

TO

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD

TITLE 8, DIVISION 1, CHAPTER 4

DRAFT

General Industry Safety Orders

Article 12. Tree Work, Maintenance or Removal

Amend Article 12 to read as follows:

§3420. Scope and Definition.

(a) Scope. This standard applies to work performed and equipment used in tree and ornamental palm maintenance and removal.

NOTE 1: Requirements for fall protection in date palm operations and for ladders attached to date palms are provided in the General Industry Safety Orders, Sections 3458 and 3458.1.

NOTE 4 2: For ~~Line~~ line clearance tree trimming operations in proximity to high voltage energized conductors, refer to ~~shall be performed in accordance with~~ the provisions of Article 38 of the High-Voltage Electrical Safety Orders, Title 8, California Code of Regulations.

(b) Definitions.

Bucking. The process of cutting the downed tree into appropriate lengths.

Climbing Lines and Climbing Ropes. These terms have the same meaning and are designed by the manufacturer to support the climber while aloft in a tree.

Double-crotched Rope. Rope used for double-crotching, a climbing method which uses the rope's opposite end or a second rope to enhance balance. This method is used when performing tasks like pruning a dead limb.

Limbing. The removal of branches from either standing or downed trees.

Ornamental Palm. A palm that is primarily for landscaping or scenery and not grown for the production and harvesting of fruits such as dates for personal use or sale.

Prusik loop. An endless loop of rope used to fashion the Prusik knot. The endless loop may be spliced or knotted with, at minimum, a double fisherman's knot.

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Qualified Tree Worker. An employee who, through related training and on- the-job experience, has demonstrated familiarity with the techniques and hazards of tree maintenance, removal, and the equipment used in the specific operations involved.

Should this definition include rigging operations?

Ropes. Includes climbing lines and climbing ropes unless otherwise stated, and includes all other ropes and lines used in tree work, maintenance and removal operations.

Secured (person). When a tree worker is safeguarded from unintended movement by utilizing a climbing system that is attached to the tree worker and connected to a tree or other stable support.

Split tails. A short piece of rope with the looped end connected by a carabiner to the suspension D- rings of the tree saddle and the opposite end connected to the climbing line by a friction hitch.

Tied in. Means a tree worker whose climbing line has been run through a natural or false crotch attached to the tree worker's saddle and completed with a climbing hitch or mechanical device, permitting controlled movement and work positioning.

Work positioning lanyard. For purposes of this article, a work-positioning lanyard is an approved rope, strap or line used as a point of attachment to the tree or ornamental palm for use as a climbing line or to attach the worker in the tree while aloft.

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

Section 3421. General.

(a) An ~~accident prevention program~~ Injury and Illness Prevention Program shall be ~~inaugurated~~ implemented and maintained in accordance with Section 3203 of these Orders.

(b) Each work location where tree trimming, tree repairing or removal is to be done, shall be under the ~~direction~~ supervision of a qualified tree worker.

(c) Employees shall be trained and instructed in areas that include, but are not limited to the following:

(1) ~~in the~~ The hazards involved in their job assignments.

(2) ~~including the~~ The proper and safe use of all equipment, utilized in tree work, maintenance or removal operations. including, but not limited to, safety equipment and personal protective equipment.

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(3) The identification of, and preventive measures relating to common poisonous plants and harmful animals and; [moved from 3421(f)]

(4) Operations that include pesticide and fertilizer applications.

(5) Provide training in the recognition and avoidance of electrical hazards applicable to employee job assignments.

(d) ~~Such training~~ Training shall be documented by the employer to certify that the employee has satisfactorily completed the training program prior to performing the job assignment.

(e) Refresher training on applicable provisions of this standard shall be provided by the employer for any employee who has:

(1) Been observed to violate the requirements of this standard;

(2) Been involved in an accident or near miss incident; or

(3) Receives a new job assignment that includes the use of equipment, machinery, tools or safety-related work practices that the employee is unfamiliar with.

