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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,

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. 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).

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)]*

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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]*
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 provide~~s~~ 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 in height dimensions is one inch~~). See Figure 3209-1. ~~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)]*

[Proposal to delete the Note. The 2022 Building Code, Section 1015.3 requires the guards to not be less than 42 inches. A height of 41 inches would not be acceptable under the 2022 Building Code. Height of 42-45 inches would be at least as effective as the federal standard and ANSI/ASSE A1264.1-2007]

(1) Where screens, mesh, intermediate vertical members, solid panels, parapets or equivalent intermediate members are used as mid-rail protection, they shall meet the following requirements:

(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)]*

(D) A parapet shall be at least 21 inches high.

~~(D)~~ (E) 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 2 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.

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[Board staff to review consensus standard to address ballasted guardrails and evaluate incorporating the standard by reference]

(4) 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]*

~~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~~
[Evaluate moving to Appendix A to Section 3209 and revise text]

~~(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.~~
~~(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)]*

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(4) The top of the toeboard shall be not less than 3.5 inches above the walking-working surface. *[From subsection (d), §1910.29(k)(1)(ii)]*

(5) Toeboards shall not have more than 2.5 inches clearance or opening above the walking-working surface. *[From subsection (d), §1910.29(k)(2)(iii)]*

(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**~~

[Move to Appendix A to Section 3209 if moving subsection (c) in the Appendix]

~~SOME ACCEPTABLE INDUSTRIAL GUARDRAILS AND TOEBOARDS~~

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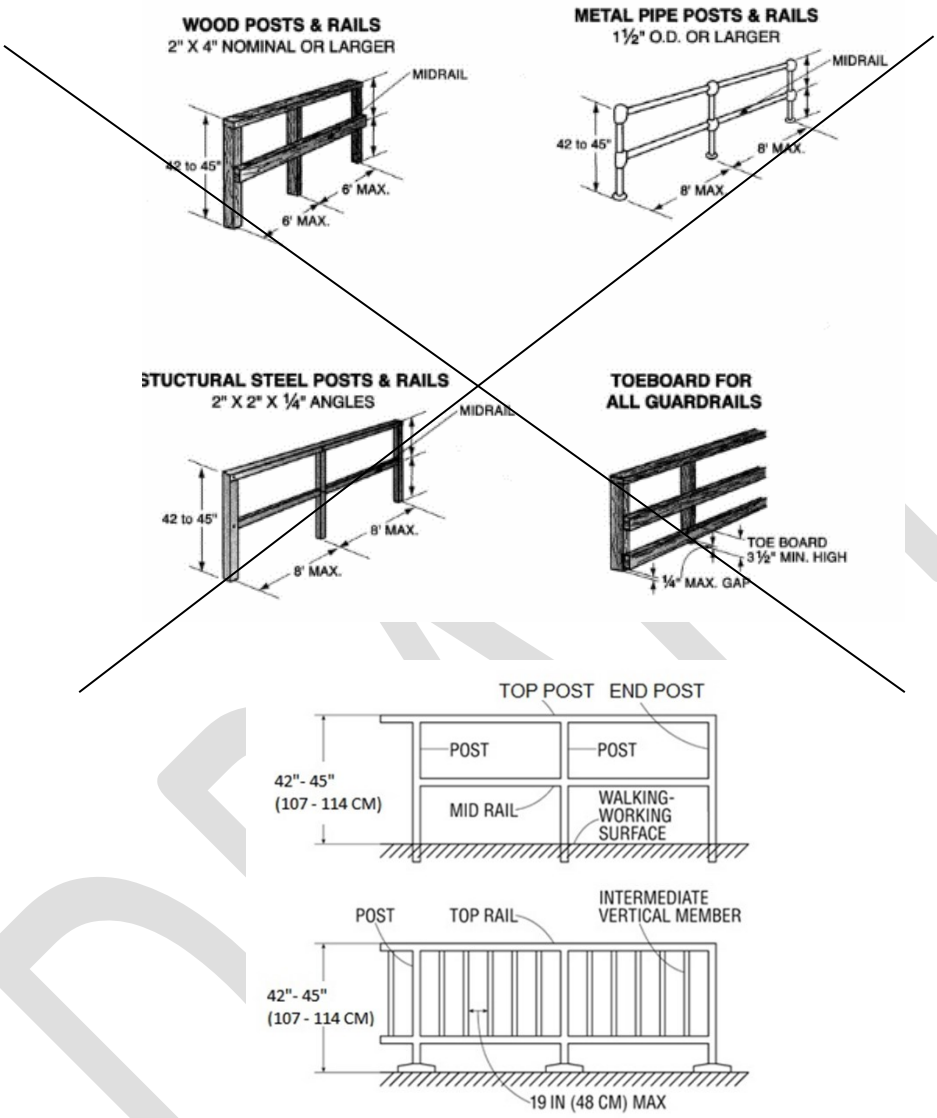

