

## **Subchapter 7. General Industry Safety Orders**

### **Group 13. Cranes and Other Hoisting Equipment**

#### **Article 98. Operating Rules**

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## **§4990. Scope:**

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These orders apply to all crane, hoist, and derrick operations except when orders of a specific nature apply.

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

## **HISTORY**

1. Renumbering and amendment of former Article 97 (Sections 4990-5009) to Article 98 (Sections 4990-5009) and amendment of Section 4990 filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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## **§4991. Travel:**

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(a) The travel of cranes or boom-type excavators shall be controlled so as to avoid collision with persons, material, and equipment. The cabs of units (of the revolving type) traveling under their own power shall be turned so as to provide the least obstruction to the operator's vision in the direction of travel, unless receiving signals from someone with an unobstructed view.

(b) In transit, the following additional precautions for mobile cranes shall be exercised:

(1) The boom shall be carried in line with the direction of motion and the superstructure shall be secured against rotation, except when negotiating turns when there is an operator in the cab, or when the boom is supported on a dolly.

(2) The empty hook, headache ball, or block shall be lashed or otherwise restrained so that it cannot swing freely.

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

## **HISTORY**

1. Amendment of subsection (a) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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## **§4992. Booms:**

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Booms which are being assembled or disassembled on the ground shall be securely blocked or secured to prevent dropping of the boom and boom sections.

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

### **HISTORY**

1. New NOTE filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

2. Editorial correction of section heading (Register 97, No. 23).

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### **§4993. Swing:**

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(a) When rotating the crane, sudden stops shall be avoided. Rotational speed shall be such that the load does not swing out beyond the radius at which it can be safely controlled.

(b) Tag or restraint lines shall be used where rotation of the load is hazardous.

(c) Cranes or boom-type excavators shall not be mounted by personnel, unless the unit is stopped or an exchange of signals with the operator indicates that it is safe to mount.

(d) A locomotive crane shall not be swung into a position where railway cars on an adjacent track might strike it, until it has been ascertained that cars are not being moved on the adjacent track and proper flag protection has been established.

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

### **HISTORY**

1. New subsection (c) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).

2. Amendment relettering former subsections (a)-(c) to subsections (a)-(d) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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### **§4993.1. Work Area Control:**

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(a) Swing radius hazards.

(1) The requirements of this section apply where there are accessible areas in which the equipment's rotating superstructure poses a hazard of:

(A) Striking and injuring an employee; or

(B) Pinching/crushing an employee against another part of the equipment or another object.

(2) To prevent employees from entering these hazard areas, the employer shall:

(A) Train each employee assigned to work on or near the equipment (“authorized personnel”) in how to recognize struck-by and pinch/crush hazard areas posed by the rotating superstructure.

(B) Erect and maintain control lines, warning lines, railings or similar barriers to mark the boundaries of the hazard areas.

EXCEPTION: When the employer can demonstrate that it is not feasible to erect such barriers on the ground or on the equipment, the hazard areas shall be clearly marked by a combination of warning signs (such as “Danger - Swing/Crush Zone”) and high visibility markings on the equipment that identify the hazard areas. The markings shall be visible to employees from outside the hazard area. In addition, the employer shall train each employee to understand what these markings signify.

(3) Protecting employees in the hazard area.

(A) Before an employee goes to a location in the hazard area that is out of view of the operator, the employee shall inform the operator that he/she is going to that location.

(B) When the operator has been informed of employee entry to a location covered by subsection (a)(1), the operator shall not rotate the superstructure until the operator is informed by the employee or visually confirms that the employee has exited the location and is in a safe position.

(b) Where any part of a crane/derrick is within the load radius of another crane/derrick, the controlling entity shall institute a system to coordinate operations. If there is no controlling entity, the employer (if there is only one employer operating the multiple pieces of equipment) shall institute such a system.

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

## HISTORY

1. New section filed 1-28-2013; operative 4-1-2013 (Register 2013, No. 5).

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#### **§4994. Hoisting:**

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(a) Cranes shall not be operated with wheels or tracks off the ground or working surface at any time unless properly bearing on outriggers. Power actuated jacks (outriggers), where used, shall be provided with means to prevent loss of support under load.

