

(4) The top of the toeboard shall be not less than 3-1/2 inches above the walking-working surface. [From subsection (d), §1910.29(k)(1)(ii)]

(5) Toeboards shall not have more than ¼ inch clearance or opening above the walking-working surface. [From subsection (d), §1910.29(k)(2)(iii)]

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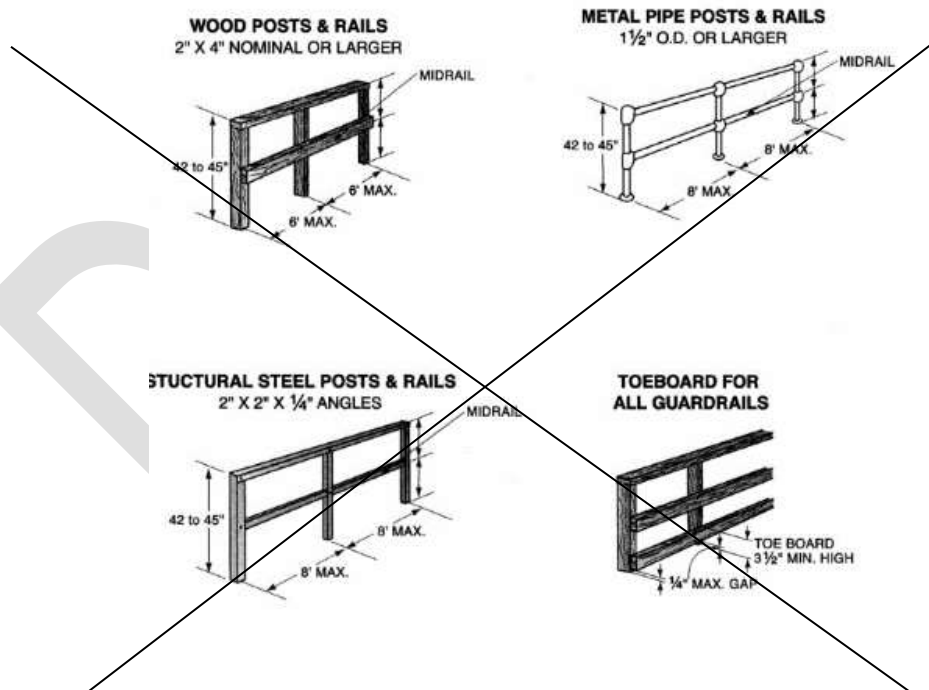
(6) Toeboards shall have a minimum height of 2.5 inches when used around vehicle repair, service, or assembly pits. Toeboards may be omitted around vehicle repair, service, or assembly pits when the employer can demonstrate that a toeboard would prevent access to a vehicle that is over the pit. [§1910.29 (k)(1)(v)]

(7) Toeboards shall be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point along the toeboard. [§1910.29 (k)(1)(vi)]

(8) Where materials are piled, higher toeboards, or paneling from floor to intermediate rails or top rail shall be provided where necessary for safety. [§1910.29 (k)(2)(i)]

Figure SG-1

~~SOME ACCEPTABLE INDUSTRIAL GUARDRAILS AND TOEBOARDS~~



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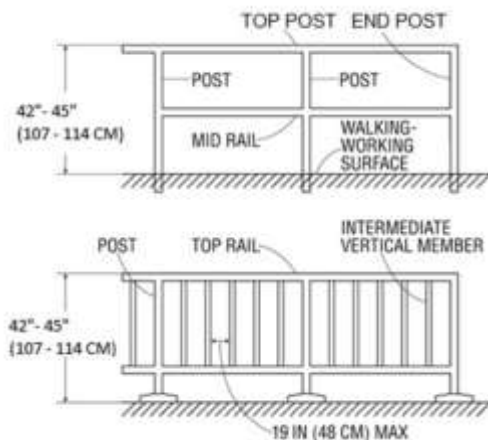


Figure 3209-1 Standard Guardrails

NOTE: For additional requirements, see California Building Code, Title 24, Part 2, Volume 2, Chapter 10 and Chapter 16.

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

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Add new Section 3209.1 as follows:

§3209.1. Handholds (Grab Handles). *[Is a definition needed? Term used in section 3210 is handhold, which is equivalent to the federal term grab handle. Grab bar refers to a handhold with specifications used in §3277. Fixed Ladders.*

If it is determined that a definition for handhold is needed then the grab bar definition from 2022, Title 24, Part 2, Chapter 2, can be used for defining handhold. Grab bar is defined as a bar for the purpose of being grasped by the hand for support. This definition is more generic if we are reserving grab bar for Fixed Ladders.

§3277(b). Fixed Ladders.

Grab Bars. Grab bars are individual handholds placed adjacent to or as an extension above ladders for the purpose of providing access beyond the limits of the ladder.]

(a) Handholds (Grab Handles). The employer shall ensure that each handhold (grab handle):
[§1910.29(l)]

(1) Is not less than 12 inches long; [§1910.29(l)(1)]

(2) Is mounted to provide at least 3 inches of clearance from the framing or opening; and
[§1910.29(l)(2)]

(3) Is capable of withstanding a maximum horizontal pull-out force equal to two times the
maximum intended load or 200 pounds, whichever is greater. [§1910.29(l)(3)]

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

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Amend Section 3210 as follows:

§3210. Guardrails and Fall Protection at Elevated Locations.

(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 4 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.
[§1910.28(b)(5)(i), §1910.28(c)(1) & §1910.29(k)(1(i)-Toeboards]

NOTE: See additional requirements in section 3212.

EXCEPTIONS to subsection (a):

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 and each employee is provided with and uses a personal fall arrest system or fall restraint system. *[§1910.28(b)(5)(ii)(B)]*
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. *[1910.28(a)(2)(iv)]*
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 in compliance with subsection 3336(c)(1). *[§1910.28(b)(1)(iii)]*
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.

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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.~~ section 3210.1.
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

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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 4 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 and each employee is provided with and uses a personal fall arrest system or fall restraint system in accordance with Section 3210.1 of these Orders. [*§1910.28(b)(5)(ii)(B)*]

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 in compliance with Section 3336(c)(1). [*Same exception found in 3210(a) Buildings*]

3. Where the employer can demonstrate that the installation of guardrails on the working side of the loading racks, loading dock, or teeming platforms is infeasible and the requirements of subsection 3336(c)(1) are met.

NOTE to subsection (b)3.: Use of dock plate is described in subsection 3336(c)(2).
[*§1910.28(b)(1), §1910.28(b)(4)(ii)*]

~~3~~ 4. 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~~ 5. Portable platforms, portable or fixed workstands, 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.

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~~5~~ 6. 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.~~ section 3210.1.

~~6~~ 7. 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~~ 8. 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~~ 9. 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~~ 10. 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.

~~10~~ 11. Where design or erection, dismantling, inspection, repair, maintenance and adjustment processes make installation of guardrails impracticable on portable amusement rides, employees shall be provided and shall install and use personal fall protection equipment in accordance with the requirements of ~~Section 1670 of the Construction Safety Orders~~ section 3210.1.

12. Telecommunications work covered by section 8615 of the Telecommunication Safety Orders. [1910.28(a)(vi)]

13. Electric power generation, transmission, and distribution work covered by sections 2320.8 and 2940.6 of the Electrical Safety Orders.

(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.

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(d) Openings in guardrails for ladderway access shall be protected as required by Ssubsection 3212(a)(2).

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

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Add new Section 3210.1 as follows:

§3210.1. Personal Fall Protection Systems.

[The creation of a new Section in GISO would mean that there would be a personal fall protection standard in T8, CSO and GISO. Eventually the CSO will be updated so that there will be the same personal fall protection requirement in GISO and CSO. Fall protection requirements can later be consolidated in the GISO or CSO. Existing fall protection requirements in Article 6 were relocated to this section.]

(a) Scope and application. This section establishes performance, care, and use criteria for all personal fall protection systems. The employer shall ensure that each personal fall protection system used to comply with these Orders meets the requirements of this section.

[§1910.140(a)]

(b) Definitions.

Anchorage. A secure point of attachment for equipment such as lifelines, lanyards, or deceleration devices. [§1910.140(b), deleted definition in §3281]

Body Belt. A strap with means both for securing about the waist and for attaching to other components such as a lanyard used with positioning systems, travel restraint systems, or ladder safety systems. [§1910.140(b), deleted definition in §3281]

Body Harness. Straps that secure about the employee in a manner to distribute 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 protection system. [§1910.140(b), deleted def from §3281]

Carabiner. A connector generally comprised of a trapezoidal or oval shaped body with a closed gate or similar arrangement that may be opened to attach another object and, when released, automatically closes to retain the object. [§1910.140(b)]

Competent Person (Fall Protection). A person who is capable of identifying existing and predictable hazards in any personal fall protection system or any component of it, as well as in their application and uses with related equipment, and who has authorization to take prompt, corrective action to eliminate the identified hazards. [§1910.140(b)]

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Connector. A device used to couple (connect) parts of the fall protection system together. [§1910.140(b), deleted definition in §3281]

D-ring (dee ring). A connector used: [§1910.140(b)]

(1) In a harness as an integral attachment element or fall arrest attachment;

(2) In a lanyard, energy absorber, lifeline, or anchorage connector as an integral connector; or

(3) In a positioning or fall restraint system as an attachment element.