Figure 3209-1 Standard Guardrails

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~~(c)~~, Health and Safety Code.

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Add new Section 3209.1 as follows:

§3209.1. Grab Handles.

(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 ~~S~~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~~ grab handles. *[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.

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 ~~S~~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.

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(b) Other Elevated Locations. The unprotected sides of elevated work locations that are not buildings or building structures where an employee is exposed to a fall of 4 feet or more shall be provided with guardrails. Where overhead clearance prohibits installation of a 42-inch guardrail, a lower rail or rails shall be installed. The railing shall be provided with a toeboard where the platform, runway or ramp is ~~6~~ 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 Exception 3. of subsection (b): 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.

~~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 ~~S~~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~~ grab handle 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.

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~~**(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.**~~

(c) Where the guardrail requirements of subsections (a) and (b) are infeasible due to machinery requirements or work processes and the exceptions to 3210(a) and 3210(b) do not apply employees shall be protected from falls by covers, safety net systems or personal fall protection systems.

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

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.

(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.

Activation Distance. The distance traveled by a fall arrestor or the amount of line payed out by a self-retracting lanyard (SRD) from the point of onset of fall to the point where the arrester or self-retracting lifeline begins to apply a braking or stopping force. ***[From ANSI Z359.0-2023]***

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]*

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

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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 line constituent 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) 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 windowsill 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 Device (SRD). A device that contains a drum wound line that automatically locks during the course of a fall to arrest the user, but that pays out from and automatically retracts onto the drum during normal movement of the person whom the line is attached. After onset of a fall, the device automatically locks the drum and arrests the fall when mounted overhead. Self-retracting devices include self-retracting lanyards (SRLs), self-retracting with

integral rescue capability (SRL-Rs), self-retracting lanyards, personal (SRL-Ps) and hybrid combinations of these devices.

NOTE: Normally, an SRD pays out from and automatically retracts onto the drum during movement of the person whom the line is attached. When mounted overhead, the device automatically locks the drum and arrest**s** the fall after the onset of the fall. When not mounted overhead, the device likely will not lock until the device is vertically above the person for whom the line is attached. The arrest distance is a metric which measures the activation distance plus the deceleration distance. SRDs anchored overhead (Class 1 devices) will have a very short activation distance. SRDs anchored below the dorsal d-ring or to the walking-working surface will not activate until such time as the falling employee begins extracting the constituent line from the device*. Add Class II*

[Definition of SRD different from the federal standard]

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)]*

Travel Restraint System. See Personal Fall Restraint System.

(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) Personal Fall protection components and/or systems shall be used in accordance with the manufacturer's instruction.

(2) 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)]*

(3) 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]*

(4) When vertical (single point) 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)]*

(5) Lanyards and vertical (single point) lifelines shall have a minimum breaking strength of 5,000 pounds. All ends of lifelines or lanyards shall be terminated 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]*

(6) All self-retracting lifelines and lanyards shall have components capable of sustaining a minimum tensile load of 3,600 pounds 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), technical correction, see 3.2 of ANSI Z359.14-2021]*

(A) Webbing used as a line constituent shall have a minimum breaking strength of 4,500 pounds for Class 1 devices and 5,000 pounds for Class 2 devices. *[ANSI Z359.14-2021,3.1.6.1]*

(B) Class 1 self-retracting devices (SRDs) shall only be anchored above the dorsal attachment. *[ANSI Z359.14-2021, 1.4.1 Class 1 and Appendix B, B4.1.1 Anchorage, moved from subsection (c)(8)]*

(7) Lanyards that limit free fall distance to 2 feet or less shall have components capable of sustaining a minimum tensile load of 3,600 pounds applied to the device with the lifeline or lanyard in the fully extended position. *[Separated from (c)(6)]*