(f) ~~(d)~~ A job briefing shall be conducted by a qualified tree worker before each work assignment is begun. Such job briefing shall include the description of the hazards unique to a specific job the work assignment, the appropriate work procedures to be followed, work assignment the appropriate personal protective equipment needed, and any other items necessary to ensure that the work can be accomplished safely.

(g) All equipment shall be operated by qualified persons and where required, qualified tree workers. [moved with edits from 3428(a)(1)]

(h) ~~(e)~~ Prior to use, all equipment and safety devices shall be inspected by a qualified tree worker and any found to be defective shall be immediately repaired or removed from service.

Should the term "repaired be retained for this subsection?"

~~(f) Employees shall be trained in the identification and preventive measures relating to common poisonous plants and harmful animals.~~ [moved to 3421(c)(3)]

(i) ~~(g)~~ An adequate supply of potable water shall be provided in accordance with the requirements of Section 3363 of these Orders.

(j) ~~(h)~~ Where vehicular or pedestrian traffic may endanger employees, traffic control shall be provided that conforms to the requirements of the applicable provisions of Article 11 Sections 1598 and 1599 of the Construction Safety Orders, Title 8, California Code of Regulations.

(k) ~~(i)~~ Internal combustion engine fuel tanks shall be refilled in accordance with Section 3319 of these Orders.

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(L) (j) The employer shall establish rescue procedures and provide training in first-aid, cardiopulmonary resuscitation (CPR) and aerial rescue. First-aid and CPR training shall be performed by a certified instructor.

(m) (~~k~~) When employees are required to work in areas in which the noise levels exceed the allowable standards for occupational noise, the employer shall provide hearing protection and training as required in Article 105 of these ~~General Industry Safety~~ Orders.

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

§3422. ~~Free Workers' Saddles.~~ Ropes and Tree Worker Climbing Equipment.

(a) Tree workers' saddles shall be approved for their intended use as defined in Section 3206 of these orders. All climbing equipment, hardware, lines, ropes and rigging shall have a minimum breaking strength of at least 5,000 pounds.

Committee to discuss the necessity of the existing first sentence of this subsection and whether the second sentence is consistent with other provisions. (e.g. Does all "hardware" meet the 5,000 pound strength criteria?)

(b) Tree worker saddles, lanyards, climbing lines and climbing ropes shall be identified with durable labels or markings by the manufacturer stating these items are suitable for tree climbing. This climbing equipment shall not be altered in a manner that would compromise the integrity of the equipment.

Subsection (b) in part comes from ANSI Z133.1-2000, 8.7.3 & ANSI Z133.1-2006, 8.1.5 and .6. Is existing equipment already identified (labeled or marked) by the manufacturers in this manner? Do subsections (a) and (b) as proposed, suitably address the strength and design factors for climbing lines and ropes in light that Section 3426(c)(1) & (2) are proposed for deletion?

(c) Climbing lines or climbing ropes shall be used when working aloft in trees in accordance with Sections 3427(a)(2) and (3).

(Ed note: moved from Section 3426(c)(1) with edits in italics)

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(d) Prusik loops, split tails, work-positioning lanyards and all other components used in a tree climbing system shall meet the minimum strength requirements for tree climbing lines. (Text in part from, ANSI Z133.1-2006, Section 8.1.9)

(e) Equipment used to secure the tree worker in the tree or aerial lift shall not be used for anything other than its intended purpose.

Exception: The climbing line may be used to raise and lower tools. (Z133.1-2006, 8.1.14)

(f) Climbing lines shall not be used to lower limbs or other parts of trees. [Ed note: moved from Section 3426(c)(3)]

(g) Climbing lines shall never be left in trees unattended. (Z133.1-2006, 8.1.17)

(h) Rope ends shall be finished in a manner to prevent raveling. (Z133.1-2006, 8.1.15)

(i) Rope and climbing equipment shall be stored and transported in a manner that prevents damage by contact with sharp tools and cutting edges, gas, oil and chemicals. (Z133.1-2006, 8.1.16)

(j) Ropes, climbing equipment, tackle blocks and pulleys shall be inspected for damage, cuts, abrasions and/or deterioration before each use. Defective equipment and components shall be removed from service. (Similar to Z133.1, 8.1.4) [Should this state, "immediately" removed from service?]