(b) Outriggers shall be used when the load to be handled at that particular radius exceeds the rated load without outriggers as given by the certified agent for that crane.

(1) Where floats are used they shall be securely attached to the outriggers.

(2) Outrigger supports shall:

(A) Be strong enough to prevent crushing;

(B) Be free from defects;

(C) Be of sufficient width and length to prevent settling, shifting or toppling under load.

(3) Outriggers shall be set in accordance with the crane manufacturer's specified configuration requirements for the capacity chart being used. If the crane manufacturer is no longer in business or if the



crane manufacturer's specification regarding the deployment of outriggers are no longer available, the outriggers shall be extended as specified by a qualified person.

(4) Timbers, cribbing or other structural members shall be used to distribute the load so as not to exceed the allowable bearing capacity of the underlying material.

(5) When a crane is equipped with stabilizers, the stabilizers shall be used in accordance with American Society of Mechanical Engineers (ASME) B30.22-2000, Sections 22-3.2.1(7) and (8), which are incorporated herein by reference.

(c) The brakes shall be tested each time a load approaching the rated load is handled by raising the load a few inches and applying the brakes.

(d) The load or the boom shall not be lowered below the point where less than two full wraps of rope remain on grooved drums and three full wraps on ungrooved drums.

(e) When two or more cranes are used to lift one load, a qualified person, other than the operators, shall direct the operation. This person shall analyze the operation and instruct all personnel involved in the proper positioning, rigging of the load, and the movements to be made. A qualified person shall be in direct audible communication with both crane operators at all times to direct the lifting operation. Where two cranes or more are used to lift one load, the rating chart shall be reduced on each crane by not less than 25 percent, unless equalizer or other acceptable provisions assure safe distribution of both vertical and horizontal load to the cranes involved, in which case a lesser reduction may be applied.

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

## HISTORY

1. Amendment of subsection (a) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).
2. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).
3. New subsections (b)(3)-(5) filed 1-29-2009; operative 2-28-2009 (Register 2009, No. 5).

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#### **§4995. Riding Loads on Derricks, Hoists, or Cranes:**

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No employee shall be permitted to ride on loads, hooks, or slings of any derrick, hoist, or crane.

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

#### **HISTORY**

1. New section filed 4-11-94; operative 5-11-94 (Register 94, No. 15). For prior history, see Register 86, No. 39.

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#### **§4996. Driver's Position:**

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Where practicable, haulage vehicles shall be loaded in such a way that the bucket or boom does not pass over the vehicle driver's position; no loading shall be done until it is determined that the driver is in a safe location.

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

#### **HISTORY**

1. New NOTE filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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#### **§4997. Fire Extinguisher:**

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A fire extinguisher of not less than 10-B:C rating shall be kept in serviceable condition and readily accessible to the operator's station, and affected personnel shall be familiarized with its use.

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

#### **HISTORY**

1. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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#### **§4998. Refueling:**

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(a) Open lights, flames or spark-producing devices shall be kept at a safe distance while refueling an internal combustion engine, and no person shall smoke or carry lighted smoking material in the immediate vicinity of the refueling area. The engine shall be stopped during refueling, unless the fueling system provides adequate safe refueling features.

(b) Fuel tank filler pipe shall be located in such a position, or protected in such manner, as to prevent fuel spillage or overflow to run onto the engine, exhaust, or electrical equipment of any machine being fueled.

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

#### **HISTORY**

1. Repealer of subsection (c) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39.)

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## **§4999. Handling Loads:**

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(a) The qualified person (rigger) shall be trained and capable of safely performing the rigging operation. All loads shall be rigged by a qualified person (rigger) or by a trainee under the direct visual supervision of a qualified person (rigger).

(b) Size of Load. A crane, derrick, or hoist shall not be loaded beyond the rated capacity or safe working load whichever is smaller, except for test purposes. In all operations where the weight of the load being handled is unknown and may approach the rated capacity, there shall be a qualified person (rigger) assigned to determine the magnitude of the load, unless the crane or derrick is equipped with a load weighing device. The operator shall not make any lift under these conditions until informed of such weight by the qualified person (rigger) assigned to that operation.

(c) Attaching the Load.

