

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

Attachment No. 2

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PROPOSED STATE STANDARD,  
TITLE 8, CHAPTER 4

Chapter 4, Subchapter 7. General Industry Safety Orders

Group 1. General physical conditions and structures

Article 4. Access, work space, and work areas

*[Ed note: Text in red indicates what I have added or changed from the DOSH Form 9]*

Section 3277. Fixed Ladders

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(b) Definitions.

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Cage. A cage is a guard that may be referred to as a cage or basket guard, which is an enclosure that is fastened to the side rails of the fixed ladder or to the structure to encircle the climbing space of the ladder for the safety of the person who must climb the ladder.

Carrier. The track of a ladder safety system consisting of a flexible cable or rigid rail, which is secured to the ladder or structure by mountings. [Ed note: A14.3-2002 definition]

Cleats. Cleats are ladder crosspieces of rectangular cross section placed on edge on which a person may step in ascending or descending.

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~~Ladder Safety Device. A ladder safety device is any device, other than a cage or well, designed to eliminate or reduce the possibility of accidental falls and which may incorporate such features as life belts, friction brakes, and sliding attachments.~~

Ladder safety system. An approved assembly of components whose function is to arrest the fall of a user. The ladder safety system shall include the carrier and its associated attachment

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elements (brackets, fasteners, etc.), safety sleeve, full body harness and connectors, wherein the carrier is permanently attached to the climbing face of the ladder or immediately adjacent to the structure. [Ed note: A14.3-2002 definition.]

Pitch. Pitch is the included angle between the horizontal and the ladder, measured on the opposite side of the ladder from the climbing side.

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Rungs. Rungs are ladder crosspieces on which a person may step in ascending or descending.

Safety sleeve. The part of a ladder safety system consisting of the moving component with locking mechanism that travels on the carrier and makes the connection between the carrier and the full body harness. [Ed note: A14.3-2002 definition]

Side-Step Ladder. A side-step ladder is one from which a person getting off at the top must step sideways from the ladder in order to reach the landing, such as shown in Fig. 3.

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(f) Clearance.

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(7) ~~Counterweighted h~~Hatch covers, including counterweighted hatch covers, shall open a minimum of 60 degrees from the horizontal. The distance from the center line of rungs or cleats to the edge of the hatch opening on the climbing side shall be not less than 24 inches for offset wells or 30 inches for straight wells. There shall be no protruding potential hazards within 24 inches of the center line of rungs or cleats; any such hazards within 30 inches of the center line of the rungs or cleats shall be fitted with deflector plates placed at an angle of 60 degrees from the horizontal as indicated in Fig. 8. The relationship of a fixed ladder to an acceptable counterweighted hatch cover is illustrated in Fig. 9.

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(g) Cages or Wells.

(1) Construction. Cages or wells shall be built as shown on the applicable drawings, covered in detail in Figs. 1, 10, and 11, or of equivalent construction.

EXCEPTION: Chimney ladders and manholes and underground vaults.

(2) Dimensions and Maximum Length. Cages or wells (except as provided under (5)) conforming to the dimensions shown in Figs. 1, 10, and 11 shall be provided on ladders of more than 20 feet to a maximum unbroken length of 30 feet.

EXCEPTIONS:

(1) Fixed ladders on fire hose drying towers are not required to have a cage, well, offset platform, or ladder safety device if they do not exceed 30 feet in length and provided their use is restricted to trained fire fighters or others equally trained in ladder use.

(2) Fixed ladders on outdoor advertising structures, where employees wear and use an approved personal fall protection system safety belts and lanyards which can be utilized if a rest period is required. *[Ed note: Revised for consistency with proposed changes to Section 3414 and 3416]*

(3) Top of Cage. Cages shall extend a minimum of 42 inches above the top of landing, unless other acceptable protection is provided.

(4) Bottom of Cage. Cages shall extend down the ladder to a point not less than 7 feet nor more than 8 feet above the base of the ladder, with bottom flared not less than 4 inches, ~~or portion of cage opposite ladder shall be carried to the base.~~ When the ladder base terminates on a landing platform or walkway at an elevation greater than 30 inches above the ground and the horizontal distance from the ladder rungs to the guardrail is 48 inches or less, a back-guard of at least the width of the cage shall be provided from the bottom of the cage to the guardrail or landing.