(8) D-rings, snaphooks, **connectors** 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, **Action Item: Connectors per ANSI**].*

(9) 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, 3.1.36, 3.1.6, 3.1.7]*

(10) Snaphooks and carabiners shall be the automatic locking type that require at least two separate, consecutive movements to open. *[FromT8 Appendix C to Article 6, Section I (c)(8)§1910.140(c)(9), ANSI Z359.12-2019, Section 3.1.3]*

(11) 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)]*

G(D) To a horizontal lifeline; 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 depresses the snaphook or carabiner gate, allowing the components to separate. *[§1910.140(c)(10)(v)]*

(12) 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]*

~~**Division Proposal**~~
~~**§3299. Personal Fall Protection.**~~

~~**(a) Employees on working platforms shall be protected by a personal fall arrest system meeting the requirements of Section 3210.1 of the General Industry Safety Orders, Appendix C, Section I of this article and as otherwise provided by these orders.**~~

~~**(b)The qualified person required by title 8 subsection 3210.1(c)(13)(A) for the design, installation, use and supervision of horizontal lifelines to be used by employees performing building maintenance shall be a professional engineer currently registered in the State of California.**~~

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~~Note: Additional requirements for horizontal lifelines used for building maintenance are included in title 8 section 3299.~~

~~Alternate Proposal~~

~~§3299. Personal Fall Protection.~~

~~(a) Employees on working platforms shall be protected by a personal fall arrest system meeting the requirements of~~ Section 3210.1 of the General Industry Safety Orders. ~~Appendix C, Section I of this article and as otherwise provided by these orders.~~

~~(b)The qualified person required by title 8 subsection 3210.1(c)(13)(A) for the design, installation, use and supervision of horizontal lifelines to be used by employees performing building maintenance shall be a professional engineer currently registered in the State of California.~~

~~(b) Horizontal safety lines, to be used by employees performing building maintenance, shall be designed under the supervision of a professional engineer currently registered in the State of California and installed as part of a complete personal fall arrest system, which maintains a safety factor of at least two.~~

(A) Horizontal lifeline systems shall be designed by a qualified professional engineer experienced in the design of horizontal lifelines as part of a complete personal fall protection system with a safety factor of at least two. The HLL system shall be installed by a qualified person and used under the supervision of a competent person.

(B) The forces ~~or tensions~~ used for horizontal lifeline designs shall be based on empirically determined test data shown in documentation associated with the manufacturer's instructions or forces that are determined using the analytical methods included in Section 8.3 of ANSI Z359.6-2016 Specifications and Design Requirements for Active Fall Protection Systems, which is hereby incorporated by reference.

(C) Drawings and specifications in accordance with Section 3.2 of ANSI Z359.6-2016 Specifications and Design Requirements for Active Fall Protection Systems applicable to each horizontal lifeline shall be maintained and readily-available when the HLL is in use

(D) As an alternative to (C), the employer shall have documentation from the manufacturer or other sources that provides at least the following:
1. Type of active systems being used (i.e., fall arrest or fall restraint)*
2. Maximum number of users on the system and the corresponding maximum load capacity for each user, including clothing and tools*
3. Maximum factored loads (design loads) on each type of anchorage of the horizontal lifeline
4. Maximum personal fall arrest loads permitted on the HLL
5. Clearances based on the span(s), number and weight of users, type of connecting device and other relevant variables
6. Required sag (if any) or required tension in the HLL
7. Specification for each component of the system*
8. Any testing or inspection required prior to initial and daily use of the system*
9. A drawing or written description detailing how and where the horizontal lifeline is to be supported

Note 1: Items in the above list noted by * are often provided in the manufacturer's instructions.
Note 2: Additional requirements for horizontal lifelines used for building maintenance are included in title 8 section 3299.

(13) 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)]*

(14) Anchorage and anchorage connectors shall be capable of supporting at least 5,000 pounds for each employee attached or designed, installed and used, under the supervision of qualified person, as part of a complete personal fall protection system that maintains a safety factor of at least two. ~~.~~ *[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)(15): Window cleaners anchors and fittings covered by section 3283.