(k) Climber spurs shall be of the tree-climbing type and shall have gaffs of the type and length suitable for the tree being climbed. [Ed note: moved from Section 3426(d)(1)]

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

§3423. Electrical Hazards, General.

~~(a) Employees engaged in tree maintenance and removal in proximity to electrical equipment and conductors, shall be instructed to consider all such equipment to be energized with potentially fatal voltages, never to be touched (contacted) either directly or indirectly. Except as permitted in Section 3423(b), employees shall not be permitted to work closer than 6 feet to electrical equipment and conductors energized in excess of 600 volts.~~

~~(b) Work performed as described in Section 3423(a) shall be in accordance with Article 38 of the High Voltage Electrical Safety Orders, Title 8 of the California Code of Regulations.~~

(b) Only qualified tree workers who through training and on-the-job experience have demonstrated familiarity and ability with respect to the equipment and hazards associated with line clearance work shall be permitted to work in proximity to electrical equipment and conductors of 600 volts or less. Such work shall be in accordance with Article 3, of the Low Voltage Electrical Safety Orders. [committee note: Article 3 contains work procedure requirements]

(c) Line clearance tree trimming operations as defined in Section 2700 of the High Voltage Electrical Safety Orders (related to electrical equipment and conductors in excess of 600 volts)

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shall be conducted in accordance with Article 38 of the High Voltage Electrical Safety Orders. Only qualified line clearance tree trimmers/trainees as defined in Section 2700 of the High Voltage Electrical Safety Orders shall be permitted to perform such line clearance tree trimming work.

Note: Sections 2940,2 and 2951 of the High Voltage Electrical Safety Orders provide minimum approach distances and requirements for line clearance operations.

(d) All tree work operations in proximity to high voltage lines and conductors, including, but not limited to, the use of tools, machinery and equipment shall be in accordance with the clearance distances and requirements of the High Voltage Electrical Safety Orders.

“Line clearance tree trimming operations” as defined in Section 2700 of the HVESO is applicable to working within 10 feet of electrical supply lines and equipment. HVESO Section 2946, Table 1, requires a general clearance of 6 feet clearance from conductors 600 to 50,000 volts. The committee will discuss any clarity concerns with respect to the distance from energized conductors and equipment that requires the tree trimming work to be performed by a “qualified line clearance tree trimmer or trainee.”

(e) Metal core rope used in a climbing system shall not be used in proximity to energized electrical equipment and conductors.

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

§3424. Mobile Equipment.

(a) General.

(1) All vehicles and mobile equipment shall be equipped, maintained and operated in accordance with the manufacturer's recommendations, applicable safety orders of the California Code of Regulations, Title 8, California Administrative Code, and these orders. including, but not limited to, the provisions contained in this Article 12 of the General Industry Safety Orders.

(2) Prior to the daily use of vehicles and mobile equipment, visual inspections and operational checks shall be made in accordance with the manufacturer's and owner's instructions.

(3) No part of the employee's body shall be used to locate or attempt to stop a hydraulic leak.

[Ed note: moved with edits from Section 3428(a)(2)]

(4) Transportation of employees and materials shall be conducted in accordance with the provisions of Article 27 of these Orders.

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(5) Vehicles shall not be operated at speeds which will endanger the driver or workers. [Ed note: moved from Section 3428(a)(7)]

(b) Aerial Devices.

(1) All aerial devices used for operations within the scope of this standard shall be in accordance with Article 24 of the General Industry Safety Orders ~~and except as modified by these orders.~~ the provisions contained in this Article 12 of the General Industry Safety Orders.

(2) Placement of an employee in a tree with the aid of an aerial device shall be accomplished in the following manner:

(A) Prior to leaving the basket for entry into the tree, employees shall be ~~safety~~ secured to the tree in accordance with the requirements in Sections 3422 and 3427 before ~~removing~~ releasing the ~~safety line~~ personal fall protection system attached to the ~~basket~~ aerial device. The procedure shall be reversed when entering the basket from a tree.

