

State of California
Department of Industrial Relations
Division of Occupational Safety and Health

Memorandum

Date: April 23, 2019

To: Christina Shupe, Executive Officer
Occupational Safety and Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833

From: Eric Berg, Deputy Chief *Eric Berg*
Division of Occupational Safety and Health
Research and Standards unit

Subject: Evaluation of Petition No. 574 to amend title 8 section 1604.5

1.0 INTRODUCTION AND BACKGROUND ON PETITIONER

On December 31, 2018 the Division of Occupational Safety and Health (Cal/OSHA) received a petition from Michael Vlaming, Executive Director of the Construction Elevator Contractors Association (CECA). The CECA was established in 2006 and represents construction elevator rental contractors in collective bargaining agreement negotiation and administration, safety trainings, development of industry best practices, group marketing, and promotional activities. The CECA currently represents Bigge Crane and Rigging, Bragg Crane and Rigging, Cabrillo Hoist, Maxim Crane Works, McDonough Elevators, Morrow Equipment, and Sheedy Hoist.

The petitioner is requesting a change to title 8, section 1604.5, Construction of Towers, Masts, and Hoistway Enclosures, to require construction elevator anchors to be installed in accordance with elevator manufacturer's specifications in lieu of the vertical intervals currently required.

Labor Code Section 142.2 permits interested persons to propose new or revised standards concerning occupational safety and health, and requires the Occupational Safety and Health Standards Board (Standards Board) to consider such proposals and render a decision no later than six months following receipt.

California Labor Code section 147 requires the Standards Board to refer to Cal/OSHA for evaluation of any proposed occupational safety and health standard. Cal/OSHA is required to submit a report on the proposal within 60 days of receipt.

2.0 REQUIREMENTS OF TITLE 8 1604.5(d)(2) AND PROPOSED AMENDMENTS

Currently, title 8 subsection 1604.5(d)(2) requires construction elevator anchors to be installed at vertical intervals not to exceed 30 feet. The petitioner proposes to delete the 30-foot interval requirement and replace it with a requirement that anchors be installed at vertical intervals specified by the elevator manufacturer.

The proposed amendment is shown below in underline-strikeout format.

Subchapter 4. Construction Safety Orders
 Article 14. Construction Hoists
 §1604.5. Construction of Towers, Masts, and Hoistway Enclosures.

* * * * *

(d) Hoist Structure.

* * * * *

(2) Each hoist structure shall be anchored to the building or other structure ~~at vertical intervals not exceeding 30 feet.~~ in accordance with, or be equal to, manufacturer's specifications. Where the building or other structure is of such character that tie-ins cannot be made, the hoist structure shall be guyed by means of a suitable number of guys. Such guys shall be fastened to adequate anchorages to ensure hoist structure stability. When wire rope is used for guys, the rope shall be at least 1/2-inch in diameter.

* * * * *

3.0 APPLICABLE FEDERAL OSHA REGULATIONS

Federal OSHA regulations address the installation of construction elevators in title 29 Code of Federal Regulations (CFR) Part 1926 Subpart N of the Regulations for Construction. Subsection 1926.552(c)(3) contains specific requirements for the anchoring of construction personnel hoist towers.

29 CFR Part 1926. Safety and Health Regulations for Construction
 Subpart N. Helicopters, Hoists, Elevators, and Conveyors.

§1926.552(c) Personnel hoists.

1926.552(c)(3) Towers shall be anchored to the structure at intervals not exceeding 25 feet. In addition to tie-ins, a series of guys shall be installed. Where tie-ins are not practical the tower shall be anchored by means of guys made of wire rope at least one-half inch in diameter, securely fastened to anchorage to ensure stability.

4.0 APPLICABLE CONSENSUS STANDARDS

The American National Standards Institute (ANSI) and American Society of Safety Engineers (ASSE) address the design, construction, installation, inspection, operation, and maintenance of construction personnel hoists in ANSI/ASSE A10.4 *Safety Requirements for Personnel Hoists and Employee Elevators on Construction and Demolition Sites*. The sections from the 2007 and 2016 editions of this standard applicable to this petition are as follows.

ANSI/ASSE A10.4 -2007 Safety Requirements for Personnel Hoists and Employee Elevators on Construction and Demolition Sites

5.4.2 Each hoist structure shall be anchored to the building or other structure at vertical intervals not over 30 feet (9.14m) as measured on the tower. Where the building or other structure is of such construction that tie-ins cannot be made, other means of securing the mast to the structure shall be designed by the manufacturer or by a qualified engineer. The hoist structure shall be guyed by means of a suitable number of guys. Such guys shall be fastened to adequate anchorages to ensure the stability of the hoist structure. When wire rope is used for guys, the rope shall be at least 1/2 inch (1.27cm) in diameter.