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(A) When the guardrail is located at a distance equal to or less than the distance from the rungs to the back edge of the cage, the back-guard shall be sloped and terminate on the guardrail.

(B) When the guardrail is located at a distance greater than the distance from the rungs to the back edge of the cage, up to and including 48 inches, it shall be constructed in a manner after that shown in Figure 11, "Inclined Ladders at Elevated Locations."

(C) The back-guard shall be capable of withstanding a force of at least 200 pounds applied horizontally at any point on the back-guard. Back-guards may be of solid construction, grille work with openings not more than 8 inches long, or of slat-work with openings not more than 4 inches wide with unrestricted length.

(D) Back-guards shall be free of hazardous projections.

(5) Size of Cage. Cages shall not extend less than 27 nor more than 30 inches from the center line of the rungs of the ladder. Cage shall not be less than 27 inches in width. The inside shall be clear of projections. Vertical bars shall be located at a maximum spacing of 9½ inches, center-to-center around the circumference.

(6) Ladder Wells. Ladder wells shall have a clear width of at least 15 inches measured each way from the center line of the ladder. (See Fig.1.) Smooth-walled wells shall be a minimum of 27 inches and a maximum of 30 inches from the center line of rungs to the well wall on the climbing side of the ladder. Where other obstructions on the climbing side of the ladder exist, there shall be a minimum of 30 inches from the center line of the rungs.

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(j) Landing Platforms.

(1) When ladders are used to ascend to heights exceeding 20 feet (except on chimneys), landing platforms shall be provided as follows: for each 30 feet of height or fraction thereof, except that,

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(A) ~~Where~~ Where no cage, well, or ladder safety ~~device~~ system is provided, landing platforms shall be provided for each 20 feet of height or fraction thereof.

(B) Where a cage or well is provided and no ladder safety system is provided, landing platforms shall be provided for each 30 feet of height or fraction thereof.

(C) Where a ladder safety system is provided and used by all the ladder users, landing platforms, cages and wells **shall be as required by subsection (m).**

(D) Each ladder section shall be offset from adjacent ladder sections at each landing.

(E) Where installation conditions (even for a short, unbroken length) require that adjacent sections be offset, landing platforms shall be provided at each offset. [See Subsection (m)].

EXCEPTIONS to subsection (j)(1):

1. Ladders in chimneys in underground mines, those used primarily in construction operations, fire escape ladders, and ladders equipped with treads.
2. Ladders on high-voltage transmission towers, smoke stack ladders, water tower ladders and similar fixed ladders on permanent installations which are used either infrequently or for emergency only provided the employee who uses the ladder is supplied with and wears an approved ~~belt~~ full body harness, with safety lanyards ~~straps~~ attached, which can be utilized if a rest period is required.

(2) Where an employee has to step a distance greater than 12 inches from the center line of the rung of a ladder to the nearest edge of structure or equipment, a landing platform shall be provided. The minimum step-across distance shall be 2 1/2 inches (Figure 7).

(3) All landing platforms shall be equipped with guardrails and toeboards, so arranged as to give safe access to the ladder. Platforms shall be not less than 24 inches in width and 30 inches in length. Walkways, catwalks or work platforms may function as a landing platform providing they are at least 24 inches wide, measured perpendicular to the plane of the ladder rungs from the guardrails. Cage back-guards shall extend to the guardrail as required by Section 3277(g)(4).

(4) One rung of any section of ladder shall be located at the level of the landing laterally served by the ladder. Where access to the landing is through the ladder, the same rung spacing as used

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on the ladder shall be used from the landing platform to the first rung below the landing (Figure 10).

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(m) Ladder Safety ~~Devices~~ Systems. Ladder safety ~~devices~~ systems may be used on ~~tower, water tank, and chimney~~ ladders over 20 feet in unbroken length in lieu of cage protection. ~~No~~ A landing platform shall be required for every 150 feet of travel ~~in these cases~~. All ladder safety ~~systems devices such as those that incorporate life belts, friction brakes, and sliding attachments~~ shall be designed and installed in accordance with ANSI A14.3-2002, Section 7, Ladder Safety Systems, which is hereby incorporated by reference. ~~meet the design requirements of the ladders which they serve. [See subsection (c).]~~