Deceleration Device. Any mechanism that serves to dissipate energy during a fall. [§3281 and §1910.140(b)]

Deceleration Distance. The vertical distance a falling employee travels from the point at which the deceleration device begins to operate, excluding lifeline elongation and free fall distance, until stopping. It is measured as the distance between the location of an employee's body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop. [§1910.140(b)]

Free Fall. The act of falling before a personal fall arrest system begins to apply force to arrest the fall. [§1910.140(b)]

Free Fall Distance. The vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, lifeline and lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before the devices operate and fall arrest forces occur. [§3281 and §1910.140(b)]

Lanyard. A flexible line of rope, wire rope, or strap that generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage. [§1910.21(b), deleting definition in §3281]

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Lifeline. A component of a personal fall protection system consisting of a flexible line for connection to an anchorage at one end so as to hang vertically (vertical lifeline), or for connection to anchorages at both ends so as to stretch horizontally (horizontal lifeline), and serves as a means for connecting other components of the system to the anchorage. [§1910.140(b) and §3281]

Personal Fall Arrest System. A system used to arrest an employee in a fall from a walking-working surface. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of the aforementioned components/devices. [Moved from 3207 and 3281, §1910.21(b), §1910.140(b)]

Personal Fall Protection System. A system (including all components) an employer uses to provide protection from falling or to safely arrest an employee's fall if one occurs. Examples of personal fall protection systems include personal fall arrest systems, positioning systems, and travel restraint systems. [§1910.140(b), deleted definition in §3207]

Personal Fall Restraint (Tether) Line. A rope or wire rope used to transfer forces from a body support to an anchorage or anchorage connector in a fall restraint system. [§1910.140(b)-travel restraint (tether) tether line]

Personal Fall Restraint System. A combination of an anchorage, anchorage connector, lanyard (or other means of connection), and body support that an employer uses to eliminate the possibility of an employee going over the edge of a walking-working surface. [§1910.21(b)-travel restraint system]

Positioning System (Work-Positioning System). A system of equipment and connectors that, when used with a body harness or body belt, allows an employee to be supported on an elevated vertical surface, such as a wall, or window sill, and work with both hands free. Positioning systems are also called "positioning system devices" and "work-positioning equipment." [Deleted definition in §3207, §1910.21(b)]

Rope Grab. A fall protection component which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both. [§1910.140(b)]

Self-Retracting Lifeline/Lanyard. A deceleration device containing a drum-wound line that can be slowly extracted from, or retracted onto, the drum under slight tension during normal

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movement by the employee. At the onset of a fall, the device automatically locks the drum and arrests the fall. [§3281, §1910.140(b)]

Snaphook. A connector comprised of a hook-shaped body with a normally closed gate, or similar arrangement that may be manually opened to permit the hook to receive an object. When released, the snaphook automatically closes to retain the object. Opening a snaphook requires two separate actions. Snaphooks are generally one of two types: [§1910.140(b), deleted definition in §3281]

(1) Automatic-locking type (permitted) with a self-closing and self-locking gate that remains closed and locked until intentionally unlocked and opened for connection or disconnection; and [§1910.140(b)]

(2) Non-locking type (prohibited) with a self-closing gate that remains closed, but not locked, until intentionally opened for connection or disconnection. [§1910.140(b)]

(c) General Requirements. The employer shall ensure that personal fall protection systems meet the following requirements. Additional requirements for personal fall arrest systems and positioning systems are contained in subsections (d) and (e), respectively. [§1910.140(c)]

(1) Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials. [From T8 Appendix C to Article 6, Section I (a)(1), §1910.140(c)(1)]

(2) Connectors shall have a corrosion resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system. [From T8 Appendix C to Article 6, Section I (c)(2), §1910.140(c)(2), ANSI Z359.12-2019, Section 3.1.1]

(3) When vertical lifelines are used, each employee shall be attached to a separate lifeline. [From T8, Appendix C to Article 6, Section I (e)(5), §1910.140(c)(3)]

(4) Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds. All ends of wire rope lanyards shall be spliced or swaged as per the manufacturer's specifications. Knots shall not be permitted at ends or anywhere along the length of the lanyard or safety line. [From T8 Appendix C to Article 6, Section I (c)(3), §1910.140(c)(4), ANSI Z359.3-2019, Section 3.4.1, 3.3.3]

(5) Self-retracting lifelines and lanyards that automatically limit free fall distance to 2 feet or less shall have components capable of sustaining a minimum tensile load of 3,000 pounds

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applied to the device with the lifeline or lanyard in the fully extended position. [From T8 Appendix C, Section I (c)(4), §1910.140(c)(5), ANSI Z359.14-2021, 1.4.1 Class 1]

(6) Self-retracting lifelines that do not automatically limit free fall distance to 2 feet or less shall have components capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position. [From T8 Appendix C, Section I (c)(5), ANSI Z359.14-2021, Class 2]

(7) D-rings, snaphooks, and carabiners shall be capable of sustaining a minimum tensile load of 5,000 pounds. [From T8 Appendix C of Article 6, Section I (c)(6), §1910.140(c)(7), ANSI Z359.12-2019, Section 3.1.3.1].

(8) D-rings, snaphooks, and carabiners shall be proof tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or incurring permanent deformation. The gate strength of snaphooks and carabiners shall be capable of withstanding a minimum load of 3,600 pounds without the gate separating from the nose of the snaphook or carabiner body by more than 0.125 inches. [From T8 Appendix C to Article 6, Section I (c)(7), §1910.140(c)(8), ANSI Z359.12-2019, Sections 3.1.3.2, 3.1.3.3, 3.1.3.4, 3.1.3.5, 3.1.3.6, 3.1.6, 3.1.7]

(9) Snaphooks and carabiners shall be the automatic locking type that require at least two separate, consecutive movements to open. [From T8 Appendix C to Article 6, Section I (c)(8) §1910.140(c)(9), ANSI Z359.12-2019, Section 3.1.3]

(10) Snaphooks and carabiners shall not be connected to any of the following unless they are designed for such connections: [§1910.140(c)(10), No T8 equivalent, ANZI Z359.12, Section 7.1]

(A) Directly to webbing, rope, or wire rope; [§1910.140(c)(10)(i)]

(B) To each other; [§1910.140(c)(10)(ii)]

(C) To a D-ring to which another snaphook, carabiner, or connector is attached; [§1910.140(c)(10)(iii)]

(D) To a horizontal life line; or [§1910.140(c)(10)(iv)]

(E) To any object that is incompatibly shaped or dimensioned in relation to the snaphook or carabiner such that unintentional disengagement could occur when the connected object

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depresses the snaphook or carabiner gate, allowing the components to separate.
[§1910.140(c)(10)(v)]

(11) The employer shall ensure that each horizontal lifeline system: *[From T8 Appendix C of Article 6, Section I (c)(9), §1910.140(c)(11), ANZI Z359.2, Section 9.3.5]*

(A) Is designed, installed, and used under the supervision of professional engineer currently registered in the State of California and experienced in such a design; and *[From T8 Appendix C to Article, Section I (c)(9), §1910.140(c)(11)(i)]*

(B) Is part of a complete personal fall arrest system that maintains a safety factor of at least two times the maximum tension developed in the horizontal lifeline during fall arrest in the direction applied by lifeline forces. The number of persons attached to a horizontal lifeline shall be used in determining the maximum tension. The safety factor shall be based on forces that are determined using analytical methods of ANSI Z359.6-2016 Specifications and Design Requirements for Active Fall Protection Systems, section 8.3, which shall be incorporated by reference. *[§1910.140(c)(11)(ii), ANSI Z359.2-2017, Section 9.3.5.2]*

(12) Anchorages used to attach to personal fall protection equipment shall be independent of any anchorage used to suspend employees or platforms on which employees work. Anchorages used to attach to personal fall protection equipment on mobile work platforms on powered industrial trucks shall be attached to an overhead member of the platform, at a point located above and near the center of the platform. *[§1910.140(c)(12)]*

(13) Anchorages shall be capable of supporting at least 5,000 pounds for each employee attached. *[From T8 Appendix C to Article 6, Section I (c)(10), §1910.140(c)(13), ANSI Z359.2-2017, 9.3.2]*

EXCEPTION to subsection (c)(13): Window cleaners anchors and fittings covered by section 3283.

(14) Fall restraint lines shall be capable of sustaining a tensile load of at least 5,000 pounds. *[From §1910.140(c)(14) T8, Appendix C to Article 6, Section I (c)(13)]*

(15) Lifelines shall not be made of natural fiber rope. Polypropylene rope shall contain an ultraviolet (UV) light inhibitor. *[From T8 Appendix C to Article 6, Section I (c)(13), §1910.140(c)(15)]*

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(16) Personal fall protection systems and their components shall be used exclusively for employee fall protection and not for any other purpose, such as hoisting equipment or materials. [From T8 Appendix C to Article 6, Section (e)(6), §1910.140(c)(16), No CSO equivalent]

(17) A personal fall protection system or its components subjected to impact loading shall be removed from service immediately and not used again until a competent person inspects the system or components and determines that it is not damaged and safe for use for employee personal fall protection. [From T8 Appendix C to Article 6, Section I (e)(7), §1910.140(c)(17), ANSI Z359.2-2017, Section 9.4.3]

(18) Personal fall arrest systems shall be inspected before initial use during each work shift for mildew, wear, damage, and other deterioration, and defective components shall be removed from service. [From T8 Appendix C to Article 6, Section I (f), §1910.140(c)(18), ANZI Z359.2-2017, Section 9.4.2]

(19) Ropes, belts, lanyards, and harnesses used for personal fall protection shall be compatible with all connectors used. [From T8 Appendix C to Article 6, Section I (c)(8), §1910.140(c)(19), ANSI Z359.2-2017 Section 5.2.2.1, 5.3.2.1, 5.4.2.1, etc and 9.3.8.2, ANSI Z359.6-2016, Section 4.2.2]

(20) Ropes, belts, lanyards, lifelines, and harnesses used for personal fall protection shall be protected from being cut, abraded, melted, or otherwise damaged. [From T8 Appendix C to Article 6, Section III (Non-Mandatory) (a) and (h), §1910.140(c)(20), ANSI Z359.2-2017, Section 6.5]

(21) The employer shall provide for prompt rescue of each employee in the event of a fall. [From T8 Appendix C of Article 6, Section I (e)(8), §1910.140(c)(21), ANSI Z359.2-2017, Section 8.3]

(22) Personal fall protection systems shall be worn with the attachment point of the body harness located in the center of the employee's back near shoulder level. The attachment point may be located in the pre-sternal position if the free fall distance is limited to 2 feet or less. [From T8 Appendix C of Article 6 Section I (e)(4), §1910.140(c)(22)]

(d) Personal Fall Arrest Systems. [§1910.140(d)]

(1) System Performance Criteria. [§1910.140(d)(1)]

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(A) In addition to the general requirements in subsection (c), personal fall arrest systems shall:
[§1910.140(d)(1)]

1. Limit the maximum arresting force on the employee to 1,800 pounds; [From T8 Appendix C of Article 6, Section I (d)(1)(A), §1910.140(d)(1)(i), ANSI Z359.6-2016, Section 4.6.1]

2. Bring the employee to a complete stop and limit the maximum deceleration distance the employee travels to 3.5 feet; [From T8 Appendix C of Article 6, Section I (d)(1)(B), §1910.140(d)(1)(ii), Where did this 3.5 feet come from?]