(c) Brush Chippers.

(1) Each rotary drum tree or brush chipper or disk-type tree or brush chipper not equipped with a mechanical infeed system shall be equipped with an infeed hopper not less than 85 inches, measured from the blades or knives to ground level over the centerline of the hopper, and shall have sufficient height on its side members so as to prevent personnel from contacting the blades or knives of the machine during normal operations.

(2) Each rotary drum tree or brush chipper or disk-type tree or brush chipper not equipped with a mechanical infeed system shall have a flexible anti- kickback device installed in the infeed hopper for the purpose of protecting the operator and other persons in the machine area from the hazards of flying chips and debris.

(3) All brush chippers shall be equipped with a locking device on the ignition system to prevent unauthorized starting of the equipment.

(4) Trailer chippers detached from trucks shall be chocked or otherwise secured.

(5) Cutting bar and blades shall be kept sharp, properly adjusted and otherwise maintained in accordance with the manufacturer's recommendations.

(6) Each disk-type tree or brush chipper equipped with a mechanical infeed system shall have a quick stop and reversing device on the infeed. The activating lever for the quick stop and reversing device shall be located across the top, along each side of, and as close to the feed end of the infeed hopper as practicable and within easy reach of the operator.

(7) Rotary drum or disk-type brush chippers shall be fed from the side of the center line, and the operator shall immediately turn away from the feed table when the brush is taken into the rotor.

[Ed note: moved from Section 3428(a)(3)]

(8) Employees shall never place hands, arms, feet, legs, or any other part of the body on the feed table when the brush chipper is in operation or the rotor is turning. [Ed note: moved from Section 3428(a)(4)]

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(9) The brush chipper chute shall not be raised while rotor is turning. [Ed note: moved from Section 3428(a)(5)]

(10) Material such as stones, nails, and items or debris from sweepings and rakings shall not be fed into the brush chipper.

[Ed note: moved from Section 3428(a)(6) with edits]

(d) Cranes and other hoisting equipment shall be constructed, used and maintained in accordance with the provisions of Group 13, Cranes and Other Hoisting Equipment of the General Safety Orders.

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

§3425. Portable Power Hand Tools.

(a) Gasoline Engine Power Saws.

(1) Power saws shall be operated and maintained in accordance with the manufacturer's instructions.

~~(1)~~ (2) Power saws weighing more than ~~twenty~~ fifteen pounds (service weight) that are used in trees shall be supported by a separate line, except when working from an aerial-lift device or during topping or removing operations where no supporting limb is available.

[See Z133.1-2000, 7.2.2 and Z133.1-2006, 6.3.3]

~~(2)~~ (3) All power saws shall be equipped with a constant pressure control that will return the saw to idling speed when released.

~~(3)~~ (4) Power saws shall be so adjusted that the chain drive will not engage at idling speed.

(5) Power saw engines shall be stopped when carried for a distance greater than 100 feet, or in hazardous conditions such as slippery surfaces or heavy underbrush. Saws shall be off or at idle speed when carried short distances. [moved with edits from Section 3428(a)(8)]

(6) The engine shall be stopped for all cleaning, refueling, adjustments, and repairs to the saw or engine where practicable, except where manufacturers' instructions require otherwise. [Ed note: moved from Section 3428(a)(9) with edits]

(7) Tree workers shall use a second point of attachment such as a work-positioning lanyard or double-crocheted rope when operating a chain saw or any sharp tool in a tree, unless the employer demonstrates that a greater hazard is posed by using a second point of attachment while operating chain saws in that particular situation. (see Z133.1-2000, 7.2.8 and Z133.1-2006, 6.3.8)

(b) Powered Pole Saws and Backpack Power Units (Pruning, Clearing, Etc.).

(1) Operation and maintenance of powered pole saws and backpack power units shall be in accordance with manufacturer's instructions.

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~~(1)~~ (2) While the unit is running, no one shall be permitted within 10 feet of the cutting head of the brush saw, except the operator.