(1) The load shall be attached to the hook by means of slings or other suitable and effective means which shall be rigged to insure the safe handling of the load.

NOTE: For additional rigging requirements pertaining to erection of structures, refer to Construction Safety Orders, Section 1710(d). For signal requirements, refer to Section 5001 of these Orders.

(2) Slings shall be freed of kinks or twists before use. Slings shall comply with the requirements of Article 101 of these Orders.

(3) Baskets, tubs, skips, or similar containers used for hoisting bulk materials shall be loaded so as not to exceed their safe carrying capacity.

(4) The hoist rope shall not be wrapped around the load.

(d) Moving the Load. The individual directing the lift shall see that:

(1) The crane is properly leveled for the work being performed and blocked, where necessary;

(2) The load is well secured and properly balanced in the sling or lifting device before it is lifted more than a few inches;

(3) Ropes shall not be handled on a winch head without the knowledge of the operator.

While a winch head is being used, the operator shall be within convenient reach of the power unit control lever.

(e) Before Starting to Hoist:

(1) The hoist rope shall not be kinked.

(2) Multiple part lines shall not be twisted around each other.

(3) The hook shall be positioned over the load in such a manner as to prevent swinging of the load when lifted.

(4) If there is a slack rope condition, the rope shall be properly seated on the drum and in the sheaves.

(f) During Hoisting:

(1) There shall be no sudden acceleration or deceleration of the moving load.



(2) The load, boom, or other parts of the equipment shall not contact any obstruction in a way which could cause falling material or damage to the boom.

(g) Side Loading. Side loading of booms shall be limited to freely suspended loads, and booms shall not be used for dragging loads sideways unless the boom is specifically designed and constructed to withstand such side loading.

(h) Loads shall not be released or detached from a crane or other hoisting apparatus until the qualified person (rigger) detaching the load has verified that the load has been secured or supported to prevent inadvertent movement.

(i) Holding the Load.

(1) When a load of any kind is to be suspended for any considerable time, the drum holding mechanism shall be used in addition to the brake which shall also be applied.

(2) Cranes, hoists, or derricks shall not be left unattended while the load is suspended unless the load is suspended over water, a barricaded area, or is blocked up or otherwise supported from below during repairs or emergency.

(j) [Reserved]

(k) On truck mounted cranes, no loads shall be lifted over the front area except as approved by the certified agency.

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

## HISTORY

1. Amendment of subsections (c) and (k) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).
2. New subsection (i)(3) filed 4-27-79; effective thirtieth day thereafter (Register 79, No. 17).
3. New subsections (h)(6) and (7) filed 12-12-84; effective thirtieth day thereafter (Register 84, No. 50).
4. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).
5. Repealer of subsection (g) filed 12-11-90; operative 1-10-91 (Register 91, No. 4).
6. New subsection (g) filed 7-25-2001; operative 8-24-2001 (Register 2001, No. 30).
7. New subsection (a), subsection relettering and amendment of newly designated subsections (b), (c)(1)-(2) and (h) filed 1-28-2009; operative 2-27-2009 (Register 2009, No. 5).
8. Amendment of subsection (f)(2) filed 10-2-2012; operative 11-1-2012 (Register 2012, No. 40).
9. Repealer and reservation of subsection (j) filed 1-28-2013; operative 4-1-2013 (Register 2013, No. 5).

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## **§5000. Limit Switches:**

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(a) Before an electric crane is operated after the start of each shift, or as soon therein as practicable, the crane operator or a qualified person shall test the operation of all limit switches over a cleared area, under no load, and shall report any defect to the employer who shall have the defect corrected before the crane is permitted to operate.

(b) The limit switch shall never be used as an operating control unless designed for such use, in which case there shall be a second limit switch located behind the operating control limit switch.

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

### **HISTORY**

1. Amendment of subsection (a) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).

2. Amendment of subsection (a) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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## **§5001. Signals:**

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(a) A signal person shall be provided when the point of operation is not in full and direct view of the operator unless a signaling or control device is provided for safe direction of the operator.

(b) Only qualified persons shall be permitted to give signals.

EXCEPTION: A stop signal may be given by any person.