3. Have sufficient strength to withstand twice the potential impact energy of the employee free falling a distance of 6 feet, or the free fall distance permitted by the system; and [From T8 Appendix C of Article 6, Section I (d)(1)(C), §1910.140(d)(1)(iii)]

4. Sustain the employee within the system/strap configuration without making contact with the employee's neck and chin area. [§1910.140(d)(1)(iv), No T8 equivalent, ANSI Z359.2-2017, Section 9.2.4]

5. If the personal fall arrest system meets the criteria and protocols in Appendix A to section 3210.1, and is being used by an employee having a combined body and tool weight of less than 310 pounds, the system is considered to be in compliance with the provisions of subsections (d)(1)(A)1. through (d)(1)(A)3. [§1910.140(d)(1)(v)]

(e) System Use Criteria. [§1910.140(d)(2)]

(1) On any horizontal lifeline that may become a vertical lifeline, the device used to connect to the horizontal lifeline shall be capable of locking in both directions on the lifeline.
[From §1910.140(d)(2)(i), Appendix C of Article 6, Section (e)(2), CSO only applied to suspended scaffolds or similar work platforms.]

(2) Personal fall arrest systems shall be rigged in such a manner that the employee cannot free fall more than 6 feet or contact a lower level or lower level obstacle. [From T8 Appendix C of Article 6, Section I (e)(3), §1910.140(d)(2)(ii)]

[Note: The 6 feet free fall distance is to limit the arresting force to 1,800 for a combined weight of 310 lbs. If the person and tools weighs more than 310 lbs then the lanyard's length should be shortened. See §1910.140(d)(1)(v)]

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(3) Body belts. Body belts shall not be used as part of a personal fall arrest system. [From T8 Appendix C of Article 6, Section (e)(1), [§1910.140(d)(3)]

(f) Positioning Systems. [§1910.140(e)]

(1) System Performance. All positioning systems shall be capable of withstanding, without failure, a drop test consisting of a 4-foot drop of a 250-pound weight; [§1910.140(e)(1)(i). ANSI Z.359.3, Section 4.2.4, Test weight is 282 lbs, Appendix to 3210.1 calls for 300 lbs weight, Where did this test weight come from?]

EXCEPTION to subsection (f)(1): Window cleaner's positioning system, subsection 3283 (b)(1). [§1910.140(e)(1)(ii)]

(2) Positioning systems, including window cleaners' positioning systems, that meet the test methods and procedures in Appendix A to section 3210.1 are considered to be in compliance with subsection (f)(1). [§1910.140(e)(1)(iii)]

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

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Add new Appendix A as follows:

Appendix A to Section 3210.1

This appendix contains test methods for personal fall protection systems which may be used to determine if they meet the system performance criteria specified in subsections 3210.1 (d), (e) and (f). [Fed Appendix D to Subpart I, From T8 Appendix C to Article 6, Section II, which is mandatory]

(a) General. The following sets forth test procedures for fall arrest systems as defined in section 3210.1(d).

(b) General test conditions.

(1) Safety lines, lanyards and deceleration devices shall be attached to an anchorage and connected to the body harness in the same manner as they would be when used to protect employees.

(2) The anchorage shall be rigid, and shall not have a deflection greater than .04 inches when a force of 2,250 pounds is applied.

(3) The frequency response of the load measuring instrumentation shall be 120 Hz.

[E-mailed Feds as to where the 120 Hz came from. Appendix C, Subpart M, (b)(3) is 500 Hz]

(4) The test weight used in the strength and force tests shall be a rigid, metal, cylindrical or torso-shaped object with a girth of 38 inches plus or minus four inches.

(5) The lanyard or safety line used to create the free fall distance shall be supplied with the system, or in its absence, the least elastic lanyard or safety line available to be used with the system.

(6) The test weight for each test shall be hoisted to the required level and shall be quickly released without having any appreciable motion imparted to it.

(7) The system's performance shall be evaluated taking into account the range of environmental conditions for which it is designed to be used.

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(8) Following the test, the system need not be capable of further operation.

(c) Strength Test.

(1) During the testing of all systems, a test weight of 300 pounds plus or minus five pounds shall be used. (See subsection (b)(4).)

[Searching for reference of this test weight]

(2) The test consists of dropping the test weight once. A new unused system shall be used for each test.

(3) For lanyard systems, the lanyard length shall be six feet plus or minus two inches as measured from the fixed anchorage to the attachment on the body harness.

(4) For rope-grab-type deceleration systems, the length of the safety line above the centerline of the grabbing mechanism to the safety line's anchorage point shall not exceed two feet.

(5) For lanyard systems, for systems with deceleration devices which do not automatically limit free fall distance to two feet or less, and for systems with deceleration devices which have a connection distance in excess of one foot (measured between the centerline of the safety line and the attachment point to the body belt or harness) the test weight shall be rigged to free fall a distance of 7.5 feet from a point that is 1.5 feet above the anchorage point, to its hanging location (six feet below the anchorage). The test weight shall fall without interference, obstruction, or hitting the floor or ground during the test. In some cases, a non-elastic wire lanyard of sufficient length may need to be added to the system (for test purposes) to create the necessary free fall distance.

(6) For deceleration device systems with integral safety lines or lanyards which automatically limit free fall distance to two feet or less, the test weight shall be rigged to free fall a distance of four feet.

(7) Any weight which detaches from the belt or harness shall constitute failure for the strength test.

(d) Force Test.

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(1) General. The test consists of dropping the respective test weight specified in subsection(d)(2)(A) or (d)(3)(A) one time. A new, unused system shall be used for each test.

(2) For lanyard systems:

(A) A test weight of 220 pounds plus or minus three pounds shall be used. (See subsection (b)(4).)

(B) Lanyard length shall be six feet plus or minus two inches as measured from the fixed anchorage to the attachment on the body harness.

(C) The test weight shall fall free from the anchorage level to its hanging location (a total of six feet free fall distance) without interference, obstruction, or hitting the floor or ground during the test.

(3) For all other systems:

(A) A test weight of 220 pounds plus or minus three pounds shall be used. (See subsection (b)(4).)

(B) The free fall distance to be used in the test shall be the maximum fall distance physically permitted by the system during normal use conditions, up to a maximum free fall distance for the test weight of six feet, except as follows:

1. For deceleration systems which have a connection link or lanyard, the test weight shall free fall a distance equal to the connection distance (measured between the centerline of the safety line and the attachment point to the body harness).

2. For deceleration device systems with integral safety lines or lanyards which automatically limit free fall distance to two feet or less, the test weight shall free fall a distance equal to that permitted by the system in normal use. (For example, to test a system with a self-retracting safety line or lanyard, the test weight shall be supported and the system allowed to retract the safety line or lanyard as it would in normal use. The test weight would then be released and the force and deceleration distance measured).

(4) A system fails the force test if the recorded maximum arresting force exceeds 2,520 pounds when using a body harness.

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(5) The maximum elongation and deceleration distance shall be recorded during the force test.

(e) Deceleration Device Tests.

(1) General. The device shall be evaluated or tested under the environmental conditions, (such as rain, ice, grease, dirt, type of safety line, etc.), for which the device is designed.

(2) Rope-grab-type deceleration devices.

(A) Devices shall be moved on a safety line 1,000 times over the same length of line a distance of not less than one foot, and the mechanism shall lock each time.

(B) Unless the device is permanently marked to indicate the type(s) of safety line which must be used, several types (different diameters and different materials) of safety lines shall be used to test the device.

(3) Other self-activating-type deceleration devices. The locking mechanisms of other self-activating-type deceleration devices designed for more than one arrest shall lock each of 1,000 times as they would in normal service.

