

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833
(916) 274-5721
FAX (916) 274-5743

**NOTICE OF PROPOSED MODIFICATIONS TO
CALIFORNIA CODE OF REGULATIONS**

TITLE 8: Chapter 4, Subchapter 7, Articles 14, 90, 92, 93, and 96; Sections 3472(b), 4884, 4886, 4907(b)(2), 4924(b), 4965, and 4966 of the General Industry Safety Orders

Cranes and Other Hoisting Equipment With Regard to Manufacture Dates:
and the Use of Load Indicating and Load Moment Devices

Pursuant to Government Code Section 11346.8(c), the Occupational Safety and Health Standards Board (Standards Board) gives notice of the opportunity to submit written comments on the above-named regulations in which further modifications are being considered as a result of public comments and/or Board staff evaluation.

On July 19, 2001, the Standards Board held a Public Hearing to consider revisions to Title 8, Sections 3472, 4884, 4886, 4907, 4924, and 4965 of the General Industry Safety Orders, California Code of Regulations. The Standards Board received a written comment on the proposed revisions. The regulations have been further modified as a result of the comment and Board consideration.

A copy of the full text of the regulation as originally proposed, and a copy of the modified text clearly indicating the further modifications, is attached for your information. In addition, a summary of all oral and written comments regarding the original proposal and staff responses is included.

Any written comments on these modifications must be received by 5:00 p.m. on October 18, 2001 at the Occupational Safety and Health Standards Board, 2520 Venture Oaks Way, Suite 350, Sacramento, California 95833. These regulations will be scheduled for adoption at a future business meeting of the Standards Board.

The Standards Board's rulemaking files on the proposed action are open to public inspection Monday through Friday, from 8:00 a.m. to 4:30 p.m., at the Standards Board's office at 2520 Venture Oaks Way, Suite 350, Sacramento, California 95833.

Inquiries concerning the proposed changes may be directed to the Executive Officer, John D. MacLeod at (916) 274-5721.

REGULATIONS AS ORIGINALLY PROPOSED

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Subchapter 7. General Industry Safety Orders
Group 3, Article 14, Marine Terminal Operations

Amend Section 3472 to read:

§3472. Cranes and Other Hoisting Equipment.

(a) All cranes and other hoisting equipment and the operation thereof shall comply with Group 13 and this Article (14).

(b) Every crane not part of a vessel's permanent equipment shall be equipped with a load indicating device, a load moment device, or a device that prevents an overload condition. Only approved devices as defined in the General Safety Industry Orders, Section 3206 approved by the Division shall be used. ~~installed on equipment in California. The requirement for their use on equipment is effective May 15, 1975, which is one year after two devices were approved and available on the market.~~

EXCEPTIONS:

1. Trolley equipped bridge-type cranes while handling containers known to be and identified as empty, or loaded, or while hoisting other lifts by means of a lifting beam supplied by the crane manufacturer for the purpose and in all cases within the crane rating;
2. While handling bulk commodities or cargoes by means of clamshell bucket or magnet;
3. While used to handle or hold hoses in connection with transfer of bulk liquids or other hose handled products; or
4. While the crane is used exclusively to handle cargo or equipment the total actual gross weight of which is known by means of marking of the unit or units hoisted, when such total actual gross weight never exceeds 11,200 pounds, and when 11,200 pounds is less than the rated capacity of the crane at the maximum outreach that is possible under the conditions of use at the time.

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

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Subchapter 7. General Industry Safety Orders
Group 13. Article 90, Cranes and Other Hoisting Equipment

Amend Section 4884 to read:

§4884. Scope.