(c) A uniform signal system shall be used on all operations and if hand signals are used, they shall be clearly understood by the operator. (Note: For recommended hand signals, see Plate I.)

(d) Signal systems other than manual shall be protected against unauthorized use, breakage, weather or obstruction which will interfere with safe operation. In the event of any known malfunction, an alternate signal system shall be used or all motion shall be stopped.

(e) There shall be conspicuously posted in the vicinity of the hoisting operations, a legible chart depicting and explaining the system of signals used.

(f) [Reserved]

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

## **HISTORY**

1. Amendment of subsection (c) filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).

2. Amendment of subsection (d) filed 7-6-79; effective thirtieth day thereafter (Register 79, No. 27).
3. Amendment of subsection (c) filed 1-17-80; effective thirtieth day thereafter (Register 80, No. 3).
4. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).
5. Amendment of subsection (b) filed 5-20-2004; operative 6-19-2004 (Register 2004, No. 21).
6. New subsections (f)(1)-(2) filed 5-23-2007; operative 6-22-2007 (Register 2007, No. 21).
7. Repealer of subsections (f)(1) and (f)(2) and reservation of subsection (f) filed 1-28-2013; operative 4-1-2013 (Register 2013, No. 5).

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## **§5002. Overhead Loads:**

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Operations shall be conducted and the job controlled in a manner that will avoid exposure of employees to the hazard of overhead loads. Wherever loads must be passed directly over workers, occupied work spaces or occupied passageways, safety type hooks or equivalent means of preventing the loads from becoming disengaged shall be used.

NOTE: Employees should not work in the area directly beneath a suspended load.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

### **HISTORY**

1. Amendment filed 2-13-75; effective thirtieth day thereafter (Register 75, No. 7).
2. Amendment filed 4-27-79; effective thirtieth day thereafter (Register 79, No. 17).
3. Amendment filed 5-5-81; effective thirtieth day thereafter (Register 81, No. 19).
4. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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### **§5003. Provisions for Preventing Accidents in the Area of High-Voltage Lines:**

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Provisions for preventing accidents due to overhead high-voltage lines shall be in conformance with the High-Voltage Electrical Safety Orders, Article 37.

NOTE: Authority cited: Sections 142.3 and 6500, Labor Code. Reference: Section 142.3, Labor Code.

#### **HISTORY**

1. Repealer and new section filed 7-27-73; effective thirtieth day thereafter (Register 73, No. 30).
2. Amendment filed 3-7-80; effective thirtieth day thereafter (Register 80, No. 10).
3. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).

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#### **§5004. Crane or Derrick Suspended Personnel Platforms:**

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(a) Scope. These Orders apply to the design, construction, testing, use and maintenance of personnel platforms, and the hoisting of personnel platforms on load lines of cranes and derricks.

(b) Definitions. For the purpose of section 5004 of these Orders the following definitions apply:

Failure. Failure means load refusal, breakage, or separation of components.

Hoist (Hoisting). Hoist means all crane or derrick functions such as lowering, lifting, swinging, booming in and out or up and down, or suspending a personnel platform.

Load Refusal. Load refusal means the point where the ultimate strength is exceeded.

(c) General Requirements. The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

(d) Operational Criteria.

(1) Hoisting of the personnel platform shall be performed in a slow, controlled, cautious manner with no sudden movements of the crane or derrick, or the platform.

(2) Load lines shall be capable of supporting, without failure, at least seven times the maximum intended load, except that where rotation resistant rope is used, the lines shall be capable of supporting without failure, at least ten times the maximum intended load. The required design factor is achieved by taking the current safety factor of 3.5 [required under section 4884(b) of these Orders] and applying the 50 percent derating of the crane capacity which is required by section 5004(d)(5) of these Orders.



(3) Load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs shall be engaged when the occupied personnel platform is in a stationary working position.

(4) The crane shall be uniformly level and located on firm footing. Cranes equipped with outriggers shall have them all fully deployed following manufacturer's specifications, insofar as applicable, when hoisting employees.

(5) The total weight of the loaded personnel platform and related rigging shall not exceed 50 percent of the rated capacity for the radius and configuration of the crane or derrick.

(6) The use of machines having live booms (booms in which lowering is controlled by a brake without aid from other devices which slow the lowering speeds) is prohibited.