5.4.3 Tie-ins shall conform to or be equal to manufacturer specifications and shall remain in place until the tower or mast is dismantled. Where tie-ins for cantilever hoist towers are over eight feet (2.44m) in length, measured from the center of the tower to the point of attachment on the structure, the hoist installation shall be designed by a representative of the manufacturer or a qualified engineer. They shall be installed only with the written consent of the manufacturer or upon certification by a qualified engineer. The data shall be available to the enforcing authority prior to acceptance of installation.

ANSI/ASSE A10.4 -2016 Safety Requirements for Personnel Hoists and Employee Elevators on Construction and Demolition Sites

5.4.2 Each hoist structure shall be anchored to the building or other structure at vertical intervals in accordance with manufacturers design specifications. Where the building or other structure is of such construction that tie-ins cannot be made, other means of securing the mast to the structure shall be designed by the manufacturer or by a registered professional engineer.

5.4.3 Tie-ins shall conform to or be equal to manufacturer specifications and shall remain in place until the tower or mast is dismantled.

5.0 HAZARDS TO EMPLOYEES RIDING CONSTRUCTION ELEVATORS THAT ARE NOT PROPERLY ANCHORED

Construction elevators that are not properly anchored can expose employees to serious hazards. Anchoring the hoist tower of an elevator to a building or structure is crucial to ensure the tower remains vertical, aligned and properly secured to prevent disconnection from the building or structure. Potential injuries to employees resulting from the failure of anchors include:

1. Concussions
2. Crushing injuries
3. Amputations
4. Fractures
5. Punctures
6. Contusions
7. Abrasions

6.0 PETITIONER'S BASIS TO AMEND TITLE 8 REGULATIONS

The petitioner contends that the proposed amendment is necessary due to inconsistent enforcement of subsection 1604.5(d)(2) and deviation from the consensus standards on which the requirements were originally based.

6.1 Cal/OSHA has been inconsistent in enforcing elevator anchor requirements

The petitioner asserts that Cal/OSHA has not been consistent when enforcing subsection 1604.5(d)(2) due to possible conflicting requirements in subsection 1604.5(d)(3). The requirements of these two subsections are as follows:

§1604.5. Construction of Towers, Masts, and Hoistway Enclosures.

* * * * *

(d) Hoist Structure.

* * * * *

(2) Each hoist structure shall be anchored to the building or other structure at vertical intervals not exceeding 30 feet. Where the building or other structure is of such character that tie-ins cannot be made, the hoist structure shall be guyed by means of a suitable number of guys. Such guys shall be fastened to adequate anchorages to ensure hoist structure stability. When wire rope is used for guys, the rope shall be at least 1/2-inch in diameter.

(3) Tie-ins shall conform to, or be equal to, the manufacturer's specifications and shall remain in place until the tower or mast is dismantled.

* * * * *

The petitioner contends that these two subsections include differing requirements for the spacing of elevator tie-ins. Subsection 1604.5(d)(2) requires elevator towers to be anchored to the structure via tie-ins at intervals of no more than 30 feet. Subsection 1604.5(d)(3) requires tie-ins to conform to, or be equal to, the manufacturer's specifications. This difference in regulatory language of the two subsections, the petitioner claims, has resulted in CECA members experiencing inconsistent enforcement of the regulation by Cal/OSHA enforcement staff.

6.2 Subsection 1604.5(d)(2) deviates from consensus standards

The petitioner asserts that subsection 1604.5(d)(2) was based on language included in a consensus standard (ANSI/ASSE A10.4) that was recently amended. Due to this amendment, the petitioner argues that subsection 1604.5(d)(2) now deviates from the current edition of ANSI/ASSE A10.4 and, thereby, the original intent of the regulation. As evidence of this assertion, the petitioner refers to the 2007 and 2016 editions of ANSI 10.4 included in part 4.0 of this evaluation.

The petitioner opines that the language of section 5.4.2 of ANSI/ASSE A10.4-2007 is very similar to that of title 8 section 1604.5(d)(2) requiring construction elevator anchors at vertical intervals not to exceed 30 feet.

5.4.2 Each hoist structure shall be anchored to the building or other structure at vertical intervals not over 30 feet (9.14m) as measured on the tower...

The language of the 2016 edition of ANSI/ASSE A10.4, the petitioner adds, was amended to allow anchors to be installed at vertical intervals in accordance with manufacturer's design specifications.

5.4.2 Each hoist structure shall be anchored to the building or other structure at vertical intervals in accordance with manufacturers design specifications...