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

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Add new Section 3210.2 as follows:

§3210.2. Falling Object Protection. *[Replaces §3273(e) & (f), §1910.28(c)]*

(a) Employees working in locations where there is a risk of receiving head injuries from flying or falling objects and/or electric shock and burns shall wear approved head protection in accordance with section 3381, and: [text from §3381]

(b) The employer shall protect employees from falling objects by implementing one or more of the following:

(1) Erecting toeboards, screens, or guardrail systems in accordance with article 2 of the General Industry Safety Orders to prevent objects from falling from higher levels. [§1910.28(c)(2), Moved from §3273(e)(1)(A)]

(A) Where tools, equipment, or materials are piled higher than the top of the toeboard, paneling or screening shall be installed from the toeboard to the midrail of the guardrail system and for a length that is sufficient to protect employees below. If the items are piled higher than the midrail, the employer also shall install paneling or screening to the top rail and for a length that is sufficient to protect employees below; and [§1910.29(k)(2)(i)]

(B) All openings in guardrail systems shall be small enough to prevent objects from falling through the opening. [§1910.29(k)(2)(ii)]

(2) Erecting canopy structures and keeping potential falling objects far enough from an edge, hole, or opening to prevent them from falling to a lower level. [§1910.28(c)(3), §3273(e)(1)(A) and (B)]

(A) Canopies used for falling object protection shall be strong enough to prevent collapse and to prevent penetration by falling objects. [§1910.29(k)(3), §1910.28(c)(2), §3273(e)(2)]

(3) Providing a physical barrier such as, but not limited to, fencing, barricades or other equivalent means or methods, to prevent entry into the area to which objects could fall; prohibiting employees from entering the barricaded area, and keeping objects far enough from an edge or opening to prevent them from falling to a lower level. [§1910.28(c)(3), 3273(e)(1)(C)]

(4) Where the type of process or operation, exclusive of repair and maintenance, is such that there are hazards to employees from materials falling through platform or runway openings,

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the openings shall be limited to a size that prevents materials falling through the openings.
[§3273(e)(1)(C)(2)]

(5) Where platform or runway gratings are used as work areas during repair or maintenance, there shall be provided at such areas suitable safeguards to prevent tools or materials falling on employees below. Such safeguards may be netting suspended below the work area, canvas, planking on the surface of the grating, or barricaded or sheltered areas below the work area.
[§3273(e)(1)(C)(3)]

(c) Lowering objects: *[§3273(f)]*

(1) Where there is employee exposure below an elevated work area, all objects, including materials, equipment, and tools shall be lowered in a controlled manner, such as but not limited to using enclosed chutes, material handling equipment, or hand lines; or *[§3273(f)(1)]*

(2) When controlled lowering is not practical, or would subject employees to a greater risk of injury, protection from falling objects shall be provided by the use of effective physical barriers, such as but not limited to canopies, fencing, barricades, or barrier tape when the barrier tape is attended by a spotter who is authorized to effectively restrict entry into the area and who is on the same level as the area of the exposure, or other equivalent means or methods.
[§3273(f)(2)]

(A) Signs in accordance with section 3340 shall be posted at the perimeter of the affected work area to warn employees of the hazard. *[§3273(f)(2)(A)]*

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

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Add new Section 3210.3 as follows:

§3210.3. Fall Protection Training Requirements. [§1910.30]

[CA does not have a specific fall protection training requirement in CSO, therefore cross reference to a fall protection standard in CSO necessitated the creation of this new section]

(a) Fall hazards. [§1910.30(a)]

(1) Before any employee is exposed to a fall hazard, the employer shall, in accordance with section 3203, provide training for each employee who uses personal fall protection systems or who is required to be trained as specified elsewhere in these Orders. Employers shall ensure employees are trained in the requirements of this subsection on or before **[six months after OAL effective date]**. [§1910.30(a)(1)]

(2) The employer shall ensure that each employee is trained by a qualified person. [§1910.30(a)(2)]

(3) The employer shall train each employee in at least the following topics: [§1910.30(a)(3)]

(A) The nature of the fall hazards in the work area and how to recognize them; [§1910.30(a)(3)(i)]

(B) The procedures to be followed to minimize those hazards; [§1910.30(a)(3)(ii)]

(C) The correct procedures for installing, inspecting, operating, maintaining, and disassembling the personal fall protection systems that the employee uses; and [§1910.30(a)(3)(iii)]

(D) The correct use of personal fall protection systems and equipment specified in subsection (a)(1), including, but not limited to, proper hook-up, anchoring, and tie-off techniques, and methods of equipment inspection and storage, as specified by the manufacturer. [§1910.30(a)(3)(iv)]

(b) Equipment hazards. [§1910.30(b)]

(1) The employer shall train each employee on or before **[six months after OAL effective date]** in the proper care, inspection, storage, and use of equipment covered by this section before an employee uses the equipment. [§1910.30(b)(1)]

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(2) The employer shall train each employee who uses a controlled descent apparatus (CDA) in proper rigging and use of the equipment in accordance with section 3286. [§1910.30(b)(3)]

(c) Retraining. The employer shall retrain an employee when the employer has reason to believe the employee does not have the understanding and skill required by subsections (a) and (b). Situations requiring retraining include, but are not limited to, the following: [§1910.30(c)]

(1) When changes in the workplace render previous training obsolete or inadequate; [§1910.30(c)(1)]

(2) When changes in the types of fall protection systems or equipment to be used render previous training obsolete or inadequate; or [§1910.30(c)(2)]

(3) When inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee no longer has the requisite understanding or skill necessary to use equipment or perform the job safely. [§1910.30(c)(3)]

(d) Training shall be understandable. The employer shall provide information and training to each employee in a manner that the employee understands. [§1910.30(d)]

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

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Add new Section 3210.4 as follows:

§3210.4. Safety Net Systems.

(a) Where the elevation is 25 feet or more above the ground, water surface, or continuous floor level below, and when the use of personal fall arrest systems, personal fall restraint systems, positioning device systems or more conventional types of protection are clearly impractical, the exterior and/or interior perimeter of the structure shall be provided with an approved safety net. "Safety net systems." Safety net systems and their use shall comply with the following provisions: [From CSO §1671, §1910.29(c) 1926 subpart M which means §1926.502(c)]

(1) Safety nets shall be installed as close as practicable under the walking-working surface on which employees are working, but in no case more than 25 feet below such level. When nets are used on bridges, the potential fall area from the walking-working surface to the net shall be unobstructed. [§1926.502(c)(1)]

(2) Safety nets shall extend outward from the outermost projection of the work surface as follows: [§1926.502(c)(2)]

<u>Vertical distance from working level to horizontal plane of net</u>	<u>Minimum required horizontal distance of outer edge of net from the edge of working surface</u>
<u>Up to 5 feet</u>	<u>8 feet</u>
<u>More than 5 feet up to 10 feet</u>	<u>10 feet</u>
<u>More than 10 feet but not to exceed 30 feet</u>	<u>13 feet</u>

(3) Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test specified in subsection (a)(4). [§1926.502(c)(3)]

(4) Safety nets and their installations shall be capable of absorbing an impact force equal to that produced by the drop test specified in subsection (a)(4)(A). [§1926.502(c)(4)]

(A) Except as provided in subsection (a)(4)(B), safety nets and safety net installations shall be drop-tested at the jobsite after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at 6-month intervals if left in one place. The drop-test shall consist of a 400 pound bag of sand 30 plus or minus 2 inches in diameter

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dropped into the net from the highest walking-working surface at which employees are exposed to fall hazards, but not from less than 42 inches above that level. [§1926.502(c)(4)(i)]

(B) When the employer can demonstrate that it is unreasonable to perform the drop-test required by subsection (a)(4)(A), the employer (or a designated competent person) shall certify that the net and net installation is in compliance with the provisions of subsections (a)(3) and (a)(4)(A) by preparing a certification record prior to the net being used as a fall protection system. The certification record shall include an identification of the net and net installation for which the certification record is being prepared; the date that it was determined that the identified net and net installation were in compliance with subsection (a)(3) and the signature of the person making the determination and certification. The most recent certification record for each net and net installation shall be available at the jobsite for inspection. [§1926.502(c)(4)(ii)]

(5) Defective nets shall not be used. Safety nets shall be inspected at least once a week for wear, damage, and other deterioration. Defective components shall be removed from service. Safety nets shall also be inspected after any occurrence which could affect the integrity of the safety net system. [§1926.502(c)(5)]

(6) Materials, scrap pieces, equipment, and tools which have fallen into the safety net shall be removed as soon as possible from the net and at least before the next work shift. [§1926.502(c)(6)]

(7) The maximum size of each safety net mesh opening shall not exceed 36 square inches nor be longer than 6 inches on any side, and the opening, measured center-to-center of mesh ropes or webbing, shall not be longer than 6 inches. All mesh crossings shall be secured to prevent enlargement of the mesh opening. [§1926.502(c)(7)]

(8) Each safety net (or section of it) shall have a border rope for webbing with a minimum breaking strength of 5,000 pounds. [§1926.502(c)(8)]

(9) Connections between safety net panels shall be as strong as integral net components and shall be spaced not more than 6 inches apart. [§1926.502(c)(9)]

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

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Amend Section 3212 as follows:

§3212. Floor Openings, ~~Floor Holes~~, Skylights, and Roofs.

(a) Roof and Floor Opening.

(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. [Separated and itemized in (a)(2) & (b)(2) below, [§1910.29(b)(11)].~~

(2) Toeboards shall be installed around the edges at openings where persons may pass below the opening. [From (a)(1)]

EXCEPTION to subsection (a): 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. [Moved to (d)]~~

~~EXCEPTION: Ladder openings for entrance/access at perimeter roof edges where guardrail protection is not required by subsection (d) of this section. [Moved to (d)]~~

~~(B)1. 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; [Moved to (d)(1)]~~

~~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. [Moved to (d)(2)]~~

~~(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. [Moved to (d)(3)]~~

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~~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. [Moved to (d)(3)]~~

~~(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. [Moved to (h)]~~

~~(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. [Moved to (g)]~~

~~(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 any one 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. [Reorganized, separated into (b)(1) and (b)(2)]~~

(b) Covers.