(7) Only wire rope or steel chain slings and pendants shall be used for suspending personnel platforms.

(e) Instruments and Components.

(1) Cranes and derricks with variable angle booms shall be equipped with a boom angle indicator, readily visible to the operator.

(2) Cranes with telescoping booms shall be equipped with a device to indicate clearly to the operator, at all times, the boom's extended length, or an accurate determination of the load radius to be used during the lift shall be made prior to hoisting personnel.

(3)(A) An anti two-block device shall be used which when activated, disengages all crane functions that can cause two-blocking.

(B) When a derrick is used to hoist personnel platforms, limiting devices shall be installed to prevent two-blocking.

(4) The load line hoist drum shall have a system or device on the power train, other than the hoist brake, which regulates the lowering rate of speed of the hoist mechanism (controlled load lowering).

Free fall is prohibited.

(f) Personnel Platforms -Design Criteria.

(1) The personnel platform and suspension system shall be designed by a register engineer.

(2) The suspension system shall be designed to minimize tipping of the platform due to movement of employees occupying the platform.

(3) The personnel platform itself, except the guardrail system and body belt/harness anchorages, shall be capable of supporting, without failure, its own weight and at least five times the maximum intended load. Criteria for guardrail systems and body belt/harness anchorages are contained in article 2 of the General Industry Safety Orders and article 24 of the Construction Safety Orders respectively.

(g) Platform Specifications.

(1) Each personnel platform shall be equipped with a guardrail system which meet the requirements of article 2 of the General Industry Safety Orders and shall be enclosed at least from the toeboard to mid-rail with either solid construction or expanded metal having openings no greater than 1/2 inch.

(2) A grab rail shall be installed inside the entire perimeter of the personnel platform.

(3) Access gates, if installed, shall not swing outward during hoisting.

(4) Access gates, including sliding or folding gates, shall be equipped with a restraining device to prevent accidental opening.

(5) Headroom shall be provided which allows employees to stand upright in the platform.

(6) In addition to the use of hard hats, employees shall be protected by overhead protection on the personnel platform when employees are exposed to falling objects.

(7) All rough edges exposed to contact by employees shall be surfaced or smoothed in order to prevent injury to employees from punctures or lacerations.

(8) All welding of the personnel platform and its components shall be performed by a certified welder familiar with the weld grades, types and material specified in the platform design.

(9) The personnel platform shall be conspicuously posted with a plate or other permanent marking which indicates the weight of the platform and its rated load capacity.

(h) Personnel Platform Loading.

(1) The personnel platform shall not be loaded in excess of its rated load capacity.

(2) The number of employees occupying the personnel platform shall not exceed the number required for the work being performed.

(3) Personnel platforms shall be used only for employees, their tools, and the materials necessary to do their work, and shall not be used to hoist only materials or tools when not hoisting personnel.

(4) Materials and tools for use during a personnel lift shall be secured to prevent displacement.

(5) Materials and tools for use during a personnel lift shall be evenly distributed within the confines of the platform while the platform is suspended.

(i) Rigging.

(1) When a wire rope bridle is used to connect the personnel platform to the load line, each bridle leg shall be connected to a master link or shackle in such a manner to ensure that the load is evenly divided among the bridle legs.

(2) Hooks on overhaul ball assemblies, lower load blocks, or other attachments assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used.

(3) Wire rope, shackles, rings, master links, and other rigging hardware must be capable of supporting, without failure, at least five times the maximum intended load applied or transmitted to that component. Where rotation resistant rope is used, the slings shall be capable of supporting without failure at least ten times the maximum intended load.

(4) All eyes in wire rope slings shall be fabricated with thimbles.

(5) Bridles and associated rigging for attaching the personnel platform to the hoist line shall be used only for the platform and the necessary employees, their tools and materials necessary to do their work, and shall not be used for any other purpose when not hoisting personnel.

(j) Trial Lift, Inspection, and Proof Testing.