- (a) The Orders in this Group shall apply to derricks, cranes, and boom-type excavators, but they shall not apply to aerial devices designed and used for positioning personnel (See Article 24).
- (b) Hammerhead tower cranes ~~placed in service~~ manufactured after May 16, 1993 shall conform to ASME B30.3-1990, Hammerhead Tower Cranes.
- (c)(1)(A) Cranes and derricks ~~placed in service~~ manufactured after September 28, 1986, through June 23, 1999, shall be designed, constructed and installed in accordance with the following applicable American National Standards Institute (ANSI) and/or American Society of Mechanical Engineers (ASME) standards or those listed in subsection (c)(1)(B):
B30.2-1983, Overhead and Gantry Cranes (Top Running Bridge Multiple Girder)
B30.3-1975, Hammerhead Tower Cranes
B30.4-1981, Portal, Tower and Pillar Cranes
B30.5-1982, Crawler, Locomotive and Truck Cranes
B30.6-1977, Derricks
B30.7-1977, Base Mounted Drum Hoists
B30.8-1982, Floating Cranes and Floating Derricks
B30.11-1980, Monorails and Underhung Cranes
B30.13-1977, Controlled Mechanical Storage Cranes
B30.17-1980, Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)
- (B) Cranes and derricks ~~placed in service~~ manufactured after June 23, 1999 shall be designed, constructed and installed in accordance with the following applicable American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) standards which are hereby incorporated by reference:
B30.2-1996, Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
B30.3-1996, Construction Tower Cranes
B30.4-1996, Portal, Tower and Pedestal Cranes
B30.5-1994, Mobile and Locomotive Cranes
B30.6-1995, Derricks
B30.7-1994, Base Mounted Drum Hoists
B30.8-1993, Floating Cranes and Floating Derricks
B30.11-1993, Monorails and Underhung Cranes
B30.13-1996, Storage/Retrieval (S/R) Machines and Associated Equipment

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

(Section 4884 continued)

B30.17-1992, Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)

(2) Articulating boom cranes manufactured ~~and placed in service~~ after May 16, 1993 shall conform to these regulations and be provided with a permanently attached metal label stating that the equipment has been designed and constructed in accordance with ASME/ANSI B30.22-1987, and B30.22a-1988 Addenda, Articulating Boom Cranes, herein incorporated by reference, or has been approved as required by the provisions of Section 3206 of these orders.

(d)(1) Except as provided in subsection (d)(2), all cranes and derricks ~~placed in service~~ manufactured prior to September 28, 1986, shall conform to this subsection and shall be designed, constructed and installed in accordance with the following applicable ANSI standards:

B30.2-1967, Overhead and Gantry Cranes

B30.4-1973, Portal, Tower, and Pillar Cranes

B30.5-1968, Crawler, Locomotive and Truck Cranes

B30.6-1969, Derricks

B30.15-1973, Mobile Hydraulic Cranes

EXCEPTION: Section 15-1.3.2(d) of B30.15-1973, Two-Blocking Damage Prevention Feature.

(2) Cranes ~~placed in service~~ manufactured prior to January 15, 1974, shall be modified to comply with applicable regulations in Group 13, Cranes and Other Hoisting Equipment of the General Industry Safety Orders, unless it can be shown during the process of certification that a crane cannot feasibly or economically be modified to comply with any one or more applicable requirements and the crane substantially complies with applicable Group 13 regulations and the ANSI or other design standard to which the crane was manufactured.

(e) Cranes and derricks which do not meet the applicable ANSI standards shall be designed, constructed and installed in accordance with the recommendations of a currently registered mechanical or civil engineer.

(f) Cranes and derricks shall be operated, tested, inspected and maintained in accordance with these Orders.

(g) All electrically powered cranes and derricks shall also comply with applicable electrical safety orders.

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

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

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

**Subchapter 7. General Industry Safety Orders
Group 13. Cranes and Other Hoisting Equipment
Article 92. Cranes (Except Boom-Type Mobile Cranes)**

Amend Sections 4886 and 4907 to read:

§4886. Purpose.

The orders in this Article apply to overhead traveling or bridge cranes, storage cranes, gantry cranes, portal cranes, jib cranes, pillar cranes, ~~hammerhead cranes~~, pintle cranes, wall cranes, polar cranes of rated capacity exceeding one ton, and any modification of these types which retain their characteristic features except when an order is specific as to type of crane.

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

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

§4907. Capacity Marking and Load Indication.

(a) The maximum rated load of all bridge or fixed radius cranes shall be plainly marked on each side of the crane, and if the crane has more than one hoisting unit, each hoist shall have marked on it or its load block its rated capacity, and this shall be clearly legible from the ground or floor.