(15) 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)]*

(16) 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)]*

(17) 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]*

(18) 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]*

(19) 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]*

(20) 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]*

(21) 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]*

(22) The employer shall provide for prompt rescue of each employee in the event of a fall. *[FromT8 Appendix C of Article 6, Section I (e)(8), §1910.140(c)(21), ANSI Z359.2-2017, Section 8.3]*

(23) 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)]*

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

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

(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 as listed in Table 1: Deceleration Distance or arrest, activate or fall a total distance as listed in Table 2: Arrest, Activation or Total Fall Clearance. The deceleration distance pertains only to the deployment or operation of the deceleration device.

Table 1: Deceleration Distances

Personal Fall Protection Equipment	Deceleration Distance
Energy absorbing lanyard with free fall limited to 6 feet	4 feet
Energy absorbing lanyard with free fall limited to 12 feet	5 feet

Table 2: Arrest, Activation Distance or Total Fall Clearance

Personal Fall Protection Equipment	Distances To Consider In Determining Fall Clearances
Overhead mounted Self-Retracting Devices (SRDs)	Arrest distance limit = 3.5 feet
A below dorsal D-ring mounted self-retracting device	Total fall clearance shall be clearly indicated by manufacturer graphically
Descent controllers	Activation distance limit = 4 feet
Fall arresters	Activation distance limit = 2 feet

3. Have sufficient strength to withstand twice the potential impact force 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. All personal fall arrest, personal fall restraint and positioning device systems purchased or placed in service after [6 months after OAL effective date], shall be labeled as meeting the requirements contained in:

[Action Item: Check to see if edition year can be deleted]

Consensus Standard	Edition
ANSI/ASP Z359.3 Requirements for Lanyards and Positioning Lanyards	2019
ANSI/ASSP Z359.4 Safety Requirements for Assisted-Rescue & Self-Rescue Systems, Subsystems and Components	2013 (R2022)
ANSI/ASSP Z359.9 Personal Equipment for Protection Against Falls - Descent Controllers	2021
ANSI/ASSP Z359.11 Safety Requirements for Full Body Harness	2021
ANIS/ASSP Z359.12 Connecting Components for Fall Arrest Systems	2019
ANSI/ASSP Z359.13 Personal Energy Absorbers & Energy Absorbing Lanyards	2013 (R2022)
ANSI /ASSP Z359.14 Self-Retracting Devices for Personal Fall Arrest & Rescue Systems	2021
ANSI/359.15 Single Requirements for Single Anchor Lifelines and Fall Arresters for Fall Arrest and Rescue Systems	2014
Z359.16 Safety Requirements for Climbing Ladder Fall Arrest System	2016
ANSI/ASSP Z359.18 Safety Requirements for Anchorage Connectors for Active Fall Protection	2017

~~**6. If the system is used by an employee having a combined body and tool weight of 310 pounds or more and the employer has appropriately modified the criteria and protocols in appendix A, then the system will be deemed to be in compliance with the requirements of paragraphs (d)(1)(i)1 through (d)(1)(A)3).**~~

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[Manufacturer representative will provide proposed text regarding the testing protocols for combined body and tool weight greater than 310 lbs.]

(e) System Use Criteria. *[§1910.140(d)(2), Revisit (e)(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.

Exception: When it is not feasible or it creates a greater hazard to limit a free fall to 6 feet, a free fall may be a maximum of 12 feet provided the employer can demonstrate the manufacturer designed the system for the additional free fall distance, tested the system to ensure a maximum arresting force of 1,800 pounds is not exceeded, and that the employee will not contact a lower level or lower level obstacle.
[From T8 Appendix C of Article 6, Section I (e)(3), §1910.140(d)(2)(ii) Fed OSHA permits free fall greater than 6 feet. The discussion to permit free fall of more than 6 feet will be discussed on the next advisory committee meeting in October.]

(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 **310**-pound weight; *[§1910.140(e)(1)(i). ANSI Z.359.3, Section 4.2.4, Test weight is 282 pounds, Appendix to 3210.1 calls for 300 pounds 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)]*

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(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), Appendix A review is still unfinished]*

[Review section 3283 to determine if text about window cleaners should be deleted, Subsection (f)(2) will be deleted if Appendix A will be removed]

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~~

~~*[The Appendix is inconsistent with ANSI Standards. Green text notes the difference between Fed standard and the proposal.]*~~

~~Test Methods for Personal Fall Arrest Systems. This appendix contains test methods for personal fall protection systems which may shall 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 verifying system performance criteria as stated in 3210.1(d). The system is considered to be in compliance with the provisions of subsections (d)(1)(A)1. through (d)(1)(A)3. if the fall protection system is tested in accordance with subsection (b) or (c)~~