(1) Floor and roof opening covers shall be designed by a qualified person and be capable of safely supporting the greater of 400 pounds or at least twice the maximum intended load that may be imposed on any one square foot area of the cover at any time. [Existing (b), §1910.29(e)(1)- used the term maximum intended load]

(2) 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, crayon, or other non-durable markings shall not be used. [Relocated from existing subsection (b) and removed "keel and replaced with crayon]

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(3) While the cover is not in place, the openings shall be constantly attended by someone or shall be protected by guardrails. [From subsection (a)(1)]

(4) 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. [Moved from (c) without the reference to Title 24]

~~(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).)~~

(c) Openings protected by guardrails: [§1910.29(b)(12)]

(1) When materials are being passed through the opening, not more than two sides of the guardrail system shall be removed; and [§1910.29(b)(12)(i)]

(2) When materials are not being passed through the opening, the opening shall be guarded by a guardrail system along all unprotected sides or edges or closed over with a cover. [§1910.29(b)(12)(ii)]

(d) Every ladderway and stairway 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 section 3209, on all exposed sides except at the entrance to the stairway or ladderway. 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. [From (a)(2)(A) with modifications, §1910.29(b)(3)(iv), §1910.29(b)(13)(i) and (ii)]

EXCEPTIONS to subsection (d):

1. Ladder openings for entrance/access at perimeter roof edges where guardrail protection is not required by subsection (i). [Moved from (a)(2)(A)]

2. For any stairway used less than once per day where traffic across the stairway floor opening prevents the use of a fixed guardrail system (e.g., openings located in aisle spaces), the employer may protect employees from falling into the opening by using a hinged floor cover that meets the criteria in subsection (b) and a removable guardrail system on all exposed sides, except at the entrance to the stairway. [1910.28(b)(3)(ii)]

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(1) The swinging gate shall be non-latching and swing away from the unprotected edge.

(2) The uppermost surface or railing member of the swinging gate or other equivalent protection shall have a vertical height from the platform or floor level of between 42 to 45 inches plus or minus one inch and; [Moved from (a)(2)(B)1.]

(3) 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. [Moved from (a)(2)(B)2.]

(e) Hatchways and chute floor openings shall be guarded by guardrails or by hinged covers provided such covers will afford protection equivalent to that provided by a guardrail. [From (a)(3), §1910.28(b)(3)(v) and §1910.28 (b)(3)(v)(A)]

(1) A guardrail system or a fall restraint system shall be used when a work operation necessitates passing material through a hatchway or chute floor opening. [§1910.28(b)(3)(v)(C)]

EXCEPTION to subsection (e):

This does not apply to chute openings which are effectively covered or protected by machine or equipment during operation. However, such chute openings shall be covered during repair or maintenance or when otherwise exposing employees to the hazards of unguarded floor openings. [From (a)(3)]

(f) Hoist areas.

(1) The employer shall ensure each employee in a hoist area, which is any elevated access opening to a walking-working surface through which equipment or materials are loaded and received, is protected from falling by: [§1910.28(b)(2)]

(A) A guardrail system; [§1910.28(b)(2)(i)(A)]

(B) A personal fall arrest system; or [§1910.28(b)(2)(i)(B)]

(C) A personal fall restraint system (travel restraint system). [§1910.28(b)(2)(i)(C)]

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(2) When any portion of a guardrail system, gate, or chains is removed, and an employee must lean through or over the edge of the access opening to facilitate hoisting, the employee shall be protected from falling by a personal fall arrest system. [§1910.28(b)(2)(ii)]

(3) When guardrail systems are used at hoist areas, a removable guardrail section, consisting of a top rail and midrail, shall be placed across the access opening between guardrail sections when employees are not performing hoisting operations. The employer may use chains or gates instead of a removable guardrail section at hoist areas if the employer demonstrates the chains or gates provide a level of safety equivalent to guardrails. [§1910.29(b)(10)]

(4) If grab handles are installed at hoist areas, they shall comply with subsection 3209(l). [§1910.29(b)(2)(iii)]

(g) Floor openings 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 openings 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 openings through which transmission equipment passes may be guarded by toeboards. [From (a)(5), replaces holes with openings]

(h) 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. [From (a)(4)]

(i) Work on Roofs.

~~(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 infrequent work is being done safety belts and lanyards, or an approved fall protection system in accordance with section 3210.1 may be provided in lieu of guardrails. [Relocated from (d)(1)]

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

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(2) Guardrails required by subsection ~~(e)~~ (i)(1) shall be provided along at least 6 feet beyond the areas occupied by persons accessing, servicing or repairing permanently-mounted machinery and/or equipment. *[Relocated from (d)(2)]*

(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(f) or equivalent anchorage. A safe and unobstructed access shall be provided to all roof tie-back locations. ~~(Title 24, part 2, section 1711(h).)~~ *[Relocated from (d)(3)]*

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

(1) Skylight screens installed above the skylight. 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.

(2) Skylight screens installed below the skylight. Existing screens (i.e. burglar bars) shall meet the following requirements if they will be relied upon for fall protection:

(A) Screens installed at the same level or higher than the ~~walking/working~~ walking-working surface shall meet the strength requirements of subsection (b).

(B) Screens installed within 2 feet of the ~~walking/working~~ walking-working surface shall meet the strength requirements of subsection (b) with increased strength based on the fall distance below the ~~walking/working~~ walking-working surface as determined by a qualified person. In no case shall the strength of the screen below the skylight be less than the strength requirements of subsection (b). A screen more than 2 feet below the ~~walking/working~~ walking-working surface shall not serve as fall protection.

(C) A screen shall not be used for fall protection in accordance with subsection ~~(e)~~(i)(2)(A) or ~~(e)~~(i)(2)(B) if the broken skylight glazing will pose an impalement hazard to a worker who has fallen through the skylight and is lying on top of the screen. Skylights containing tempered,

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laminated, or plastic glazing, or similar materials shall not be considered to impose an impalement hazard.

(D) The screen construction shall be of grillwork, with openings less than 12 inches in the least horizontal dimension.

(3) Guardrails meeting the requirements of §section 3209.

(4) The use of a personal fall protection system meeting the requirements of §section 1670 of the Construction Safety Orders: 3210.1.

(5) Covers, including the skylight itself, meeting the requirements of subsection (b) installed over the skylights, or skylight openings. Where the skylight itself serves as a cover, the skylight shall be required to meet only the strength requirements of subsection (b). Further, for skylights serving as covers, the employer shall obtain documentation from the manufacturer that the skylight will meet the strength requirements of subsection (b) for the dates that work will be performed in the vicinity of the skylight. Such documentation shall be obtained prior to the start of work and shall be made available upon request.

(6) Skylight nets.

(A) Materials. Materials used for skylight nets shall be of natural or synthetic fiber of sufficient size, strength, and number to absorb a 400 pound load dropped from 42 inches above the surface of the net. The net hardware shall be drop-forged, pressed, or formed steel, or material of equal or better quality. The maximum size of mesh shall not exceed 36 square inches or be longer than 6 inches on any side, measured center-to-center of mesh ropes or webbing. No mesh member shall exceed 6 inches in length measured center-to-center of mesh crossings. All mesh crossings shall be anchored to eliminate frictional wear and prevent enlargement of mesh openings. Nets shall not be larger than 12 feet by 12 feet.

(B) Inspection.

1. Skylight nets shall be inspected weekly by a competent person utilizing the inspection procedures supplied by the manufacturer.

2. Visual inspections shall be performed daily by an authorized person trained on the manufacturer's inspection procedures before the net is relied upon for fall protection.

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(C) Training. Employees shall be trained to recognize the hazards of falling into nets, and on the procedures to be followed in order to limit the potential injury from such falls. The training program shall include, at a minimum:

1. The tested limits of the net
2. Avoiding falls
3. Location of weekly inspection records and the person responsible
4. Procedures for retrieving a worker who has fallen into the net
5. Manufacturer's instructions on the use and limitations of the skylight net
6. Manufacturer's inspection requirements
7. Factors affecting net life, including, but not limited to, sunlight, abrasion, dirt/sand, rust, and airborne contaminants

(D) Care, Maintenance, and Storage. The care, maintenance, and storage of nets shall be in accordance with the net manufacturer's recommendations. Nets shall be protected from sparks, hot slag, or other materials which could compromise the strength of the net.

(E) Nets shall be removed from service under any of the following conditions:

1. The frame becomes warped, bent or distorted.
2. The netting becomes torn, unraveled, cut, or has excessive slippage of the mesh crossings.
3. The net has been modified from the original manufacturer's design or specification.
4. The recommended service life of the net as provided by the manufacturer has expired. Nets without a manufacturer supplied expiration date shall not be used for fall protection in accordance with this section.

EXCEPTION: to subsection (e)(j)(6)(E)4.: If the employer effectively records and documents the date that the net was first placed in service, the service life of the net shall begin on the date placed into service instead of the date of manufacture.

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5. Other removal criteria specified by the manufacturer.

(F) Nets shall not be left on the skylight for longer than the duration of the job or one year, whichever is less.

(G) Nets shall be used with sufficient clearance to prevent user's contact with the surfaces or structures below the skylight.

(7) 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)(j)(1) through (j)(6) of this Section~~ is impractical or creates a greater hazard.

EXCEPTION: to subsection ~~(e)(j)~~: 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)(j)(1) through (e)(j)(6)~~ 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)(k)~~ 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.~~ Section 3210.1.

~~(e)(l)~~ When glazed surfaces cannot be safely accessed for maintenance in accordance with subsection ~~(f)(k)~~, 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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Amend Section 3213 as follows:

§3213. Service Pits and Yard Surface Openings.

(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 to subsection (a): 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 section 3212, Floor Openings, Floor Holes, Skylights 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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Amend Section 3214 as follows:

§3214. Stair Railings and Handrails.

