

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

TITLE 8, DIVISION 1, CHAPTER 4
May 30, 2024 Discussion Draft

Amend section 3420 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.

(b) Definitions.

Brush Chipper. Equipment used to reduce tree debris to wood chips. [included for context]

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

Certification or Certify. In the case of design certification/validation that the manufacturer has reviewed and tested the design and manufacture, and in the case of installation certification/validation and annual recertification/revalidation that the employer has reviewed and tested the installation, and concludes in both cases that the requirements of sections 3424 and Appendix A have been met. The certifications are submitted to a Division recognized third party validation organization for validation or revalidation.

Certification/Validation and Certify/Validate. The combined processes of certification and validation.

Climbing Hitch. A hitch used for securing a tree climber to the climbing line, permitting controlled ascent, descent, and work positioning.

Palm Frond Skirt. One or more year's accumulation of dead and drooping palm fronds at the bottom of the palm's canopy and along its trunk.

Presence Sensing System (PSS). A system designed, constructed and arranged to create a sensing field, plane or area that detects a part of an employee's body or a device attached to the employee's body or clothing within the sensing field, plane or area.

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Proximity. An area within 10 feet (3.05 meters) of energized overhead electrical conductors rated 50 kilovolts (kV) phase to phase or less. For overhead electrical conductors rated more ~~than~~ than 50 kV phase to phase, the distance is increased 4/10 inch (10 millimeters) for each additional kV.

Work-positioning Lanyard. For purposes of Article 12, a component of a tree climbing system consisting of a short section of approved rope, strap or line that has a rope snap or carabiner at either end, and that is used as a point of attachment to the tree or ornamental palm for securing the worker in the tree while aloft.

Validation or validate: The process by which a Division recognized third party reviews, tests and confirms a presence sensing system's design or installation conforms to the requirements of section 3424(c), (d) and Appendix A.

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

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§ 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, 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 instructions.

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

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

(5) Vehicles shall not be operated at speeds which will endanger the driver or workers.

(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 except as modified by 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 personnel basket or platform for entry into the tree, employees shall be secured to the tree in accordance with the requirements in Sections 3422 and 3427 before releasing the personal fall protection system attached to the aerial device. The procedure shall be reversed when entering the personnel basket or platform 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.

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(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) After [36 months after the effective date of this regulation], brush chippers equipped with a mechanical infeed shall be guarded in a manner that will stop the mechanical infeed system before any part of the employee's body can make contact with the infeed system with all of the following:

(A) A device which activates upon contact; and

(B) A presence sensing system.

Exception to 3424(c)(7) brush chippers not equipped with both (A) and (B) shall have an attendant stationed at a location within immediate reaching distance of the quick stop and reversing device activating lever described in 3424(c)(6) while the infeed system is active. The attendant shall stop the mechanical infeed system when an employee is endangered by the brush chipper. Brush and other materials shall only be fed into the brush chipper when the attendant is present. The attendant shall have no other duties except for observing brush chipper use and protecting the operator and other employees in the machine area who may be endangered by the brush chipper. The employer shall provide effective training to attendants on the operation of the brush chipper and all safety systems for the brush chipper.

(8) Each presence sensing system and accessories (if applicable) in use shall be visually inspected and checked for damage and proper adjustment at the start of each shift, when the

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brush chipper cutting system is started or re-started, the presence sensing system stops the mechanical infeed and when employees feeding material into the brush chipper are changed.

(9) At the start of each shift, the employer shall test to ensure the presence sensing system and accessories function properly and shall keep a record of each test. Test records shall be kept for at least five years.

(10) If a presence sensing system has been removed from service, necessary maintenance, repair, or both shall be performed and completed before the presence sensing system has been returned to service.

~~(7)~~(11) Rotary drum or disk-type brush chippers shall be fed from the side of the centerline hopper, and the operator shall immediately turn away from the feed table when the brush is taken into the rotor.

(8)12) 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.

(9)13) Climbing equipment, ropes, body belts, harnesses and lanyards shall not be worn while operating chippers.