(1) A trial lift with the unoccupied personnel platform loaded at least to the anticipated liftweight shall be made from ground level, or any other location where employees will enter the platform, to each location at which the personnel platform is to be hoisted and positioned. This trial lift shall be performed immediately prior to placing personnel on the platform. The operator shall determine that all systems, controls and safety devices are activated and functioning properly; that no interferences exist; and that all configurations necessary to reach those work locations will allow the operator to remain under the 50 percent limit of the hoist's rated capacity. Materials and tools to be used during the actual lift can be loaded in the platform, as provided in section 5004(h)(4) and (5) for the trial lift. A single trial lift may be performed at one time for all locations that are to be reached from a single set up position.

(2) The trial lift shall be repeated prior to hoisting employees whenever the crane or derrick is moved and set up in a new location or returned to a previously used location. Additionally, the trial lift shall be replaced when the lift route is changed unless the operator determines that the route change is not significant, i.e. the route change would not affect the safety of hoisted employees.

(3) After the trial lift, and just prior to hoisting personnel, the platform shall be hoisted a few inches and inspected to insure that it is secure and properly balanced. Employees shall not be hoisted unless the following conditions are determined to exist:

(A) Hoist ropes shall be free of kinks;

(B) Multiple part lines shall not be twisted around each other;

(C) The primary attachment shall be centered over the platform; and

(D) The hoisting system shall be inspected if the load rope is slack to ensure all ropes are properly positioned on drums and sheaves.

(4) A visual inspection of the crane or derrick, rigging, personnel platform, and the crane or derrick base support or ground shall be conducted by a qualified person immediately after the trial lift to determine whether the testing has exposed any defect or produced any adverse effect upon any component or structure.

(5) Any defects found during inspections which create a safety hazard shall be corrected before hoisting personnel.

(6) At each job site, prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging shall be proof tested to 125 percent of the platform's rated capacity by holding it in a suspended position for five minutes with the test load evenly distributed on the platform (this may be done concurrently with the trial lift). After proof testing, a qualified person shall inspect the

platform and rigging. Any deficiencies found shall be corrected and another proof test shall be conducted. Personnel hoisting shall not be conducted until the proof testing requirements are satisfied.

(k) Work Practices.

(1) Employees shall keep all parts of the body inside the platform during raising, lowering, and positioning. This provision does not apply to an occupant of the platform performing the duties of a signal person.

(2) Before employees exit or enter a hoisted personnel platform that is not landed, the platform shall be secured to the structure where the work is to be performed, unless securing to the structure creates an unsafe situation.

(3) Tag lines shall be used unless their use creates an unsafe condition.

(4) The crane or derrick operator shall remain at the controls at all times when the crane engine is running and the platform is occupied.

(5) Hoisting of employees shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger.

(6) Employees being hoisted and the signal person(s) shall remain in continuous radio communication with the operator.

(7) Except over water, employees occupying the personnel platform shall use a body belt/harness system with lanyard appropriately attached to the lower load block or overhaul ball, or to structural member within the personnel platform capable of supporting a fall impact for employees using the anchorage. When working over water, the requirements of section 1602 of the Construction Safety Orders shall apply.

(8) No lifts shall be made on another of the crane's or derrick's loadlines while personnel are suspended on a platform.

(l) Traveling.

(1) Hoisting of employees while the crane is traveling is prohibited, except for portal, tower and cranes on fixed tracks or railways.

(2) Under any circumstances where a crane would travel while hoisting personnel, the employer shall implement the following procedures to safeguard employees:

(A) Travel shall be limited to the load radius of the boom used during the lift; and

(B) The boom must be parallel to the direction of travel;

(C) A complete trial run shall be performed to test the route of travel before employees are allowed to occupy the platform. This trial run can be performed at the same time as the trial lift required by section 5004(j)(1) of these Orders which tests the route of the lift.

(m) Pre-lift Meeting.

(1) A meeting attended by the crane or derrick operator, signal person(s) (if necessary for the lift), employee(s) to be lifted, and the person responsible for the task to be performed shall be held to review the appropriate requirements of section 5004 of these Orders and the procedures to be followed.

(2) This meeting shall be held prior to the trial lift at each new work location and shall be repeated for any employees newly assigned to the operation.