~~(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.~~

(a) Each flight of stairs having at least 3 treads and at least 4 risers shall be equipped with stair rails and handrails as follows:

Table 3214-1 - Stairway Handrail Requirements [Table D-2 in 1910.28]

<u>Stair width</u>	<u>Enclosed</u>	<u>One open side</u>	<u>Two open sides</u>	<u>With earth built up on both sides</u>
<u>Less than 44 inches.</u>	<u>At least one handrail.</u>	<u>One stair rail system with handrail on open side.</u>	<u>One stair rail system each open side.</u>	<u>N/A</u>
<u>44 inches to 88 inches.</u>	<u>One handrail on each enclosed side.</u>	<u>One stair rail system with handrail on open side and one handrail on enclosed side.</u>	<u>One stair rail system with handrail on each open side.</u>	<u>N/A</u>

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<u>Stair width</u>	<u>Enclosed</u>	<u>One open side</u>	<u>Two open sides</u>	<u>With earth built up on both sides</u>
<u>Greater than 88 inches.</u>	<u>One handrail on each enclosed side and one intermediate handrail located in the middle of the stair.</u>	<u>One stair rail system with handrail on open side, one handrail on enclosed side, and one intermediate handrail located in the middle of the stair.</u>	<u>One stair rail system with handrail on each open side and one intermediate handrail located in the middle of the stair.</u>	<u>N/A</u>
<u>Exterior stairs less than 44 inches.</u>	<u>[Need to discuss]</u>			<u>One handrail on least one side.</u>

Note to table: The width of the stair must be clear of all obstructions except handrails.
[Moved to (a)(1)]

(1) The width of the stair must be clear of all obstructions except handrails.

EXCEPTION to subsection (a):

Stairways giving access to portable work stands less than 30 inches high. [From exception no. 3 of existing subsection (a)]

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

(1) Stair rails shall not have openings that exceed 19 inches at its least dimension.

[§1910.29(f)(4)]

(c) Effective Dates.

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(1) 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.

(2) For stairs installed before April 3, 1997, ~~this the~~ height of the handrail shall be between 30 and 38 inches, see Figure 3214-1. For a handrail serving as the top rail of a stair rail, the height of the stair rail shall be 36 to 38 inches, see Figure 3214-2. 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. [*§1910.29(f)(1)(ii)(A), §1910.28(b)(11)(iv)*]

(3) For stair rail systems installed on or after **[60 days after OAL effective date]** the height shall not be less than 42 inches, as measured from the leading edge of the stair tread to the top surface of the top rail (see Figure 3214-3). Stair rail systems installed on or after **[date 60 days 60 days after OAL effective date]**, shall have a separate handrail that meets the requirements of subsection (d)(1). [*§1910.29(f)(1)(ii)(B)*]

(d) Handrails.

(1) Handrails shall not be less than 30 inches and not more than 38 inches, as measured from the leading edge of the stair tread to the top surface of the handrail (see Figure 3214-1). [*§1910.29(f)(1)(i)*]

(2) For stair rails serving as handrails, the height shall be in accordance with subsection (c)(2) or (c)(3). The top rail of the stair rail shall also meet the requirements of subsection (d)(3), (d)(4) and (d)(5). [*§1910.29(f)(1)(iii)*]

~~(d)~~(3) 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. [*§1910.29(f)(3)*]

~~(e)~~(4) Handrails projecting from a wall shall have a space of not less than 1 1/2 inches between the wall and the handrail. [*§1910.29(f)(2)*]

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~~(f)~~(5) 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. *[§1910.29(f)(7)]*

~~Exception:~~ (6) 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.)~~

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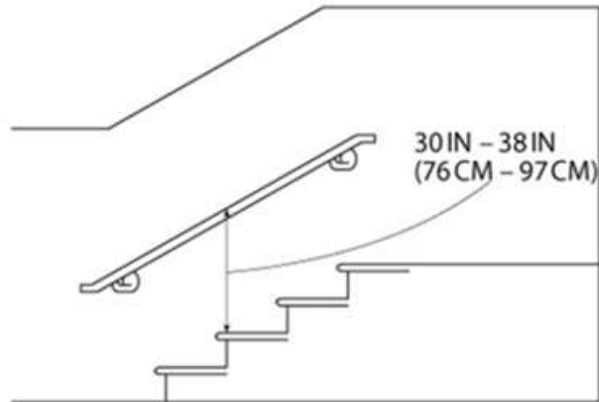


Figure 3214-1: Handrail Measurement

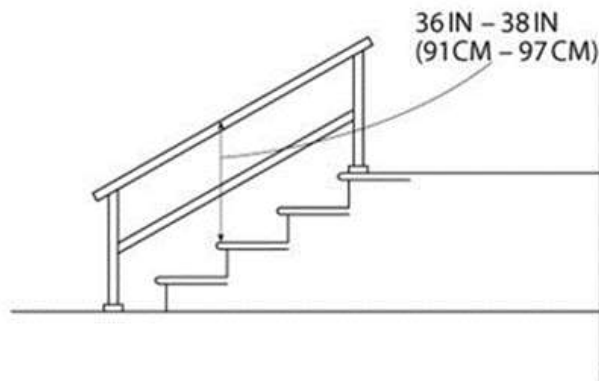


Figure 3214-2: Combination Handrail and Stair Rail
[Figure requires update]

[Add 3214-3, which corresponds to OSHA Figure D-13A]

NOTE: For additional requirements, see California Building Code, Title 24, Part 2, Volume 1, Chapter 10. Means of Egress.

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

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Amend Section 3231 as follows:

§3231. Stairways. [§1910.25]

(a) General. Every stairway serving any building or portion thereof shall conform to the requirements of this ~~§~~section. (See ~~§~~section 3214 for stair rail and handrail specifications and ~~§~~section 3234 for industrial stairways). ~~(Title 24, Part 2, Section 3305(a).)~~ *[California is electing to keep the current structure and retain two separate sections. §3231 applies to buildings utilized by the public and employees and §3234 applies to the types of stairways utilized primarily by employees in an industrial setting.]*

(b) Width.

(1) Stairways serving an occupant load of more than 50 shall be not less in width than 44 inches. Stairways serving an occupant load of 50 or less may be 36 inches wide. Private stairways serving an occupant load of less than 10 may be 30 inches wide. *[1910.25(c)(4), which is greater than 22 inches because of building code requirements - 2022, Title 24, Part 2, Section 1011.2]*

(2) Trim shall not reduce the required width by more than 3 1/2 inches. Handrails may project from each side of a stairway a distance of 3 1/2 inches into the required width. Stringers may project 1 1/2 inches. ~~(Title 24, Part 2, Section 3305(b).)~~

(c) Rise and Run.

(1) The rise of every step in a stairway shall be not less than 4 inches nor greater than 7 1/2 inches. *[§1910.25)(c)(2)]*

(2) The run shall not be less than 10 inches as measured horizontally between the vertical planes of the furthestmost projection of adjacent treads. The largest tread run within any flight of stairs shall not exceed the smallest by more than 3/8 inch. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. *[§1910.25(c)(3)]*

~~Exception~~ **EXCEPTION to subsection (c):** Private stairways serving an occupant load of less than 10 and stairways to unoccupied roofs may be constructed with an 8 inch maximum rise and a 9 inch minimum run.

~~(Title 24, Part 2, Section 3305(c).)~~

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(3) Stairways stairs shall be installed at angles of between 30 and 50 degrees from horizon (see Figure 3231-1). [1910.25(c)(1)]

(d) Surface. All treads shall be slip-resistant. Stairways shall be maintained clear and in good repair.

~~(Title 24, Part 2, Section 2-3305(s).)~~

(e) Circular Stairways. Circular stairs may be used as an exit providing the minimum width of run is not less than 10 inches and the smaller radius is not less than twice the width of the stairway. All treads in any one flight between landings shall have identical dimensions within a ~~three-eighths~~ 3/8 inch tolerance.

~~(Title 24, Part 2, Section 3305(e).)~~

(f) Landings. Every landing shall have a dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 4 feet when the stair has a straight run. Landings, when provided, shall not reduce the width to less than one-half the required width at any position in the swing or by more than 7 inches by a door when fully open. There shall be not more than 12 feet vertically between landings. [§1910.25(f), §1910.25(b)(5)]

~~(Title 24, Part 2, Section 3305(g) and (i).)~~

(g) Stairway to Roof. In every building four or more stories in height, one stairway shall extend to the roof surface, unless the roof has a slope greater than 4: in 12. ~~(Title 24, Part 2, Section 3305(o).)~~

(h) Headroom. Every required stairway shall have a headroom clearance of not less than 6 feet 6 8 inches. Such clearances shall be established by measuring vertically from a plane parallel and tangent to the stairway tread nosing to the soffit above at all points. ~~(Title 24, Part 2, Section 3305(p).)~~ [§1910.25(b)(2)]

In existing installations where overhead clearance is less than 6 feet 6 8 inches above stairways, the stairway shall be relocated, the obstruction shall be removed, or if both of these are impracticable a suitable warning shall be placed near the obstruction so as to notify employees of its presence. Where the nature of the hazard is such that padding it will increase safety, this also shall be done. ~~(Title 24, Part 2, Section 2-3305(p), Exception.)~~

(i) Enclosure Construction of Exit Stairways. When an exit stairway is required to be protected by separation from other parts of the building the separating construction shall be of not less

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than two-hour fire-resistive construction in buildings more than four stories in height and shall be of not less than one-hour fire-resistive construction elsewhere.

(1) Openings into Enclosures. There shall be no openings into exit enclosures except exit doorways and openings in exterior walls. All exit doors in an exit enclosure shall be protected by a fire assembly having a fire-protection rating of not less than one hour where one-hour shaft construction is permitted and one and one-half hours where two-hour shaft construction is required. Doors shall be maintained self-closing or shall be automatic closing by actuation of a smoke detector as provided for in Section 4306(b). The maximum transmitted temperature end point shall not exceed 450 degrees Fahrenheit above ambient at the end of 30 minutes of the fire exposure specified in U.B.C. Standard No. 43-2.

(Title 24, Part 2, Section 3308(c).)