(b) Each variable radius boom-type crane shall be equipped with a boom angle or a boom radius indicator and a clearly legible load rating chart in clear view from the operator's position.

(1) Cranes having a boom exceeding 60 feet in length or a maximum rated capacity exceeding 15 tons shall be provided with an approved boom angle indicator which clearly shows the boom angle in degrees to the operator at all times. The indicator shall give a clear visual warning signal before high or low unsafe boom angles are reached. The indicator shall be mounted in the cab, adjustable and under control of the operator at all times, and a visual inspection of the indicator shall be made each day by the operator to see that it is properly functioning.

(2) Cranes having either a maximum rated boom exceeding 200 feet or a maximum rated capacity exceeding 50 tons shall be equipped with a load indicating device, a load moment device, or a device that prevents an overload condition. Only ~~devices~~ approved devices as defined in the General Industry Safety Orders, Section 3206 ~~by the Division~~ shall be ~~installed~~ used.

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

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

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

**Subchapter 7. General Industry Safety Orders
Group 13. Cranes and Other Hoisting Equipment
Article 93. Boom-Type Mobile Cranes**

Amend Section 4924 to read:

§4924. Load Safety Devices.

(a) All cranes having a maximum rated capacity exceeding one ton shall be equipped with safety devices as provided herein.

EXCEPTIONS: 1. Boom-type excavators used in excavation work and all equipment used exclusively for pile driving or log handling.

2. Articulating boom cranes are exempt from the provisions of subsections (c) and (d).

(b) All mobile cranes including truck-mounted tower cranes, except as provided above, having either a maximum rated boom length exceeding 200 feet or a maximum rated capacity exceeding 50 tons shall be equipped with a load indicating device or a load moment device, or a device that prevents an overload condition. Only ~~devices~~ approved devices as defined in the General Industry Safety Orders, Section 3206 ~~by the Division~~ shall be used.

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

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Subchapter 7. General Industry Safety Orders
Group 13. Cranes and Other Hoisting Equipment
Article 96. Tower Cranes

Amend Section 4965 to read:

§4965. General.

(a) The requirements of this Article shall apply to all tower cranes, ~~of the general type such as those having a revolving horizontal boom with counterweight on a single vertical mast~~ including hammerhead, climber, free standing, mobile, and self-erector types.

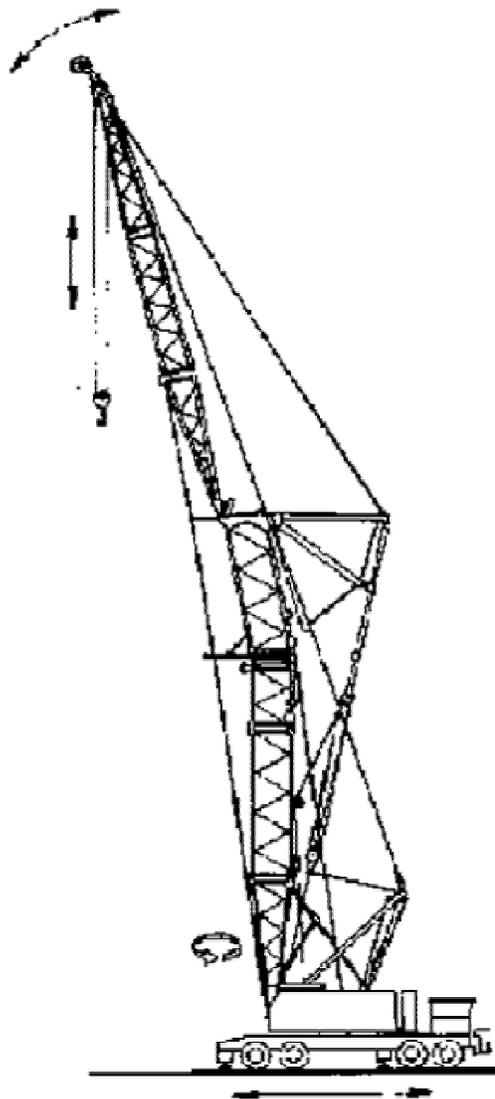
NOTE: Authority Cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

PROPOSED MODIFICATIONS
(Modifications are indicated by
bold, double underline wording for new language and
bold, strikethrough for deleted language.)
(Only modified pages are included.)