The petitioner contends that, due to this disparity, section 1604.5(d)(2) is no longer harmonized with consensus standards in the construction elevator industry and deviates from the intent of the original regulation.

7.0 ANALYSIS

7.1 Subsections 1604.5(d)(2) and 1604.5(d)(3) address different elevator components

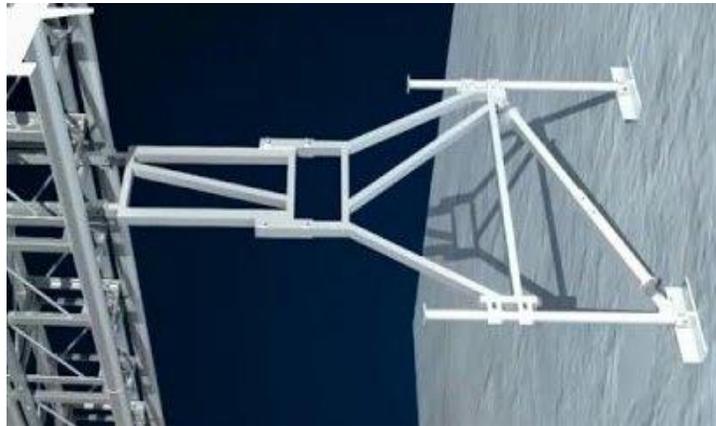
Cal/OSHA disagrees that subsections 1604.5(d)(2) and 1604.5(d)(3) include differing requirements for elevator anchor placement.

The requirements of subsection 1604.5(d)(2) refer to the location(s) at which an elevator tower must be anchored to the building or structure via a tie-in. The anchor is the physical connection that fastens a tie-in to a structure.

Subsection 1604.5(d)(3) does not contain requirements regarding the location of anchor points, but rather requires the elevator tie-ins to be in conformance with or equal to the manufacturer's specifications. Pictures 1 and 2 illustrate examples of an anchors and tie-in respectively.



Picture 1. Anchor for an elevator hoist structure



Picture 2. Tie-in

The petitioner's argument that these two subsections conflict does not have merit as it conflates two separate requirements that refer to different components used to secure a construction elevator tower.

Cal/OSHA believes that the requirements of subsections 1604.5(d)(2) and 1604.5(d)(3) are clear and distinct. There is no need for clarification based on inconsistent enforcement by Cal/OSHA field staff. Such inconsistency would be addressed most effectively by communication between the regulated community and the appropriate units of Cal/OSHA.

7.2 Title 8 regulations are not required to conform to consensus standards

Although title 8 subsection 1604.5(d)(3) was promulgated with guidance from the 1973 edition of ANSI/ASSE A10.4, there is no statutory requirement for title 8 regulations to comply with consensus standards.

7.3 Proposed amendments would be difficult to evaluate in the field

The petitioner's proposal to use only the manufacturer's design specifications to determine the vertical intervals of elevator tower anchors introduces many variables that must be evaluated. For example, the manual for an Alimak Skando 650 elevator was reviewed for this petition to determine proper anchor spacing. Vertical spacing between anchors, according to the manual, varies between 9 and 15 meters (29.5 and 49.2 feet) depending on many factors including type of mast section, dimension of mast tube material, single or dual car, car speed, number of mast sections, type of tie-ins used, and overhangs. Such broad ranges of manufacturer's specifications will make it difficult for the Cal/OSHA Elevator Unit and other field personnel to evaluate and calculate proper anchor spacing in the field during permit and compliance inspections.

7.3 Petitioner's proposal is not as effective as federal regulations

Finally, the proposed amendments to subsection 1604.5(d)(2) do not comply with federal OSHA regulations. 29 CFR 1926.552(c)(3), included in part 3.0 of this evaluation, requires construction elevators to be anchored to a structure at intervals not exceeding 25 feet. As discussed in part 7.3 of this evaluation, elevator manufacturer's specifications, such as those reviewed for the Alimak Skando 650, may allow for spacing nearly double that allowed by federal OSHA. Labor Code section 142.3 requires title 8 regulations to be at least as effective as the federal OSHA standards.

8.0 CONCLUSION – THE PETITION SHOULD BE DENIED

Cal/OSHA has reviewed the petitioner's proposed changes to title 8 subsection 1604.5(d)(2). The review included information provided in the petitioner's application, applicable federal osha and consensus standards, review of elevator installation documentation and communications with the Cal/OSHA Elevator Unit.

Based on the information gathered during the evaluation, Cal/OSHA recommends the Occupational Safety and Health Standards Board deny this petition.

cc: Larry McCune
Jason Denning