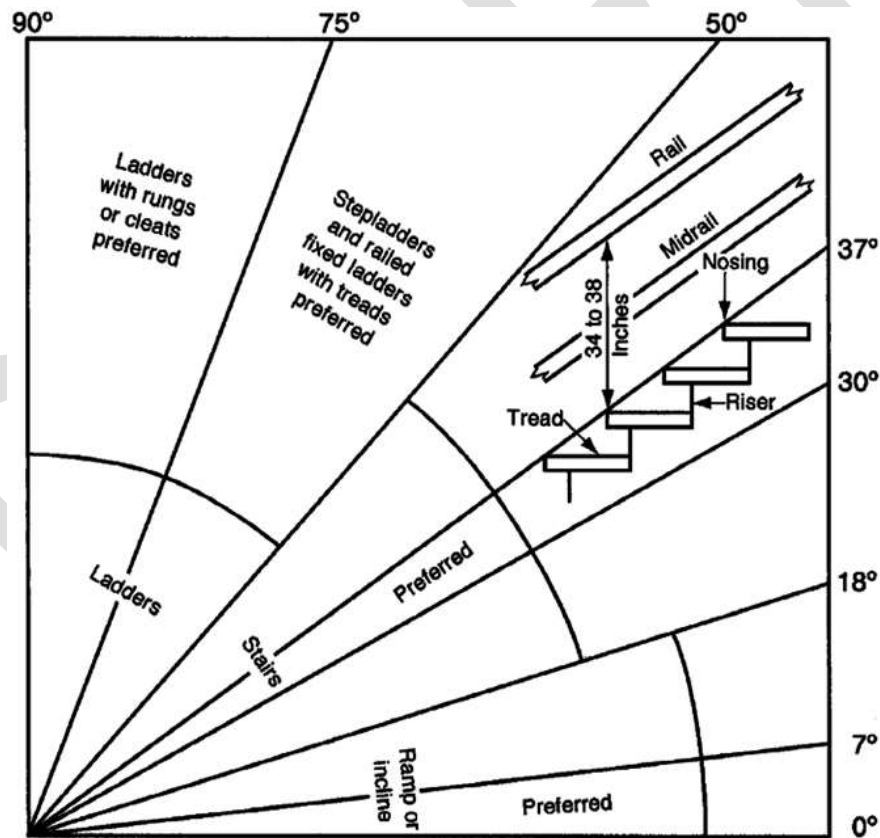


Figure E-1 3231-1 (for stairs installed on or after April 3, 1997)

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NOTE: For additional requirements, see California Building Code, Title 24, Part 2, Volume 1, Chapter 10. Means of Egress.

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

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Amend Section 3234 as follows:

§3234. Fixed Industrial Stairs. *[Federal standard considers ship, spiral, and alternating are considered non-standard stairs, ANSI-ASSE-1264.1-2017, Chapter 7]*

(a) Scope. This ~~S~~section contains specifications for the safe design and construction of fixed ~~general~~ industrial stairs, which includes spiral stairways, winding stairways, alternating tread stairs, and ship stairs. This classification includes interior and exterior stairs around machinery, tanks, and other equipment, and stairs leading to or from floors, platforms, or pits.
[§1910.25(a)]

[Add a return to separate the paragraphs]

This ~~S~~section does not apply to stairs used for required exit purposes, to construction operations, to private residences, or to articulated stairs, such as may be installed on floating roof tanks or on dock facilities, the angle of which changes with the rise and fall of the base support. ~~(Title 24, Part 2, Section 2-3326(a).)~~

(b) Where Fixed Industrial Stairs Are Required.

(1) Fixed industrial stairs shall be provided for access from one structure level to another where operations necessitate regular travel between levels, and for access to operating platforms at any equipment which requires attention routinely during operations. Fixed stairs shall also be provided where access to elevations is daily or at each shift for such purposes as gauging, inspection, regular maintenance, etc., where such work may expose employees to acids, caustic, gases, or other harmful substances, or for which purposes the carrying of tools or equipment by hand is normally required. (It is not the intent of this ~~S~~section to preclude the use of fixed ladders for access to elevated tanks, towers and similar structures, overhead traveling cranes, etc., where the use of fixed ladders is common practice.)

(2) Spiral stairways meeting the requirements of subsection (j) shall not be permitted except for special limited usage and secondary access situations where it is not practical to provide a conventional stairway. *[1910.25(b)(8)]*

(3) Winding stairways may be installed on tanks and similar round structures where the diameter of the structure is not less than 5 feet. *[1910.25(b)(7)]*
~~(Title 24, Part 2, Section 2-3326(b).)~~

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(4) Alternating tread stairs, meeting the requirements of subsection 3234(i) shall not be permitted except for: limited usage and secondary access.

~~(A) Limited usage.~~

~~(B) Secondary access.~~

(5) Spiral stairs, ship stairs (ship ladders) or alternating tread devices shall be installed, used, and maintained in accordance with manufacturer's instructions. [§1910.25(b)(9)]

(6) Ship stairs (ship ladders) meeting the requirements of section 3234(k) shall not be permitted except for limited usage and secondary access.

(c) Stair Strength. Fixed stairways shall be designed and constructed to carry a load of 5 times the normal live load anticipated but never of less strength than to carry safely a moving concentrated load of 1,000 pounds. ~~(Title 24, Part 2, Section 2-3326(-)) [1910.25(b)(6)]~~

(d) Stair Width. Fixed stairways shall have a minimum usable width of 22 inches. No chute or open conveyor shall be parallel to and adjoin a stairway unless the usable width of the stairway is at least 22 inches and the stairway is equipped with a stair railing separating the chutes and open conveyors from the stairway. ~~[Removed the paragraph separation]~~ Chutes shall not be hinged or otherwise constructed or used so as to cover stairways. ~~(Title 24, Part 2, Section 2-3326(d-)) [§1910.25(c)(4)]~~

EXCEPTIONS to subsection (d):

1. For alternating tread stairs, see subsection (i)(5)(A) and (i)(5)(C), which require the stair width to be 17 to 24 inches wide and clear width of 7 inches. [§1910.25(f)(2) and (f)(5)]
2. For spiral stairs, see subsection (j)(1), which requires clear width of 26 inches. [§1910.25(d)1]]
3. For ship stairs (ship ladders), see subsection (k)(4), which requires a clear width of 18 inches. [§1910.24(e)(4)]

(e) Angle of Stairway Rise.

(1) Fixed industrial stairs shall be installed at angles to the horizontal of between 30 and 50 degrees. Any uniform combination of rise-tread dimensions may be used that will result in a stairway at an angle to the horizontal within the permissible range. [§1910.25(c)(1), Subsections (e)(1) and (e)(2) were combined]

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~~(2) Any uniform combination of rise-tread dimensions may be used that will result in a stairway at an angle to the horizontal within the permissible range.~~

EXCEPTIONS to Subsection (e)(1):

1. For alternating tread stairs, see subsection (i)(1), which requires them to be installed 50 to 70 degrees from horizontal. [*§1910.25(f)(1)*]
2. For ship stairs (ship ladders), see subsection (k)(1), which requires them to be installed 50 to 70 degrees from horizontal. [*§1910.25(e)(1)*]

(2) For fixed industrial stairs installed prior to [60 days after OAL effective date], the following is a table of rise/tread dimensions which will produce a stairway within the permissible range, stating the angle to the horizontal produced by each combination. However the rise/tread combinations are not limited to those given in Table 3234-1. [*1910.25(c)(5)*]

Table 3234-1: Rise and Tread Dimensions
[Table was relocated from (d)(5) and table was renamed]

<u>Angle to Horizontal</u>	<u>Rise (in inches)</u>	<u>Tread Run (in inches)</u>
<u>30° 35'</u>	<u>6 ½</u>	<u>11</u>
<u>32° 08'</u>	<u>6 ¾</u>	<u>10 ¾</u>
<u>33° 41'</u>	<u>7</u>	<u>10 ½</u>
<u>35° 16'</u>	<u>7 ¼</u>	<u>10 ¼</u>
<u>36° 52'</u>	<u>7 ½</u>	<u>10</u>
<u>38° 29'</u>	<u>7 ¾</u>	<u>9 ¾</u>
<u>40° 08'</u>	<u>8</u>	<u>9 ½</u>
<u>41° 44'</u>	<u>8 ¼</u>	<u>9 ¼</u>
<u>43° 22'</u>	<u>8 ½</u>	<u>9</u>
<u>45° 00'</u>	<u>8 ¾</u>	<u>8 ¾</u>
<u>46° 38'</u>	<u>9</u>	<u>8 ½</u>
<u>48° 16'</u>	<u>9 ¼</u>	<u>8 ¼</u>
<u>49° 54'</u>	<u>9 ½</u>	<u>8</u>

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~~(3) The following is a table of rise/tread dimensions which will produce a stairway within the permissible range, stating the angle to the horizontal produced by each combination. However the rise/tread combinations are not limited to those given below. [Edited to grandfather and moved to (e)(2)]~~

(3) The employer shall ensure fixed industrial stairs installed after **[60 days after OAL effective date]**:

(A) Have a maximum riser height of 9.5 inches; and [§1910.25(c)(2)]

(B) Have a minimum tread depth of 9.5 inches. [§1910.25(c)(3)]

EXCEPTION to subsection (e)(3):

1. For alternating tread stairs, see subsection (i)(5)(B).
2. For spiral stairs, see subsection (j)(1).
3. For ship stairs, see subsection (k)(2), (k)(3) and (k)(4).

(4) Each tread and the top landing of a stairway, where risers are used, shall have a nose which extends one-half-inch to one-inch beyond the face of the lower riser. Noses shall have an even leading edge.