~~(2)~~ (3) The power unit shall be equipped with a quick shutoff switch readily accessible to the operator. [Committee discussion: does (b)(1) and (2) pertain to both poles saws and backpack power units?]

(4) When using powered pole saws and backpack power units for pruning or clearing, the operator shall ensure that all personnel are located a safe distance while these units are running.

[Ed note: moved with edits from Section 3428(a)(10)]

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

§3426. Hand Tools.

(a) General.

(1) Hand tools shall be used be in accordance with Section 3556 of these Orders.

(2) When climbing into a tree, tree workers shall not carry hand tools and equipment in their hands unless they are tools used to assist them in their climbing. Tools other than ropes or throwlines shall not be thrown into a tree, out of a tree or between workers aloft. (See Z133.1-2006,7.1.4)

(3) Employees shall maintain a safe working distance from other employees when using hand tools. [Ed note: moved from Section 3428(a)(12)]

(4) Employees shall not throw or drop tools from trees unless warning has been given and the ground area is clear, and the act of dropping will not endanger personnel. [Ed note: moved from Section 3428(a)(13)]

(5) Chopping tools shall be swung away from the feet, legs, and body. [Ed note: moved from Section 3428(a)(16)]

(6) Chopping tools shall not be driven as wedges or used to drive metal wedges unless specifically designed to be driven or to be used to drive wedges. [Ed note: moved with edits from Section 3428(a)(17)]

(7) Hand tools and equipment shall be properly stored or placed in plain sight out of the immediate work area when not in use. (Z133.1-2006, 7.1.6)

(b) Pruners and Saws.

(1) Pole pruners, pole saws, and other similar tools shall be equipped with nonconducting poles and actuating cords.

(2) Pole pruners and pole saws shall be hung securely in a vertical position to prevent dislodging. Pole pruners or pole saws shall not be hung on utility wires or cables, or left in the tree overnight. Pole saws shall be hung so that the sharp edge is away from the employee.

[Ed note: moved from Section 3428(a)(14)]

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~~(e) Ropes.~~

~~(1) Climbing ropes shall be used when working aloft in trees. These ropes shall have a minimum diameter of 1/2 inch and shall be 3 or 4 strand, first grade manila, with a nominal breaking strength of 2,300 pounds, or its equivalent in strength and durability. [Ed note: 1st sentence moved to Section 3422(c) – 2nd sentence covered by 3422(a) & (b)]~~

~~(2) Polypropylene or other synthetic ropes having similar low melting points shall not be used. [Ed note: covered by 3422(b)]~~

~~(3) Climbing ropes shall not be used to lower limbs or other parts of trees. [Ed note: moved to 3422(f)]~~

~~(d) Climber Spurs.~~

~~(1) Climber spurs shall be of the tree climbing type and shall have gaffs of the type and length suitable for the tree being climbed. [Ed note: moved to 3422(k)]~~

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

§3427. Safe Work Procedures.

(a) Climbing and Access.

(1) Prior to climbing the tree, the employer shall ensure that the tree, including the root collar, ~~shall~~ is visually inspected, by a qualified tree worker who shall determine and ensure a safe method of entry into the tree. The location of all electrical conductors and equipment within the work area shall be identified in relation to the work being performed. Climbing lines, ropes, lanyards, and other climbing equipment shall be inspected for damage, cuts, abrasion, and/or deterioration before each use and shall be removed from service immediately if signs of excessive wear or damage are found. [Ed note: Underlined text similar to Z133.1-2006, 8.1.4 and 3428(a)(15)]

Section 3427 continued:

Section 3427(a)(2)

~~(2) The climbing line must be crocheted as soon as practical after the employee is aloft, and a taut line hitch tied and checked. When working aloft, employees shall wear a tree workers' saddle~~

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and have at least two means of being secured such as a climbing line and a work positioning lanyard. (Ed note: Similar to Z133.1-2006, 8.1.18]

(3)(A) Employees shall remain tied in or secured while ascending the tree and remain tied in or secured until the work is completed and they have returned to the ground. [Ed note: Similar to Z133.1-2006, 8.1.19]

(B) If access to the tree is by ladder, employees shall not work from or leave the ladder while aloft until they are tied in or secured. (Ed note: Similar to Z133.1-2006, 8.1.20]

Note: Employees need not be tied in or secured while ascending or descending the tree by ladder. [Ed note: Similar intent to Z133.1-2006, 8.1.20]

Is an exception necessary in subsection (3)(B) for work activities such as pruning or trimming relatively close to the ground while standing on A-frame type or orchard ladders (e.g. agricultural orchard operations)?