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Amend Section 4885, Figure 15 to read as follows:



MOBILE ~~TOWER~~ CRANE
WITH TOWER ATTACHMENT

Fig. 15

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

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

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

**Subchapter 7. General Industry Safety Orders
Group 13. Cranes and Other Hoisting Equipment
Article 96. Tower Cranes**

Amend Section 4965 to read:

§4965. General.

(a) The requirements of this Article shall apply to ~~all tower cranes, of the general type such as those having a revolving horizontal boom with counterweight on a single vertical mast~~ **of the general type such as those having a revolving boom with counterweight on a single vertical mast, and mobile tower cranes, including hammerhead, climber, free standing, mobile, and self-erector types.**

(g) Parts of the crane requiring adjustment or maintenance shall be provided with access walkways, handholds, footholds, safety lines, or other safeguards as necessary to eliminate the hazard of falling from the crane.

EXCEPTION: Mobile tower crane adjustment or maintenance that can be achieved from the ground.

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

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Amend Section 4966 to read:

§4966. Erection, Dismantling and Operation.

(a) Erection and Dismantling.

(1) The erection, climbing (up and down) and dismantling of a **fixed** tower crane shall comply with the requirements of Title 8, Section 341.1(b)(2).

(A) Employees engaged in the erection and/or dismantling of tower cranes and the inspection, maintenance or repair related to such erection and/or dismantling, when working at elevations 15 feet or greater over ground or other surfaces shall be required to use fall protection as specified in Article 24 of the Construction Safety Orders.

(2) Guys, braces and other supports shall be employed as necessary to prevent damage or collapse of the equipment during the erection and dismantling procedures.

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

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Subchapter 7. General Industry Safety Orders
Group 13. Cranes and Other Hoisting Equipment
Article 96. Tower Cranes

Amend Section 4968 to read:

§4968. Safety Devices.

All tower cranes, excluding mobile tower cranes (~~see Figure 15 in Article 91~~), shall have the following safety devices:

(a) Visual warning devices:

- (1) A warning light which shall be activated at 100 percent of the rated load, or
- (2) Electronic instrumentation provided by the certified agent that gives a continuous direct reading of the load weight and the trolley radius.

(b) An audible signal that operates at 105 percent of the rated load.

(c) An automatic stop that operates at 110 percent of the rated load.

(d) Limit devices to:

- (1) Provide predeceleration before top and bottom positions of the hook are reached.
- (2) Limit the trolley traveling both in and out.

(e) Constant pressure control devices which automatically return to neutral or the "off" position when released by the operator.

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

SUMMARY AND RESPONSE TO COMMENTS

SUMMARY AND RESPONSE TO ORAL AND WRITTEN COMMENTS

I. Written Comments

Mr. Brad Closson, Executive Vice President, North American Crane Bureau by letter dated June 4, 2001.

Comment No. 1

Mr. Closson expressed concern with the proposed amendments to Section 4965(a), which is the scope section for Article 96, Tower Cranes. Mr. Closson provided background information stating that the California Labor Code (LC) Section 7371(c) and (d) defines “tower cranes” and “mobile tower cranes” respectively. Mr. Closson commented that all mobile tower cranes only become a tower crane when they meet the definition of a “tower crane.” The definition of a tower crane requires that the tower be vertical. Mr. Closson further noted that most, if not all, mobile tower cranes require that their tower (mast) be set at approximately 87 degrees or less due to the manufacturer’s design and recommendations in crane operating manuals. He further indicated that mobile tower cranes were not considered in existing Article 96 regulations and points out possible conflicts as noted in Comment No. 2.