~~(1) An alternative to design requirements and testing procedures in subsection (b) is use of fall protection equipment that meets the applicable ANSI Z359 standard as of the date of manufacture. *[Design was added]*~~

~~(b) ANSI Testing Procedures. The following standards are incorporated by reference:~~

~~Section 3. Design Requirements and Section 4. Performance Requirements (Qualification Testing) of ANSI /ASSP Z359.3-2019, Safety Requirements for Lanyards and Positioning Lanyards~~

~~Section 3 Requirements and Section 4 Qualification Testing of ANSI/ASSE Z359.4-2013 (R2022) Safety Requirements for Assisted- Rescue and Self-Rescue Systems, Subsystems and Components~~

~~Section 3. Design Requirements and Section 4. Qualification and Verification Testing of ANSI/ASSP Z359.9-2021, Personal Equipment for Protection Against Falls Descent Controllers~~

~~Section 3. Design Requirements and Section 4. Performance Requirements (Qualification Testing) of ANSI/ASSP Z359.11-2021, Safety Requirements for Full Body Harnesses~~

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~~**Section 3. Requirements and Section 4. Qualification Testing of ANSI Z359.12-2019, Connecting Components for Personal Fall Arrest Systems**~~

~~**Section 3. Requirements and Section 4. Qualification and Verification Testing of ANSI Section 4. Section 4. Qualification Testing of ANSI/ASSE Z359.13 -2013, Personal Energy Absorbers and Energy Absorbing Lanyards**~~

~~**Section 3. Design Requirements and Section 4. Qualification and Verification Testing of ANSI/ASSP Z359.14-2021, Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems**~~

~~**Section 3. Design Requirements and Section 4. Qualification and Testing of ANSI/ASSE Z359.15-2014, Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems**~~

~~**Section 3. Requirements and Section 4. Testing of ANSI/ASSE Z359.16-2016, Safety Requirements for Climbing Ladder Fall Arrest Systems**~~

~~**Section 3. Requirements and Section 4. Qualification Testing of ANSI /ASSP Z359.18-2017, Safety Requirements for Anchorage Connectors for Active Fall Protection Systems**~~

~~**(c) Testing Procedures**~~

~~**(1) General test conditions.** ***[Updated Fed Testing Procedures]***~~

~~**(A) Lifelines, lanyards and deceleration devices should shall be attached to an anchorage and connected to the body harness rigid weight in the same manner as they would be when used to protect employees.** ***[Fed OSHA says rigid weight not body harness]***~~

~~**(B) The fixed anchorage on the test structure should shall be rigid and shall not have a deflection greater than 0.04 inches when a force of 2,250 pounds is applied. The minimum natural frequency of the test structure shall be 200 Hz when measured along the vertical axis through the point through the fixed anchorage.** ***[Fed OSHA says fixed anchorage]***~~

~~**(C) The frequency response of the load measuring instrumentation shall be 120 Hertz.**~~

~~(D) The test weight used in the strength and force tests for lanyards and lifelines shall be a rigid, metal, cylindrical or torso-shaped object with a girth of 38 inches plus or minus 4 diameter of 13 inches plus or minus 1 inch.~~

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

~~(F) The test weight for each test should shall be hoisted to the required level to simulate the input energy required of the system and shall be quickly released without having any appreciable motion imparted to it. The maximum offset of the fixed anchorage and the test weight shall be 12 inches.~~

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

~~(H) Following the test, the system need not be capable of further operation.~~ ~~*[Not sure what this means]*~~

~~Note: Environmental conditioning tests includes wet, hot, cold, abrasion, salt spray and edge test.~~

~~(2) Dynamic Strength Test.~~

~~(A) During the testing of all systems, a test weight of 300 310 pounds plus or minus 3 pounds should shall be used. (See subsection (b)(4))~~

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

~~(C) For lanyard systems, the lanyard length shall be 6 feet plus or minus 2 inches as measured from the fixed anchorage to the attachment on the body harness.~~

~~(D) For rope-grab-type deceleration systems, the length of the safety line above the centerline bearing point of the grabbing mechanism to the safety line's anchorage point should shall not exceed 2 feet.~~