~~(3)~~ (4) The climbing rope shall be passed around the main leader or a major upright branch of the tree as high as necessary using branches with a wide crotch to prevent any binding of the safety rope. The crotch selected for tying-in shall be over the work area as nearly as possible, but located in such a way that a slip or fall would not permit the employee to come in contact with any electrical conductor, equipment or other hazard. The rope shall be passed around the main leader or an upright branch, using a limb as a stop. Feet, hands, and ropes should, where possible, be kept out of tight-V-shaped crotches.

~~(4) When working aloft, employees shall be required to wear tree workers' saddles and tie in with an approved safety strap or rope.~~ [Ed note: moved with edits to Section 3427(a)(2)]

~~(5) Employees shall remain tied in until the work is completed and they have returned to the ground, unless it is necessary to recrotch.~~ [Ed note: covered by Section 3427(a)(3)(A)]

(b) Pruning and Trimming.

~~(1) Employees shall be instructed to give an audible warning before a limb is dropped. "Timber", "headache" or "heads up" can be used for this purpose.~~ Tree workers aloft (either in the tree or from an aerial device) shall establish a communication system with employees on the ground before cutting and dropping limbs.

(2) A method of verbal or visual communication shall be discussed and established during the job briefing, prior to the start of pruning or removal operations. The verbal/visual communication system shall use an established command and response system or prearranged, two-way hand signals. The communication method shall be clearly understood and used during all rigging operations.

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Note: The command “stand clear” from aloft and the response “all clear” from the ground are terms that may be used for verbal communication.

(3) A drop zone shall be established prior to the start of pruning or removal operations. Employees not directly involved in the pruning or removal operation shall stay out of the pre-established drop zone until it has been communicated by a qualified tree worker directly involved in the operation that it is safe to enter the drop zone. Employees shall be positioned and their duties organized so that the actions of one employee will not create a hazard for any other worker. (Ed note: similar to Z133.1-2006, 8.4.12)

(4) Only qualified tree workers directly involved in the operation shall be permitted in the drop zone when a load is being suspended by a rigging system.

~~(2) (5) A separate line~~ Separate lines/ropes for lowering limbs shall be attached to limbs which cannot be dropped or are too heavy to be controlled by hand. ~~The use of the same crotch for both safety rope and work rope shall be avoided.~~ Climbing lines/ropes and lines/ropes used for lowering limbs shall not be attached to the same crotch.

~~(3) (6)~~ Cut branches (hangers) shall be removed from the tree prior to leaving the job site.

~~(4) (7)~~ With the exception of minor tree trimming, at operations involving tree maintenance or removal, a second employee shall be used at each work location to render immediate assistance.

[Ed note: (b)(7) is similar in part to Z133.1-2006, 8.1.2, except there is no trigger height for when a second employee is necessary]

For committee information/discussion: Note that operations subject to the provisions of Article 38 of the High-Voltage Electrical Safety Orders, Section 2951, Line Clearance Operations, require a second employee to provide assistance during all tree trimming operations. Is there any concern with what constitutes, “minor tree trimming”. Is a second on-site employee standard for all tree trimming operations?

(8) Palm frond skirts that have three years or more of growth shall be removed from the top down. This work shall be performed by qualified tree workers who shall be supported by a climbing line and a false crotch. These qualified tree workers shall never attempt to remove skirts of three years or more by positioning themselves below work areas while being supported by a lanyard. (See Z133.1-2006, 8.2.7)

Is an exception to the second sentence necessary for frond removal performed from aerial devices? How is 3 years growth determined?