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

## HISTORY

1. Repealer filed 7-27-73; effective thirtieth day thereafter (Register 73, No. 30).
2. New section filed 12-11-90; operative 1-10-91 (Register 91, No. 4).
3. Editorial correction of printing error in section heading (Register 91, No. 31).
4. Editorial correction of printing errors in subsections (d)(2) and (h)(4) (Register 92, No. 33).
5. Change without regulatory effect amending subsection (i)(3) filed 2-16-95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 7).
6. Editorial correction of subsections (i)(1) and (j)(1) (Register 95, No. 24).
7. Editorial correction of subsection (g)(1) (Register 2005, No. 44).
8. New subsection (d)(7) filed 4-24-2007; operative 5-24-2007 (Register 2007, No. 17).
9. Redesignation and amendment of former subsection (e)(3) to new subsection (e)(3)(A) and new subsection (e)(3)(B) filed 7-17-2008; operative 8-16-2008 (Register 2008, No. 29).
10. Change without regulatory effect amending subsection (d)(2) filed 5-8-2013 pursuant to section 100, title 1, California Code of Regulations (Register 2013, No. 19).



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## **§5005. Notification to the Operators of High-Voltage Lines and Responsibility for Safeguards: (Repealed)**

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### **HISTORY**

1. Repealer filed 7-27-73; effective thirtieth day thereafter (Register 73, No. 30).

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## **§5006. Operators--Qualifications:**

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(a) Only employees authorized by the employer and trained in the safe operation of cranes or hoisting apparatus shall be permitted to operate such equipment.

(b) Trainees may be authorized to operate cranes or hoisting apparatus provided they are under the supervision of a qualified operator.

Exception: Mobile and tower cranes regulated by Section 5006.1.

### **NOTE**

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

### **HISTORY**

1. Amendment of subsection (b) and repealer of subsections (c) and (d) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39.)

2. Amendment of section heading and section filed 7-3-2003; operative 8-2-2003 (Register 2003, No. 27).

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## **§5006.1. Mobile Crane and Tower Crane-Operator Qualifications and Certification:**

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(a) Qualifications. The employer shall only permit operators who have a valid certificate of competency (certificate) issued in accordance with this section by an Accredited Certifying Entity for the type of crane to be used to operate a crane covered by this section. Certificates shall be issued to operators who:

(1) Pass a physical examination conducted by a physician which at a minimum shall include the examination criteria specified in the American Society of Mechanical Engineers (ASME) B30.5-2000 standard, Chapter 5-3.1.2(a)(1-5, 7, 8) or the U.S. Department of Transportation (US DOT) physical examination requirements contained in 49 CFR Sections 391.41 through 391.49.

(2) Pass a substance abuse test. The level of testing shall be consistent with the standard practice for the industry where the crane is in use and this test shall be conducted by a recognized laboratory service;

(3) Pass a written examination developed, validated, and administered in accordance with the Standards for Educational and Psychological Testing (Copyright 1999) published jointly by the Joint Committee of the American Educational Research Association, the American Psychological Association, and the National Council in Measurement in Education. The exam shall test knowledge and skills identified as necessary for safe crane operations and shall, at a minimum, include the following:

(A) operational characteristics and controls, including characteristic and performance questions appropriate to the crane type for which qualification is sought;

(B) emergency control skills, such as a response to fire, power line contact, loss of stability, or control malfunction;

(C) a demonstration of basic arithmetic skills necessary for crane operation and the ability to read and comprehend the crane manufacturer's operation and maintenance instruction materials, including load capacity information (load charts) for the crane for which certification is sought;

(D) knowledge of chapters 5-0 through 5-3 of The American Society of Mechanical Engineers (ASME) B30.5-2000 and B30.5a-2002 Addenda to the standard for mobile and locomotive cranes or chapters 4-0 through 4-3 of the ASME B30.4-1996 standard for portal, tower, and pedestal cranes or Chapter 3-3 of the ASME B 30.3-1996 standard for Construction Tower Cranes, depending on the type of crane(s) the operator intends to operate.

(4) Pass a "hands-on" examination to demonstrate proficiency in operating the specific type of crane, which at a minimum shall include pre-start and post-start inspection, maneuvering skills, shutdown, and securing procedures.