Response

Certain self-erecting mobile type cranes have their tower or mast set in the vertical position and as noted by Mr. Closson, other mobile tower cranes have a mast or tower that operates at approximately 87 degrees or in a near vertical position. “Mobile tower cranes” are separately defined in LC Section 7371(d) independent of the definition for “tower crane.” The Board believes the LC intent was to include mobile tower cranes as a type of tower crane as they are included in LC Section 5, Cranes, Article 1, “Permits for Tower Cranes.” Board staff discussed the LC definitions as well as Title 8 definitions in Section 4885 for tower cranes and mobile tower cranes with Mr. Closson and Division representatives and believe the proposed modifications for Section 4965(a) will address Mr. Closson’s concerns. Modifications are proposed that will read similar to the existing Section 4965(a) except that mobile tower cranes are added to the general scope section after the qualifying language that tower cranes must have “a vertical mast.”

The final version of the subsection as modified is proposed to read, “The requirements of this Article shall apply to cranes of the general type such as those having a revolving boom with counterweight on a single vertical mast, and mobile tower cranes.” It should be noted that the word “horizontal” in relation to crane booms is omitted in the proposed modifications to the proposal. This is because a luffing tower crane boom has a mechanism to raise and lower the boom in a vertical plane and leaving the term “horizontal” boom in the text would omit this type of crane from the scope section.

Comment No. 2

Mr. Closson pointed out regulations in Article 96, Tower Cranes that may not be applicable or may be in conflict with the design of mobile tower cranes. Section 4965(d) in part requires cranes to be equipped with a device that will effectively prevent overloading beyond the certified agent's recommendations. Mr. Closson notes the only diagram of a "mobile tower crane" in the safety orders is depicted in Figure 15. He believes the figure depicted in Figure 15 is not a mobile tower crane but rather a boom-type mobile crane covered by Article 93 of the crane orders. The type of crane depicted in Figure 15, could cause conflicting requirements for overload devices.

Response

Board staff concurs that the diagram depicted in Section 4885, Figure 15 is a mobile crane with a boom attachment and is not an adequate example of a mobile tower crane that would be subject to Article 96 regulations. Board staff is proposing modifications to rename Figure 15 to read "Mobile Crane With Tower Attachment."

Comment No. 3

Mr. Closson stated that all mobile tower cranes are not designed to the same requirements as tower cranes. There are not walkways to all areas needing adjustment [as required by Section 4965(g)]. Extensive retrofitting, if at all possible, by owners and approved by the manufacturers would be required on the cranes.

Response

Often maintenance and adjustments required on mobile tower cranes is achieved at the ground level, which eliminates fall hazards and makes extensive retrofitting unnecessary. Therefore, Board staff is proposing a modification to address this comment by providing an exception to Section 4965(g) for mobile tower adjustment or maintenance that can be achieved from the ground.

Comment No. 4

Mr. Closson stated that Section 4966(a)(1) is specifically related to fixed tower cranes as seen by its reference to Section 341.1(b)(2) which provides special permit related provisions for fixed tower cranes. By including mobile tower cranes in the definition of a "tower crane" the regulated public will be confused as to what permitting requirements apply to which type of crane.

Response

Section 4966(a)(1) states "The erection, climbing (up and down) and dismantling of a tower crane shall comply with the requirements of Title 8, Section 341.1(b)(2). The term "climbing" with respect to tower cranes is the process whereby an entire crane is raised on or within a

structure that is under construction. The term is generally used in relation to changing the height (up or down) of fixed tower cranes. Additionally, when one reads the referenced Section 341.1(b)(2), it is clear that it applies only to fixed tower cranes. The Board concurs that there could be a clarity issue and, therefore, has proposed an editorial modification in the first sentence of Section 4966(a)(1) to insert the word “fixed” between the words “a” and “tower.”

Comment No. 5

Mr. Closson recommended that the Board should not adopt the proposed change to Section 4965(a). He indicated that a more accurate definition of the cranes to be included in the section should be accomplished including a review of the specific sections in Article 96 for their applicability and achievability to the crane types included in the proposal.

Response

Board staff discussed the proposed modifications to Sections 4885, Figure 15; 4965(a) & (g); 4966; and Section 4968 with Mr. Closson and the Division’s Crane Unit and believes the proposed modifications will address Mr. Closson’s concerns. Also see the response to Comment No. 1.

The Board thanks Mr. Closson for his comments and participation in the Board’s rulemaking process.

II. Oral Comments

There were no comments received at the July 19, 2001 Public Hearing.