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(9) When dry conditions exist, no employee shall smoke in or near dead palm fronds. All chain saws used under such conditions shall have mufflers and spark arresters in good working condition. (Similar to Z133.1-2006, 8.2.6)

(c) Felling.

(1) The work area shall be cleared to permit safe working conditions, and an escape route shall be planned before any cutting is started.

(2) A notch and backcut shall be used in felling trees over 10 inches in diameter.

(3) A planned escape route for all workers shall be prepared before cutting any standing tree or trunk. Just before the tree or trunk is ready to fall, an audible warning shall be given to those in the area. All personnel in the vicinity shall be safely out of range.

(4) The employee shall work from the uphill side whenever possible during limbing or bucking operations. [Ed note: moved from 3428(a)(18)]

(5) The employee shall block the log to prevent rolling, when necessary. [Ed note: moved from 3428(a)(19)]

(6) When bucking trunks of trees, wedges shall be used when necessary to prevent binding the chain saw guide bar or chain. [Ed note: moved from 3428(a)(20) with edits.]

(d) Cabling, Support Systems, and Lightning Protection Systems. [Comment: New Subsection (d) provisions are in part from ANSI Z133.1-2006 and from comments received]

What constitutes a "lightning protection system" and when is one required? The Z133.1 standards apparently do not mention this type of system.

(1) Employees on the ground shall not stand under the work area of a tree when installing cabling, support systems, or lightning protection systems.

(2) Tools used for cabling, support systems or lightning protection systems shall be carried in a bag or on a belt designed to hold such tools or attached to a tool lanyard.

(3) Employees installing cabling, support systems or lightning protection systems shall be positioned off to one side in order to avoid injury in case of a cable system failure that could occur when a block and tackle or hand winch is released.

(4) When removing a cable from a tree, a block and tackle or come-along system shall be used before removing the cable.

(5) When installing a replacement cable, the replacement cable shall be fully installed before removing the outdated cable.

(e) Tree Removal and Rigging Operations.

[Edit note: * items in subsection (e)(1)(A) – (I) similar with edits to ANSI Z133.1-2006, 8.5)]

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- (1) Before any tree is removed in sections, the employer shall require that a qualified tree worker evaluate the hazards and relevant factors pertaining to the tree and the site and shall ensure a safe rigging and removal operation that includes items such as, but not limited to, the following:
- (A) Identifying potential hazards in the area surrounding the tree to be removed, including nearby trees.
 - (B) Determining the species and shape of the tree.
 - (C) Evaluating the lean of the tree.
 - (D) Inspecting for loose limbs, chunks, or other overhead material.
 - (E) Evaluating the wind force and direction.
 - (F) Identifying decayed or weak spots throughout the tree.
 - (G) Providing a means to protect other persons, property, and electrical conductors.
 - (H) Evaluating the terrain characteristics and/or limitations of the work area; and
 - (I) Identifying evidence of bees or wildlife habitation in the tree that may present hazards.

*The committee will discuss all of subsection (e) and the apparent broad scope of some items. Are these items all enforceable? Should subsection (e) be training related in format? Proposed subsection (e)(1)(G) requires protection of property and electrical conductors, however, exposure to electrical conductors is addressed elsewhere in the standards.

- (2) Employees not directly involved in the rigging or removal operation shall be clear of the work area and remain outside of the pre-established drop zone as provided in Sections 3427(b)(3) and 3427(b)(4).
- (3) When it is necessary to remove branches or sections of a tree, a qualified tree worker who is trained and experienced in rigging operations shall determine whether the tree can withstand the strain of the lowering procedures. If the determination is that the tree cannot do so, other means of removing the tree shall be considered. (Similar to Z133.1-2006, 8.5.5)
- (4) Wedges, block and tackle, rope, and other lowering devices shall be used when there is a danger that the tree or trees being removed may fall in the wrong direction or damage property. All limbs and sections shall be removed to a height and width sufficient to allow the tree to fall clear of any wires or other objects in the vicinity. (Z133.1-2006, 8.5.9)
- (5) When a rigging system is necessary, a qualified tree worker shall determine the appropriate rigging system for the removal project based on factors that include, but are not limited to, the species, size, weight, and length of tree sections or limbs being removed.