(b) Certification. Certificates shall be valid for a maximum of five (5) years. An Accredited Certifying Entity shall issue the certificate of competency to operators who successfully demonstrate the qualifications set forth in (a)(1)- (4) of this section.

(c) Accredited Certifying Entity. A certifying entity is any organization whose certification program is accredited by either the National Commission for Certifying Agencies (NCCA), or the American National Standards Institute (ANSI). ANSI accreditation shall be in accordance with the requirements of the ANSI, International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) 17024:2003(E), Conformity Assessment-General Requirements for Bodies Operating Certification of Persons, which is hereby incorporated by reference.

(d) Re-certification. Crane operators shall re-certify every five (5) years and shall be required to meet all of the qualifications set forth in subsection (a). Operators with at least one-thousand (1,000) hours of documented experience operating the specific type of crane for which re-certification is sought as covered by this section during the immediately preceding certification period and who meet the physical examination, substance abuse, and written examination requirements set forth in subsections (a)(1), (a)(2) and (a)(3) of this section shall not be required to take the "hands-on" examination specified in subsection (a)(4) to re-certify.

(e) Trainees may be authorized to operate mobile or tower cranes provided they are under the direct supervision of an operator possessing a valid certificate of competency for the type of crane operated by the trainee.

The term direct supervision means the supervising operator is in the immediate area of the trainee and within visual sighting distance and able to effectively communicate with the trainee. When performing direct supervision, the supervising operator shall have no other duties other than to observe the operation of the crane by the trainee.

(f) Effective Date. The requirements of Section 5006.1 shall become effective on June 1, 2005.

#### EXCEPTIONS TO SECTION 5006.1:

(1) Mobile cranes having a boom length of less than 25 feet or a maximum rated load capacity of less than 15,000 pounds.

(2) Operators of electric line trucks (digger derrick trucks) as defined in Section 2700 of the Electrical Safety Orders, and regulated by Section 2940.7 of the High Voltage Electrical Safety Orders. This exception does not include mobile truck cranes designed and built in accordance with the American Society of Mechanical Engineers (ASME) B30.5 standards.

(3) Marine terminal operations regulated by Article 14 of these Orders.

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

## HISTORY

1. New section filed 7-3-2003; operative 8-2-2003 (Register 2003, No. 27).
2. Amendment of subsection (f), Exception 2 filed 12-15-2006; operative 1-14-2007 (Register 2006, No. 50).
3. Amendment of subsection (c) filed 7-27-2009; operative 8-26-2009 (Register 2009, No. 31).

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### **§5008. Operating Practices:**

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(a) Loose material, tools, lunch box, clothing, etc., shall be stored in a manner which will not interfere with the operation of the crane or derrick controls.

(b) The operator shall respond to signals only from the appointed signal person, but shall obey a stop signal at any time.

(c) Whenever the operator doubts the safety of a movement, the operator shall be authorized to stop the hoisting operation until safety has been assured.

(d) A warning signal shall be sounded as required, particularly when approaching workers.

(e) Before leaving the crane unattended, the operator shall be required to:

(1) Land or properly secure any attached load, bucket, lifting magnet, or other device;

(2) Disengage clutch;

(3) Set travel, swing, boom brakes, and other locking devices unless otherwise specified by the certified agents;

(4) Put controls in the "off" position;

(5) Stop the engine or motor;

(6) Secure crane against accidental travel.

(f) Before closing the switch or starting the engine, all controls shall be in the "off" position and all personnel in the clear.

(g) If power fails during operation, the operator shall be required to:

(1) Set all brakes and locking devices;

(2) Move all clutch or other power controls to the "off" position;

(3) If practical, the suspended load shall be landed under brake control.

(h) The operator shall be required to test all controls at the start of a new shift. If any controls do not operate properly, they shall be adjusted or repaired before operations are begun.

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

## HISTORY

1. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).



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### **§5009. Floor-Operated Cranes:**

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(a) Floor-operated cranes shall be operated only by the following:

(1) Designated operators;

(2) Maintenance and test personnel when it is necessary in the performance of their work;

(3) Inspectors in the performance of their duties.

(b) Personnel shall be required by the employer to pass a practical operating examination. Qualifications shall be limited to the specific type of equipment for which they have been examined.

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

### **HISTORY**

1. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 39).