~~(10)14) The brush chipper discharge chute or cutter housing cover shall not be opened or removed while any part of the chipper is turning or moving.~~

~~(11)15) Material such as stones, nails, and similar debris shall not be fed into the brush chipper. Ropes that present an entanglement hazard shall be prevented from entering the point of operation of the chipper.~~

~~(12)16) Chipper mounted winches shall be used in accordance with the manufacturer's instructions.~~

(d) Presence Sensing System Certification/Validation.

(1) Prior to the initial use a presence sensing system of equipped on a brush chipper, two sets of certification and validation of the presence sensing system are required.

(A) The presence sensing system's design shall be certified and validated prior to installation. A Division recognized third party validation organization shall validate the manufacturer's certification meets all applicable requirements of section 3424(c) and (d) and Appendix A of section 3424.

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(B) The installation of the presence sensing system to a brush chipper shall be validated by a Division third party validation organization to ensure all applicable requirements of section 3424(c) and (d) and Appendix A of section 3424 are met after installation.

(2) At least annually presence sensing systems on brush chippers shall be recertified by the employer and revalidated by a Division recognized third party validation organization to meet all applicable requirements of section 3424 (c) and (d) and Appendix A to section 3424. Any brush chipper whose presence sensing system has not been recertified and revalidated within the last 12 months, shall be removed from service until the presence sensing system is recertified and revalidated.

(3) A label shall be affixed to the brush chipper as part of each installation certification/validation and the most recent recertification/revalidation. The label shall indicate the brush chipper serial number, the fulfillment of design certification/validation, the employer's signed certification, and the identification of the Division recognized third party validation organization and the date the certificate/validation and recertification/revalidation are issued.

(4) Records of the installation certification and validation and the recertification and revalidation shall be maintained for each presence sensing system equipped on a brush chipper by the employer as long as the brush chipper is in use. The records shall include the manufacture and model number on each component and subsystem. The records shall be made available to the Division upon request.

(5) The employer shall notify the Division recognized third-party validation organization within five (5) days when a component or a subsystem of the safety system fails or modifications are made that may affect the safety of the presence sensing system. The failure of a critical component shall necessitate the removal of the presence sensing system from service until it is recertified and revalidated. Recertification of a presence sensing system by the employer without revalidation is permitted when a non-critical component or subsystem is replaced by one of the same manufacture and design as the original, or determined by the third-party validation organization to be equivalent by similarity analysis, as set forth in Appendix A.

(6) The employer shall ensure the presence sensing system is revalidated if a modification is made that may affect the safety of the presence sensing system.

(7) The employer shall notify the Division recognized third party validation organization within five (5) days of the occurrence of any point of operation injury while the brush chipper is used with a presence sensing system. This is in addition to the report of injury to the Division

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required by section 342; however, a copy of the report of injury to the Division may also be submitted to the Division recognized third party validation organization to comply with the subsection.

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 3424 (Mandatory)

Requirements for Certification/Validation of Presence Sensing System (PSS) for Brush Chippers

A. General Design Certification/Validation Requirements

1. Certification/Validation Program Requirements. The following shall be validated by a Division recognized third party validation organization:

a. The design of components, subsystems, software and assemblies meets applicable performance requirements and are ready for the intended use; and

b. The performance of combined subsystems (PSS used in conjunction with other safety systems) meets applicable operational requirements.

2. New Design Certification/Validation. Design certification/validation for a new safety system, i.e., for a new design or new integration of specifically identified components and subsystems, entails a single certification/validation applicable to all identical safety systems. It would not be necessary to repeat the tests on individual safety systems of the same manufacturer or design. Nor would it be necessary to repeat these tests for modifications it is determined by the manufacturer and validated by the third-party validation organization to be equivalent by similarity analysis. The manufacturer may make minor modifications not affecting the safety of the system without revalidation.