~~**(E) For deceleration device systems with integral safety lines or lanyards which automatically limit free fall distance to 2 feet or less and are intended to be rigged such that the anchorage is above the attachment point of the harness, the test weight shall be rigged to free fall a distance of 4 feet.**~~

~~**(F) For lanyard systems which can be rigged that free fall equals to 6 feet, for systems with deceleration devices locking mechanisms which do not automatically limit free fall distance to 2 feet or less and for systems with deceleration devices locking mechanism which have a connection distance in excess of 1 foot (measured between the centerline bearing point of the safety line and the attachment point to the body belt or harness) the test weight should 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 (6 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 rope lanyard of sufficient length may need to be added to the system (for test purposes) to create the necessary free fall distance.**~~

~~***[Need to address SRDs]***~~

~~**(G) For systems with deceleration devices which can be rigged such that free fall exceeds 6 feet the test weight should shall be rigged to free fall a distance of 12 feet from a point that is 6 feet above the anchorage point, to its hanging location (6 feet below the anchorage). The test weight should shall fall without interference, obstruction or hitting the floor or ground during the test. In some cases, a non-elastic wire rope lanyard of sufficient length may need to be added to the system (for test purposes) to create the necessary free fall distance.**~~

~~***[Outstanding. Further discussion warranted on permitting free fall distance of over 6 feet. Chair was to review federal final rule]***~~

~~**(H) Any weight which detaches from the belt or harness should shall constitute failure for the strength test.**~~

~~**(3) Force Dynamic Performance Test.**~~

~~**(A) General. The test consists of dropping the respective test weight specified in subsection(d)(2)(A) or (d)(3)(A) (c)(3)(A) through (c)(3)(D) of this appendix once. A new, unused system should shall be used for each test.**~~

~~**(B)For lanyard systems where the free fall is permitted to exceed 2 feet but less than 6 feet:**~~

~~1. A test weight of 220 310 pounds plus or minus 3 pounds should shall be used. (See subsection (b)(4).)~~

~~2. Lanyard length should shall be 6 feet plus or minus 2 inches as measured from the fixed anchorage to the attachment on the body harness.~~

~~3.The test weight should shall fall free from the anchorage level to its hanging location (a total of 6 feet free fall distance) without interference, obstruction or hitting the floor or ground during the test.~~

~~(C) For systems where the free fall is permitted to exceed 6 feet but is less than 12 feet.~~

~~1. A test weight of 310 pounds plus or minus three pounds should shall be used. (See paragraph (b)(4) of this appendix.)~~

~~2. Lanyard length should shall be 6 feet plus or minus 2 inches as measured from the fixed anchorage to the attachment on the body harness.~~

~~(D) The test weight should shall fall free from six feet above the anchorage level to its hanging location (a total of 12 feet) free fall distance) without interference, obstruction or hitting the floor or ground during the test.~~

~~(D) For all other systems:~~

~~1. A test weight of 220 310 pounds plus or minus 3 pounds shall be used. (See subsection (b)(4) of this appendix).~~

~~2. The free fall distance to be used in the test should 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 6 feet, except as follows:~~

~~a. For deceleration systems which have a connection link or lanyard, the test weight should 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).~~

~~b. For deceleration device systems with integral safety lines or lanyards which automatically limit free fall distance to 2 feet or less, the test weight should 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 should 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).~~

~~(E) Failure. A system fails the force test if the recorded maximum arresting force exceeds 2,520 1,800 pounds when using a body harness.~~

~~(F) Distances. The maximum elongation and deceleration distance should shall be recorded during the force test.~~

~~(4) Deceleration Device Tests.~~

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

~~*[Need to better define testing to address environmental conditions and edges]*~~

~~(B) Rope-grab-type deceleration devices.~~

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

~~2. 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 lifelines should shall be used to test the device.~~

~~(C) 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.~~

~~*[Other tests (locking mechanism, 3,600 pounds static strength) and tests associated with twin-leg devices are not included.]*~~

~~Test Methods For Position Systems, subsection (f) of section 3210.1~~

~~(a) General. The following sets forth test procedures for positioning systems as defined in paragraph (f) of § 3210.1. The requirements in this appendix for personal fall arrest systems set forth procedures that may be used, along with the procedures listed below, to determine~~

~~compliance with the requirements for positioning systems. An alternative to the procedures below is to meet the current version of the ANSI Z359 product standard as of the date of manufacture.~~