§3428. Operating Rules. [Provisions of this section are in large part relocated as outlined below]

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD

TITLE 8, DIVISION 1, CHAPTER 4

~~(a) Every employer engaged in tree work shall have and employees shall be instructed in a set of operating rules, including but not limited to, the appropriate rules below:~~

~~(1) All equipment shall be operated by qualified personnel.~~ [Ed note: moved to 3421(f)]

~~(2) No part of the body shall be used to locate or attempt to stop a hydraulic leak.~~ [Ed note: moved to 3424(a)(3)]

~~(3) Rotary drum or disk type brush chippers shall be fed from the side of the center line, and the operator shall immediately turn away from the feed table when the brush is taken into the rotor.~~ [Ed note: moved to 3424(c)(7)]

~~(4) Employees shall never place hands, arms, feet, legs, or any other part of the body on the feed table when the brush chipper is in operation or the rotor is turning.~~ [Ed note: moved to 3424(c)(8)]

~~(5) The brush chipper chute shall not be raised while rotor is turning.~~ [Ed note: moved to 3424(c)(9)]

~~(6) Material such as stones, nails, sweepings, etc., shall not be fed into the brush chipper.~~ [Ed note: moved to 3424(c)(10)]

~~(7) Vehicles shall not be operated at speeds which will endanger the driver or workers.~~ [Ed note: moved to 3424(a)(5)]

~~(8) Power saw engines shall be stopped when carrying for a distance greater than 100 feet, or in hazardous conditions such as slippery surfaces or heavy underbrush. Saw shall be at idle speed when carried short distances.~~ [Ed note: moved to 3425(a)(5)]

~~(9) The engine shall be stopped for all cleaning, refueling, adjustments, and repairs to the saw or engine where practical, except where manufacturer's procedures require otherwise.~~ [Ed note: moved to 3425(a)(6)]

~~(10) When using back power units for pruning or clearing, the operator shall heed the position of all personnel while the unit is running.~~ [Ed note: moved to 3425(b)(4)]

~~(11) Tree workers will not carry tools in their hands while climbing.~~ [Ed note: deleted, covered by proposed 3426(a)(2)]

~~(12) Employees shall maintain a safe working distance from other employees when using hand tools.~~ [Ed note: moved to 3426(a)(3)]

~~(13) Employees shall not throw or drop tools from trees unless warning has been given and the ground area is clear, and the act of dropping will not endanger personnel.~~ [Ed note: moved to 3426(a)(4)]

~~(14) Pole pruners and pole saws shall be hung securely in a vertical position to prevent dislodging. Pole pruners or pole saws shall not be hung on utility wires or cables, or let in the tree overnight. Pole saws shall be hung so that the sharp edge is away from the employee.~~ [Ed note: moved to 3426(b)(2)]

~~(15) Climbers shall inspect the ropes for cuts or abrasions before starting work. If any cuts or serious abrasions are found, the rope shall be immediately repaired or removed from service.~~ [Ed note: covered by proposed Section 3427(a)(1)]

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD

TITLE 8, DIVISION 1, CHAPTER 4

~~(16) Chopping tools shall be swung away from the feet, legs, and body.~~ [Ed note: moved to 3426(a)(5)]

~~(17) Chopping tools shall not be driven as wedges or used to drive metal wedges.~~ [Ed note: moved with edits to 3426(a)(6)]

~~(18) The employee shall work from the uphill side whenever possible when doing limbing or bucking.~~ [Ed note: moved to 3427(c)(4)]

~~(19) The employee shall block the log to prevent rolling, when necessary.~~ [Ed note: moved to 3427(c)(5)]

~~(20) When bucking up trunks of trees, wedges shall be used so that the tree will not bind the guide bar or chain.~~ [Ed note: moved with edits to 3427(c)(6)]

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