3. Certification/Validation Program Level of Risk Evaluation Requirements. The design and operation of the PSS shall conform to the following:

a. The safety system shall have the ability to sustain a single failure or a single operating error and not cause injury to personnel from point of operation hazards. Acceptable design features shall demonstrate, in the following order or precedence, that:

(1) no single failure point may cause injury; or

(2) redundancy, comparison, and/or diagnostic checking exist for the critical items that may cause injury, and the electrical, electronic, electromechanical, and mechanical parts and components are selected to withstand operational and external environments.

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b. The Division-recognized third-party validation organization shall evaluate and validate, that the PSS meets appropriate requirements in the following areas:

(1) Environmental Limits

(a) Temperature

(b) Relative humidity

(c) Vibration from external sources

(d) Fluid compatibility with other materials

(2) Design Limits

(a) Power Requirements

(b) Power transient tolerances

(c) Compatibility of materials used

(d) Material stress tolerances and limits

(e) Stability to long term power fluctuations

(f) Sensitivity to signal acquisition

(g) Repeatability of measured parameter to stop the infeed system

(h) Operational life of components in cycles, hours, or both

(i) Electromagnetic tolerance to:

1. Specific operational wave lengths; and

2. Externally generated wave lengths

B. Substantial Modifications

1. Substantial modifications would require testing as a new safety system, as deemed necessary by the validation organization.

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a. Types of Tests Acceptable for Certification/Validation.

(1) Test results obtained from development testing by the manufacturer or Division-recognized third-party may be used to certify/validate the design.

(2) The test results shall provide the engineering data necessary to establish confidence that the hardware and software will meet specifications; the manufacturing process has adequate quality control; and the data acquired was used to establish processes, procedures, and test levels supporting subsequent hardware design, production, installation and maintenance.

2. Validation for Substantial Modification.

a. The third party validation organization, after reviewing all documentation, tests, analyses, manufacturer's certifications, and any additional tests it deems necessary, and determines that the PSS safety system is in full compliance with the applicable requirements of sections 3424(c) and (d) and this Appendix A, shall validate the manufacturer's certification.

C. Installation Certification/Validation Requirements1. The employer shall:

a. evaluate and test the PSS installation,

b. submit to the Division-recognized third-party validation organization the necessary supporting documentation, and

c. certify that the applicable requirements of sections 3424(c) and (d) and this Appendix A have been met and the installation is proper.

2. The Division recognized third party validation organization shall conduct tests; or review and evaluate the employer's installation tests, documentation and representations; or do both to determine if the PSS met all applicable requirements of sections 3424(c) and (d) and this Appendix A. If the PSS is determined to meet all applicable requirements by the Division-recognized third-party validation organization, it shall validate the employer's certification that the PSS is in full conformance.

D. Recertification/Revalidation Requirements

1. A PSS which has received installation certification/validation shall recertify/revalidate when one of the following occurs:

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- a. Each time the PSS hardware is significantly changed, modified, or refurbished;
- b. When a failure of a significant component has occurred or a change has been made which may affect safety; or
- c. When one year has elapsed since the date of the installation certification/validation report or the last recertification/revalidation report.

2. Recertification/revalidation Requirements. The employer shall evaluate and test the PSS installation, submit to the Division-recognized third-party validation organization the necessary supporting documentation, and recertify that the applicable requirements of sections 3424(c) and (d) and this Appendix A are being met. The documentation shall include, but is not limited to, the following:

- a. Demonstration of a thorough inspection of the entire brush chipper and PSS to ascertain that the installation, components and safeguarding have not been changed, modified or tampered with since the installation certification/validation or last recertification/revalidation was made.
- b. Demonstration that review has been made of the reports covering the design certification/validation, the installation certification/validation, and all recertification/revalidations in order to detect any degradation to an unsafe condition, and that necessary changes have been made to restore the PSS to previous certification/validation levels.

3. The Division-recognized third-party validation organization shall conduct tests, and/or review and evaluate the employer's installation, tests, documentation and representations. If it so determines, it shall revalidate the employer's recertification that the PSS is in full conformance with all requirements of sections 3424(c) and (d) and this Appendix A.

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