EXCEPTION to subsection (e)(4): Alternating tread stairs, spiral stairs, and ship stairs (ship ladders)

(5) All treads shall be slip-resistant. Welded bar grating treads without nosings are acceptable providing the leading edge can be readily identified by personnel descending the stairway and provided the tread is serrated or is of definite non-slip design. [Added paragraph below Table IS-1]

~~Table IS-1. [This Table is relocated to subsection (e)(2)]~~

Angle to _____ *Rise* _____ *Tread Run*
Horizontal _____ *(in inches)* _____ *(in inches)*

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30° 35'	6 1/2	11
32° 08'	6 3/4	10 3/4
33° 41'	7	10 1/2
35° 16'	7 1/4	10 1/4
36° 52'	7 1/2	10
38° 29'	7 3/4	9 3/4
40° 08'	8	9 1/2
41° 44'	8 1/4	9 1/4
43° 22'	8 1/2	9
45° 00'	8 3/4	8 3/4
46° 38'	9	8 1/2
48° 16'	9 1/4	8 1/4
49° 54'	9 1/2	8

~~Welded bar grating treads without nosings are acceptable providing the leading edge can be readily identified by personnel descending the stairway and provided the tread is serrated or is of definite non-slip design. [Combined with (e)(5)]~~

(6) Rise height and tread width shall be uniform throughout any flight of stairs including any foundation structure used as one or more treads of the stairs. *[Remove return]* The maximum variations in the height of risers or the width of treads in any one flight shall be 1/4 ~~one fourth~~ inch. *[1910.25(b)(3)]*

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(7) Where the rise would exceed 9 1/2 inches and the run would be less than 8 inches, portable, fixed, or ship stairs (ship ladders) shall be used. ~~See subsection (k) for ship stair (ladder).~~

~~(Title 24, Part 2, Section 2-3326(e).)~~

(f) Stairway platforms and landings shall be no less than the width of a stairway and minimum of 30 inches in length measured in the direction of travel. ~~(Title 24, Part 2, Section 2-3326(f).)~~ [§1910.25(b)(4)]

(1) When a door or a gate opens directly on a stairway, a platform shall be provided, and the swing of the door or gate shall not reduce the platform's effective usable depth to:

(A) Less than 20 inches for platforms installed before [60 days after OAL effective date]; and

(B) Less than 22 inches for platforms installed on or after [60 days after OAL effective date]

(see Figure 3234-1). [§1910.25(b)(5)]

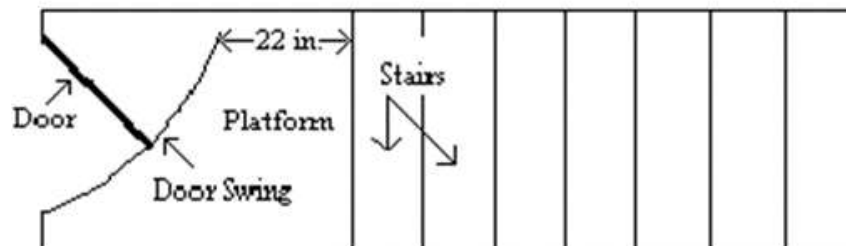


Figure 3234-1

(g) Stair Railings and Handrails. [1910.25(b)(1)]

(1) Stair railings shall be provided on the open sides of all exposed stairways.

(2) Handrails shall be provided on at least one side of closed stairways, preferably on the right side descending.

~~Note: Alternating tread stairs. See subsection (i)(5)(B).~~

(3) Stair railings and handrails shall be installed in accordance with the provisions of ~~Section~~ 3214. [§1910.28(b)(11)]

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(4) Standard guardrails shall be installed on stairway platforms. See ~~Section 3209. (Title 24, Part 2, Section 2-3326(g).)~~

(5) Stair rails shall not have openings that allow passage of a sphere 21 inches in diameter. [Per 2022, Title 24, Section 10117.1]

(h) Vertical Clearance. Vertical clearance above any stair tread to an overhead obstruction shall be at least 6 feet ~~6~~ 8 inches measured from the leading edge of the tread. [*§1910.25(b)(2)*]

EXCEPTION to subsection (h):

1. In existing installations where the overhead clearance is less than 6 feet ~~6~~ 8 inches, the obstruction shall be removed, or if this is impracticable, a suitable warning shall be placed near the obstruction so as to notify employees of its presence. Where the nature of the hazard is such that padding it will increase safety, this also shall be done. ~~(Title 24, Part 2, Section 2-3326(h).)~~

2. Spiral stairs shall have vertical clearance of at least 6 feet and 6 inches, see subsection (i)(3).

(i) Alternating Tread Stairs.

(1) The stairs shall have a series of steps between 50 and 70 degrees from horizontal. [*Cross referenced in (e)(1)*]

(2) Stair rails, designed to provide employees an adequate handhold to avoid falling, shall be provided on both sides of the stair. [*Cross referenced to (g)(2)*]

(3) A minimum distance of 6 inches shall be provided between the stair rail and any fixed structure, machine or other object.

(4) A minimum of 12 inches shall be provided between the stair rails of adjacent alternating tread type stairs.

(5) The stair shall have:

(A) A minimum of 17 and a maximum of 24 inches of width between the stair rails. [*cross referenced to (d)*]

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(B) A minimum tread depth of 8 1/2 inches, a minimum tread width of 7 inches, a minimum tread run of 5 inches and a maximum rise to the next alternating tread surface of 9 1/2 inches.

(C) A minimum usable width of 17 inches. *[cross referenced to (d)]*

(6) The initial tread of the stair shall begin at the same elevation as the platform or landing.

(7) The stair shall meet all other requirements of ~~S~~sections 3214 and 3234.

EXCEPTION: The installation of a midrail and toeboard is not required.

(j) Spiral Stairs. In addition to subsections, (b)(2), (c), (d), (e)(7), (f), (g) and (h), the employer shall ensure spiral stairs: [§1910.25(d), ANSI –ASSE 1264.1-2017, section 7.1.1.1 is slightly different than the federal standard]

(1) Have a minimum clear width of 26 inches; [3234(d) referenced (j)(1), §1910.25(d)(1)]

(2) Have a maximum riser height of 9 1/2 inches; [3234 (e)(2) and (e)(3) referenced (j)(2), §1910.25(d)(2)]

(3) Have a minimum headroom height above spiral stair treads of at least 6 feet, 6 inches measured from the leading edge of the tread; [§1910.25(d)(3)]

(4) Have a minimum tread depth of 7 1/2 inches measured at a point 12 inches from the narrower edge; and [§1910.25(d)(4)]

(5) Have a uniform tread size. [§1910.25(d)(5)]

(k) Ship Stairs (Ship Ladders). In addition to subsections (b)(2), (c), (d), (e)(7), (f), (g) and (h), the employer shall ensure that ship stairs (see Figure 3234-2): [§1910.25(e)]

(1) Are installed at a slope of 50 to 70 degrees from the horizontal; [cross referenced to 3234 (e)(1), §1910.25(e)(1)]

(2) Have open risers with a vertical rise between tread surfaces of 6 1/2 to 12 inches; [cross referenced to §3234(e)(2) and (e)(3), §1910.25(e)(2)]

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(3) Have minimum tread depth of 4 inches; and [cross referenced to §3234 (e)(2) and (e)(3), §1910.25(e)(3)]

(4) Have a minimum tread width of 18 inches. [cross referenced to (d), §1910.25(e)(4)]



Figure 3234-2: Ship Stairs (Ship Ladder)

Add a figure in alternating tread stairs

NOTE: For additional requirements, see California Building Code, Title 24, Part 2, Volume 1, Chapter 10.

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

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Subchapter 7. General Industry Safety Orders
Group 2. Safe Practices and Personal Protection
Article 7. Miscellaneous Safe Practices

Amend Section 3336 as follows:

§3336. Loading Dock and Loading Rack Operations.

(a) Trucks, trailers, and railcars boarded by powered industrial trucks during loading dock operations shall be secured against unintended movement as specified in subsections 3650(t)(22) and (23).

(b) The employer shall establish and enforce a system to prevent trucks, trailers or railcars from pulling away from the loading dock before the loading or unloading operation is completed.

(c) Protection from falls from dock plates. [1910.28(b)]

NOTE to subsection (c): Cross-referenced in section 3210 (a) and (b) for guardrail and fall protection requirements on loading racks, loading docks, and teeming platforms.

(1) Unprotected sides and edges. [1910.28(b)(1)(iii)]

When the employer can demonstrate that the use of fall protection systems is not feasible on the working side of a platform used at a loading rack, loading dock, or teeming platform, the work may be done without a fall protection system, provided:

(A) The work operation for which fall protection is infeasible is in process;

(B) Access to the platform is limited to authorized employees; and

(C) The authorized employees are trained in accordance with section 3210.3.

(2) Dock plates. The employer shall ensure that each employee on dock plates is protected from falling 4 feet or more to a lower level by a guardrail system or handrails. [1910.28(b)(4)]

EXCEPTION to subsection (c)(2): A guardrail system or handrails are not required when working on dockboards when: [1910.28(b)(4)(ii)]

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1. Dock plates are being used solely for materials-handling operations using motorized equipment; [§1910.28(b)(4)(ii)(A)]

2. Employees engaged in these operations are not exposed to fall hazards greater than 10 feet; and [§1910.28(b)(4)(ii)(B)]

3. Those employees have been trained in accordance with section 3210.3. [§1910.28(b)(4)(ii)(C)]

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

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Subchapter 21. Telecommunication Safety Orders
Article 1. Telecommunications

Amend Section 8615 as follows:

§8615. Overhead Lines.

(a) Handling Suspension Strand. *[No change in text]*

(g) Fall Protection. *[No change in text]*

(3) Personal fall protection systems listed in subsection (g)(1) shall meet the applicable requirements in Section ~~1670 of the Construction Safety Orders, Article 24.,~~ 3210.1 of the General Industry Safety Orders.

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