~~(1) An alternative to the procedures below is to meet the current version of the ANSI Z359 product standard as of the date of manufacture.~~

~~(b) Test conditions.~~

~~(1) The fixed anchorage on the test structure should shall be rigid and should shall not have a deflection greater than 0.04 inches when a force of 2,250 pounds is applied. The minimum natural frequency of the test structure shall be 200 Hz when measured along the vertical axis through the point through the fixed anchorage.~~

~~(2) For window cleaners' belts, the complete belt should shall withstand a drop test consisting of a 250 pound weight falling free for a distance of 6 feet. The weight should shall a rigid object with a girth of 38 inches plus or minus 4 inches. The weight should shall be placed in the waistband with the belt buckle drawn firmly against the weight, as when the belt is worn by a window cleaner. One belt terminal should shall be attached to a rigid anchor and the other terminal should shall hang free. The terminals should shall be adjusted to their maximum span. The weight fastened in the freely suspended belt should shall then be lifted exactly 6 feet above its "at rest" position and released so as to permit a free fall of 6 feet vertically below the point of attachment of the terminal anchor. The belt system should shall be equipped with devices and instrumentation capable of measuring the duration and magnitude of the arrest forces. Failure of the test should shall consist of any breakage or slippage sufficient to permit the weight to fall free of the system. In addition, the initial and subsequent arresting forces should shall be measured and should shall not exceed 2,000 pounds for more than 2 milliseconds for the initial impact or exceed 1,000 pounds for the remainder of the arrest time.~~

~~*[MC: From ANSI-IWCA I 14.1-2001, page 25, Not necessary because existing regulation require window cleaners belt to meet ANSI/ASME A39.1-1995]*~~

~~(2) All other positioning systems (except for restraint line systems) should shall withstand a drop test consisting of a 250 310 pound weight free falling a distance of 4 feet. The weight must be a rigid object with a girth of 38 inches plus or minus 4 inches. The body belt or harness should shall be affixed to the test weight as it would be to an employee. The system should shall be connected to the rigid anchor in the manner that the system would be~~

~~**connected in normal use. The weight should shall be lifted exactly 4 feet above its "at rest" position and released so as to permit a vertical free fall of 4 feet. Failure of the system should shall be indicated by any breakage or slippage sufficient to permit the weight to fall free to the ground.**~~

~~**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)]*

(B) To comply with (A) above all openings shall be of sufficient size to prevent objects from falling through the opening. ***Review Federal final rule, see sections 3295, 3209(d)***

(2) Erecting canopy structures ~~**and keeping potential falling objects far 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**~~

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~~**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, 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]*

(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)*] Consider extending OAL effective date to 1 year*

(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)]*

(C) The procedures for inspecting, care, storage and using the personal fall protection system
(1) For employees who install, disassemble, or maintain fall protection systems, the employee shall be trained in the ~~correct~~ procedures for installing, inspecting, operating, maintaining and disassembling the personal fall protection systems that the employee uses; and
[Not every employee will install, disassemble, repair fall protection systems
Action Item: Accept or reword the text]

(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)]*

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~~(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)] Consider extending OAL effective date to 1 year, listing of sections may be necessary. Action Item: Consider Deleting]*

(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)* ***Action Item: Think of relocating this to CDA****)]*

(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) AC Recommendation to delete, duplicative of (c)]*

(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)] See 3203*

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), pending]*

(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)]*

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

(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 inches plus or minus 2 inches, in diameter

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)]*

~~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]*

(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) Ladderway Opening.

(1) 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):

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)]*

~~(1)~~(2) The swinging gate shall be non-latching and swing away from the unprotected edge.

~~(2)~~(A) 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)~~(B) 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)]*

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

(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)]*

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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.

(2) Guardrails required by subsection ~~(d)~~ (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)]*

(4) In residential roof where the employer can demonstrate that guardrail requirements, personal fall protection, cover, or safety net systems are infeasible or creates a greater hazard, the employer shall develop and implement a fall protection plan in accordance with section 1671.1 and section 3210.3.

~~(e)~~(j) Skylights. 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)~~(j)(2)(A) or ~~(e)~~(j)(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, 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 ~~S~~section 3209.

(4) The use of a personal fall protection system meeting the requirements of ~~S~~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.

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(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.

(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.

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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.

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 ~~S~~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) Glazed Surfaces.
(1) 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.

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~~(g)~~(f)(2) 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.